



UNIVERSIDAD DE LAS PALMAS  
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## **Final Degree Project in Nursing ULPGC**

### **Care Plan for a Patient with Childhood Obesity Approach from Primary Health Care**

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## ABSTRACT

Nowadays, obesity has become an increasing health problem globally, in both children and adults. WHO estimates that obesity has reached epidemic proportions across the world, considering *childhood obesity* one of the most serious problems in public health in the XXI century.

**Objective:** to develop a care plan for a child in primary health, trying to change lifestyle habits to be able to reverse the obesity situation suffered.

**Methodology:** a bibliographic research has been carried out to identify the *risk factors* which help in the weight gain, paying close attention to the factors in relation to the lifestyle. Subsequently, the Nursing Care Plan (NCP) has been carried out to contribute to tackle, from the autonomy that *nursing* has, a problematic situation of *childhood obesity*. The scientific method used is based on a methodical and systematic procedure of health problem solving, which is aimed to cover the basic needs of the patient. For this, we use NANDA, NIC and NOC taxonomy as a method of action to help organize the clinical practice.

**Findings:** we have managed to eliminate the diagnostic label of the altered patterns, succeeding in restoring the health of the patient and his family. All of these have been possible by performing a multidisciplinary task: medical, nursing and family.

**Conclusions:** we have managed to restore the situation of obesity in the child patient, achieving a significant weight loss and reducing the BMI. The patient and the family have drastically changed their lifestyle habits for healthier ones. The increasing *physical activity* and getting rid of high-calorie foods such as pastry, refined sugar and fried foods, have been the strategy carried out to improve the health of the patient.

**Keywords:** *Childhood obesity - risk factors- physical activity- nursing.*

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## 1. INTRODUCTION

Obesity is the most prevalent nutritional and metabolic disorder and chronic non-communicable disease (CNCD) in the paediatric age group. For the first time, there are more overweight people in the world than people with malnutrition and the data suggest that its prevalence will double in the next thirty years. The World Health Organization (WHO) declares it the 'New World Syndrome' and the 57<sup>th</sup> World Health Assembly in May 2004, 'the epidemic of XXI century' <sup>(1)</sup>. Therefore, childhood obesity is a public health problem which needs to be addressed, recognising that it is a chronic course disease of multifactorial aetiology <sup>(2)</sup>. Childhood obesity has important consequences in adulthood since between 77 % and 92 % of obese children and teenagers will continue to be obese <sup>(3)</sup>.

Obesity is a metabolic disorder which is defined as an excess body fat resulting from the imbalance between the calorie intake and the total energy expenditure. When the nutrients intake is higher than those consumed, the result is fat storage in the adipose tissues of the body <sup>(4)</sup>. The accumulation of fat in the body is a 'continuum', in such a way that at the start we talk about overweight and when the accumulation is bigger we call it obesity <sup>(5)</sup>.

The excess weight is normally calculated using the Body Mass Index (BMI), which is an excellent way to measure body fat. Obesity and overweight are defined using percentiles regarding the BMI. Therefore, in the childhood stage from the age of two, when the percentile is above 97, it meets the criterion for obesity, and those who have the BMI between percentiles of 85 and 97 belong to the overweight range <sup>(6,7)</sup>.

At present, children are registering diseases which are common in adults, such as diabetes, high blood pressure, coronary disease, brain vascular disease and dyslipidemia, which leads them to suffer the so-called metabolic syndrome <sup>(8,9)</sup>; in addition to that, several types of cancer like breast, esophagus, colon and kidney cancer are among the most frequent <sup>(10,11)</sup>.

The non-communicable diseases (NCD) are the first cause of mortality, morbidity and disability in the medical environment. According to data from the WHO global report, in the year 2012 there were 58 million deaths caused by these NCDs. Some of the consequences are related to high blood pressure, excess weight, excessive energy intake, a diet poor in fruit, vegetables and fibre, or a diet high in saturated fats. These factors and others are related to nutrition and feeding, so they can be modified <sup>(12)</sup>. Lifestyle is a determining factor for the incidence of this problem, understood these as the behaviour and /or attitudes which people develop <sup>(13)</sup>.

## **1.1. JUSTIFICATION**

Obesity is one of the most common diseases in childhood and it is a global public health problem. The changes in lifestyle, adopting sedentary behaviours and the excessive intake of high calorie food, have predisposed the onset of obesity in earlier ages. The extent of youth obesity in Spain and particularly in the Canary Islands makes it a major problem. For this reason, it is necessary to tackle it quickly, by designing strategies such as care plans to try to reduce childhood obesity from primary health care (PHC). In this sense, the nutritional education as an essential and complementary strategy must be promoted from PHC. Healthcare professionals, and especially nurses, have an important role in the health centers since it is the first point of entry in the healthcare system. For this reason, carrying out this Final Degree Project (FDP) is a way to assert the autonomy that nursing has as regards to the preparation of the care plan.

## **1.2. THEORETICAL FRAMEWORK**

### **1.2.1. Aetiology**

Obesity has a multifactorial origin which involves genetic susceptibility, lifestyle and the characteristics of the environment. In this phenomenon, the individual behaviour and the family, community and social environment <sup>(14,15)</sup> have a leading role. The main cause for overweight and obesity is an energy imbalance between the intake of calories and their expenditure. Mainly, this is due to an increase in the intake of high calorie food, which are rich in fats, salt and sugar, as well as a decrease in physical activity <sup>(16)</sup>. An environment which promotes the intake of high energy dense food effortlessly together with a decrease in the physical activity cause a weight gain in children, which inevitably lead them to get obese <sup>(12)</sup>.

### **1.2.2. Prevalence**

The behaviours that promote childhood obesity have increased in the last few decades due to eating habits and lifestyle, creating an increase in the prevalence of childhood obesity across the world. In Spain, 30.7% of children aged between 8 and 13 are overweight and 14.7% are obese. The prevalence according to gender, 28.6% of boys are overweight versus 23.5% of girls. However, the percentage of girls and boys who are obese is very similar, 12.9% of the boys and 12.3% of the girls <sup>(17)</sup>. The highest obesity and overweight prevalence

rates can be seen in the Canary Islands and the southern regions of Spain, both in boys and girls in all age groups. The lowest rates can be seen in the north and northeastern Spanish regions <sup>(18)</sup>. Besides, the obesity prevalence was higher in boys aged between 6 and 14 who consumed cured meats more frequently. Nevertheless, the prevalence of obesity was less in children and young people who consumed fruit and vegetables <sup>(17)</sup>.

The children who have a complete breakfast show lower obesity rates than those who do not have breakfast or have an incomplete breakfast. As regards to the amount of time spent daily in sedentary activities (studying, watching TV, on the computer, playing videogames...), the obesity prevalence was higher in boys and girls who spent more time in these activities compared to those that spent less time doing these kind of activities. The obesity prevalence in boys and girls who did not practise any sport regularly was higher in comparison with those who usually did exercise <sup>(17)</sup>.

### **1.2.3. Epidemiology**

Chronic diseases take up most of the work from the primary health care staff in Spain <sup>(19)</sup>. Nonetheless, when it comes to obesity and overweight we can talk about reaching epidemic proportions, according to the Spanish Study ALADINO, the obesity and overweight prevalence has grown in the last few decades in Spain, a circumstance which increases, to a larger extent, in children and teenagers, placing this prevalence among the highest in Europe. Regarding how this problem has spread in Spain in the last few years, we can already see in the Spanish study enKid, carried out between 1998 and 2000 in people aged 2 to 24, that the results obtained show the prevalence of excess weight of 26.3%, of obesity 13.9% and of overweight 12.4%. Another remarkable datum is that, in age group intervals, the highest prevalence it appears in children aged 6 to 13 <sup>(20)</sup>.

It is interesting to highlight that, eleven years after the enKid study <sup>(20)</sup>, and comparing it to the ALADINO study, carried out in children aged 6 to 10, the excess weight prevalence has remained relatively stable (enKid 30.4% versus 30.8% of ALADINO). However, by gender, women have increased the prevalence of overweight (from 13% to 13.8%) although the obesity prevalence is more noticeable, (from 9.8% to 14.2%), an alarming circumstance that must be taken into account in future investigations and interventions <sup>(19)</sup>.

#### 1.2.4. Diagnosis

According to the definition, obesity must be diagnosed with methods which assess both the weight gain and the changes in the patient's body composition. However, there is no a unique method which provides these information. Among the first category, the BMI and the percentage of overweight in relation to the size, and in the second one, the skin folds<sup>(21)</sup>. For this reason, from a practical point of view, anthropometric measurements are preferred, these are weight, size, perimeters and skin folds<sup>(22)</sup>.

In the specific case of Spain, there are growth charts available from the Orbegozo Foundation which were made in 1988 and have been updated periodically, they were last updated in 2011. The criterium applied to define overweight is higher than 85 percentile BMI from people of the same gender and age group, while obesity is determined when the percentile is above 97<sup>(23)</sup>.

#### 1.2.5. Prognosis

The consequences of childhood obesity for the health include numerous kinds of medical problems; orthopaedic, pulmonary, digestive, neurological and endocrinological. Also, it is associated with metabolic consequences and risk factors like insulin resistance, high levels of blood pressure and plasma lipids<sup>(24)</sup>. Obesity during childhood and adolescence is associated to several disorders in the body and there is a significant risk of diseases in adulthood<sup>(25,26)</sup>.

- Short term morbidity: the excess of weight causes metabolic alterations like insulin resistance and high LDL cholesterol and low HDL cholesterol, respiratory (exertional dyspnoea during physical exercise, asthma and sleep apnoea), gastrointestinal (abdominal pain, esophageal reflux and constipation), orthopaedic (flat feet and scoliosis), psychological and social (low self-esteem, anxiety, depression, unsatisfied with the body image and social isolation) and others (appearance of violet stretch marks, sleeping disorders, dental cavities and more frequent infections)<sup>(25,26)</sup>.
- Long term morbidity: the excess of body fat increases the risk of suffering diabetes mellitus type 2, high blood pressure and heart disease in adulthood. Furthermore, childhood obesity increments the probability to be overweight in the adult years and it is related to a shorter life expectancy<sup>(25,26)</sup>.

### **1.2.6. Prevention**

To implicate the parents actively promoting the acquisition of proper knowledge to adopt healthy habits. This would allow that changes are prolonged in time, as the family is the core of the education during childhood. Dietary patterns, physical activity and lifestyle are reinforced by family members. Furthermore, nutritional information and advice to families is essential to encourage healthier food choices. Recommending children regular practise of physical activity and highlighting the advantages for their health, not only for maintaining a healthy weight, but also for the general improvement of their bodies <sup>(27)</sup>.

### **1.2.7. Services portfolio of Primary Health**

The Government of the Canary Islands, together with the Health Department, have presented a document called ‘Addressing Childhood and Youth Obesity’. This document is aimed for people aged between 0 and 14, in the primary health setting in the Canary Islands. The main objective is to reduce the incidence and prevalence of childhood obesity, controlling the progress of this disease in population diagnosed with obesity or overweight. Also, ‘The healthy child Programme’ carried out from primary attention in the Canary Islands has all those prevention measures, vaccines and medical examination schedules for the future health of the baby.

The DELTA Project in the Canary Islands, in 2005, was another strategy used for nutritional education, promoting physical activity and preventing obesity. In 2012, an intervention programme for the prevention of childhood obesity (PIPO) was developed with the collaboration of the Paediatrics Society in the Canary Islands. Its objective was to encourage a healthy nutrition and physical activity and, at the same time, to reduce the prevalence of overweight and obesity in the paediatric population. The School Feeding programme in the Canary Islands was carried out together by the Education and Health Departments to promote health in schools. In 2013, this programme started in order to encourage healthy eating in school canteens and to establish an analysis, monitoring and follow-up strategy. Finally, we must mention an initiative currently in force since 2009, this plan in the Canary Islands community encourages the intake of fruit and vegetables in schools <sup>(28)</sup>.



### **1.3. OBJECTIVES**

#### **1.3.1. General Objective**

The general objective of this project is to design, programme, execute and evaluate a care plan for a child with obesity from the perspective of Virginia Henderson (VH).

#### **1.3.2. Specific Objectives**

- Determine the patient's situation taking into account 14 basic needs according to VH.
- Identify collaboration, autonomy and independence problems formulated according to NANDA-I taxonomy.
- Programme a nursing intervention based on the health problems found.
- Encourage the collaboration of the family to get a healthy lifestyle.
- Make the patient aware of the benefits of a healthy and balanced diet.
- Try to reduce the patient's body weight during the development of the care plan.

## **2. METHODOLOGY**

### **2.1. Type of Research**

A nursing intervention is presented in a 13 year old patient who suffers childhood obesity. The nursing cares are performed in his residence and they are developed and planned in a 4 month period from the 24<sup>th</sup> of November 2018 until the 24<sup>th</sup> of March 2019.

### **2.2. Tools and Stages of the Care Plan**

The completion of this project has been possible using bibliographic research focusing on childhood obesity. A language filter was applied (English and Spanish). Several databases were analysed and search engines such as CUIDEN, SCIELO, MEDLINE Plus and PUBMED; books about childhood obesity, community nutrition, nursing diagnosis and nursing procedures; journals, guides and Internet articles in relation with the risk factors in childhood obesity.

For the search, the boolean operators used were AND and OR. The keywords used were obesity, risk factors, physical activity and nursing. Therefore, the selected criteria to perform the bibliographic research was based in full texts, abstracts, reviews and practical guides; and the publication years of the information required is over a period of 10 years to present.

In this project about nursing we are basing our practice on a nursing care model based on basic needs. For Virginia Henderson the individual, sick or well, is a complete, a whole, who represents 14 Basic Needs (BN). These needs are essential to human beings and have to be met so the individuals maintain their integrity and encourage their growth and development. The role of the nurse is to assist the patient performing those activities which the individual could do without help if he or she had the strength, will and/or the knowledge needed. As well as to do it in a way in which they gain independency as soon as possible. The main objective in the nursing attention process is to build a theoretical structure which covers the basic needs of the individual, the family or community, structured in logical sequencies. There are 5 stages <sup>(29)</sup>:

1<sup>st</sup> Assessment Stage: it contemplates three actions:

**1<sup>st</sup>)** To gather information about the patient (needs and problems) and human responses (limitations, handicaps).

**2<sup>nd</sup>)** To analyse and verify the data.

**3<sup>rd</sup>)** To organise the data gathered, to assess the independence and dependence manifestations of each need, as well as the difficulty sources (strength, knowledge and/or will) which cause them<sup>(29)</sup>.

2<sup>nd</sup> Diagnosis Stage: it presents four actions: data analysis, identification of nursing diagnosis, identification of interdependent problems and nursing problems. According to Virginia Henderson, a diagnosis is a dependency problem and nurses can deal with the so the patient regains at least some independence <sup>(29)</sup>.

3<sup>rd</sup> Planning Stage: for VH, good planning integrates the work of all members in the healthcare team. Priorities are arranged by (death threat, the individual or the impact of the problem) and short or long term objectives are established with the individuals, which determined nursing activities. The nurse will be able to complete an activity for the patient (substitutive), to help or teach the patient do an activity (supplementary) and supervising the activity (complementary) <sup>(29)</sup>.

4<sup>th</sup> Implementation Stage: the patients get help doing activities to maintain or recover their health <sup>(29)</sup>.

5<sup>th</sup> Evaluation Stage of the Individual: depending on the ability level of independent action. The individual health status and the results defined in the attention plan are compared <sup>(29)</sup>.

NANDA taxonomy is an essential tool in the regular practice of the nursing job, as it applies a common language, implementing NCP like an organised working method that includes a dynamic participation within the different healthcare teams. A nursing diagnosis is a clinical assessment of the response to health problems of an individual, a family or a community. They set the basis to choose the nursing interventions to achieve the objectives presented. NOC or the nursing criteria are used to evaluate the current status of the patient and to identify the status that is expected to get from the individual. They monitor the situation of the individual in any given moment and enables the evaluation of nursing care on the individual's health status, no matter if it is positive or negative. NIC or the classification of nursing interventions tend to achieve an expected objective by applying interventions or nursing activities needed to meet the criteria of the results predefined<sup>(30)</sup>.

### **Case Presentation:**

13 year old boy without toxic habits, without allergies, with a complete vaccination schedule to date. He suffers class I obesity, with a BMI of 30.17 Kg/m<sup>2</sup>. In his family setting, both his mother and his father are obese. The patient eats processed foods, sugary soft drinks, industrial pastries, precooked foods, and so on. His diet has no fruit or vegetables. Besides, his family has a disordered eating without any control. According to the patient and his family, their eating habits are correct and the patient states that he feels good and has no health problems. In his daily routine, he goes to highschool from Monday to Friday from 8 o'clock until 2 o'clock and then, in the afternoon he studies and watches TV. Twice a week, Wednesdays and Fridays, he practises football in a club in his neighbourhood. However, the physical activity is low in intensity due to the lack of physical fitness and the overweight he suffers. He usually eats bread with fatty cured meats, sweets, chocolate bars, sugary soft drinks and juices between meals in his paternal grandparents' house. In highschool, he cannot practise physical education with intensity because of his overweight. Investigating the patient's medical history, we find a series of very interesting details; only in the last year the patient had gained almost 12 kg. On his last blood test no parameters were out of the predetermined values. We interview the minor and his parents to make a nursing diagnosis consistent with his situation.

## 1. Assessment Stage

### Personal Background:

13 year old boy who lives in his paternal grandparents' house with his parents and a brother. Currently, he is in his second year of secondary education. He has lunch in his grandmother's house and after he lies down on the sofa to rest. In the afternoon, he does his homework and watches TV the rest of the time until he takes a shower and has dinner. Sometimes, he goes out with his friends during weekdays and at the weekends he enjoys meeting up with his friends.

In the process of carrying out the NCP, the patient is motivated to accomplish the care plan, his motional state is positive, he wants to do as much as he can to improve his body image and lose weight. Usually his diet consists of processed foods, lots of sugary drinks such as soft drinks and bottled juices. Apart from this, he eats high-calorie products like sweets, industrial pastries, among others. Currently, he drinks 1.5 litres of water daily. He practises physical exercise in a football club in his neighbourhood, but it is low intensity because of his overweight and low physical fitness. Twice or three times a week he meets up with his highschool friends to chat and to socialize. Occasionally, he goes to the cinema or to the local shopping centres. At present, the patient maintains good personal hygiene, get dressed and undressed without any difficulty and gets some activity when he helps with the household chores. The patient and his family are religious and go to church on Sundays.

Family background: his father suffers class I obesity, and his mother is overweight, she also has a hypothyroidism problem. His paternal grandmother suffered class II obesity and five years ago she underwent surgery to get a gastric bypass, so she could lose weight. His paternal grandfather has high blood pressure, benign prostatic hyperplasia (BPH) and he is slightly overweight due to the lack of physical activity.

**Current assessment:** BP: 120/80 mmHg. HR: 70 bpm. RR: 20 rpm BT: 36.5°C. Height: 150 cm. Weight: 67.9 Kg.

Complementary examination: in November 2018 he had an X-ray taken of his right leg because he had a pain on his knee cap, the traumatology doctor diagnosed an inflammation related to growth.

- **Pharmacological treatment:** No pharmacological treatment is needed.
- **Therapeutical treatment:** he has braces to correct the position of his teeth since three months ago.

For the assessment, the patient has been examined and interviewed about personal information, these data have been organized according to VH 14 basic needs and classified in independence and dependence manifestations, autonomy data and other data to consider for subsequent analysis.

BN.	Independence Manifestations	Dependence Manifestations	Data to consider
01. Breathe normally	Not observed	Not observed	Not observed
02. Nutrition / hydration	He eats 3 meals/daily. Diet poor in healthy foods, he eats high-calorie sugary and fatty products	His grandmother or his mother prepare the meals	He drinks 1.5 litres water/daily. Nutritional imbalance due to excess
03. Elimination of waste	Urine looks normal. Several times a day	Not observed	He has never had problems eliminating
04. Activity and maintain correct posture	Sometimes he is tired	Sedentary routine	He needs more activity. Fatigue and tiredness when doing moderate physical activity
05. Sleep and rest	Currently he sleeps 8 hours/daily	Not observed	He lies down after lunch on the sofa
06. Dress and undress	He changes clothes daily	Not observed	Not observed
07. Maintaining body temperature BT	Not observed	In summer, he is too hot and sweats a lot because of the climate in the area he lives	None
08. Maintining skin clean and protect teguments	He takes a shower daily sometimes two if he sweats or plays football	Not observed	Hydrated skin without problems
09. Safety	He thinks he is healthy	He is not aware of his obesity problem now higher than BMI 30	<b>Ineffective management of the therapeutical programme</b>
10. Communication	Not observed	Not observed	He considers himself a communicative person and has many friends, both boys and girls
11. Worship according to one's faith	Not observed	Practicing Catholic and acts according to his faith	He goes to church some Sundays, last year he confirmed his faith
12. Accomplishment and work	Not observed	Not observed	Not observed
13. Recreation	Not observed	Not observed	Not observed
14. Learning	Not observed	Not observed	Not observed

**Table 1:** Assessment according to VH 14 Basic Needs <sup>(29)</sup>. (Own creation)

## 2. Diagnosis stage

We distinguished three types of problems: collaboration, autonomy and independence problems, according to taxonomy NANDA-I, with the nursing outcomes classification (NOC) and the nursing intervention classification (NIC) <sup>(30)</sup>.

Analysing the data we identify:

- Collaboration problem:
  - PC: CP: none
- Autonomy problem:
  - Need to prepare food.
  - Need to help him to practise physical activity
- Indepence problems:

**[00001] Nutritional imbalance due to excess** r/t sedentary lifestyle and high-calorie intake d/b BMI higher than 30 <sup>(30)</sup>.

**[00078] Ineffective management of the therapeutical programme** r/t the lack of confidence and the subjective perception of the severity d/b the difficulty to modify his lifestyle and expressing the difficulty of the therapeutical programme <sup>(30)</sup>.

**[00093] Fatigue r/t physical discomfort** d/b the lack of energy, inability to maintain a normal level of physical activity and tiredness <sup>(30)</sup>.

## 3. Planning stage

In this stage, objectives and activities for the problems raised are presented, putting into effect a care plan through programmed activities.

Autonomy problems	Type of substitution	Activities to perform by intervention agent
Hydration / nutritional needs	Partial substitution	Help to eat five meals a day
Activity need	Partial substitution	Help to practise physical activity daily

Table 2. Autonomy problems (Own creation)

<b>Independence problem (1)</b>	
<b>NANDA: [00001] Nutritional imbalance due to excess</b> r/t a sedentary lifestyle and high-calorie intake d/b BMI higher than 30.	
<b>Expected results NOC: [1612] Weight control.</b>	
<b>INDICATORS</b>	<b>161201.</b> Supervising body weight.
	<b>161203.</b> Balance between exercise and calorie intake.
<b>Expected results NOC: [1802] Understanding the diet</b>	
<b>INDICATORS</b>	<b>180201.</b> Description of the recommended diet.
	<b>180212.</b> Strategy development to change feeding habits.
<b>Nursing intervention NIC: 1260. Weight management</b>	
<b>ACTIVITIES</b>	<ol style="list-style-type: none"> <li>1. Encourage the patient to register his weight weekly.</li> <li>2. Help him preparing well balanced meals, consistent with the level of energy expenditure.</li> <li>3. Develop with the patient a method to register the daily intake.</li> </ol>
<b>Nursing intervention NIC: 1100. Nutritional management</b>	
<b>ACTIVITIES</b>	<ol style="list-style-type: none"> <li>1. Adjust the diet to the patient needs.</li> <li>2. Offer small meals.</li> <li>3. Determine the patient's food preferences<sup>(30)</sup>.</li> </ol>

**Table 3.** Independence problems 1: NOC-NIC (Own creation )

<b>Independence Problem (2)</b>	
<b>NANDA: [00093] Fatigue</b> r/t physical discomfort d/b lack of energy, inability to maintain a normal level of physical activity and tiredness.	
<b>Expected results NOC: [0005] Activity tolerance</b>	
<b>INDICATORS</b>	<b>000508.</b> Respiratory distress in response to activity.
	<b>000510.</b> Walking distance.
	<b>000511.</b> Climbing stairs tolerance.
<b>Nursing Interventions NIC: 0180. Energy management</b>	
<b>ACTIVITIES</b>	<ol style="list-style-type: none"> <li>1. Determine the causes of fatigue.</li> <li>2. Control the nutritional intake to ensure adequate energetic resources.</li> <li>3. Encourage physical activity.</li> <li>4. Determine the patient's physical limitations.</li> </ol>
<b>Nursing intervention NIC: 5612. Teaching: prescribed activity/exercise</b>	
<b>ACTIVITIES</b>	<ol style="list-style-type: none"> <li>1. Observe the patient while practising physical activity/exercise.</li> <li>2. Provide information about th resources/ community support groups to increase the patient's commitment with the activity/ exercise.</li> <li>3. Inform the patient about the purpose and benefits of the prescribed activity/exercise.</li> <li>4. Teach the patient how to control the tolerance to activity /exercise <sup>(30)</sup>.</li> </ol>

**Table 4.** Independence problems 2: NOC-NIC (Own creation)



<b>Independence Problem (3)</b>	
<b>NANDA: [00078] Ineffective management of the therapeutical programme</b> r/t lack of confidence and subjective perception of the severity d/b the difficulty to modify his lifestyle and expressing the difficulty of the therapeutical programme.	
<b>Expected Results NOC: [11802] Understanding: diet</b>	
<b>INDICATORS</b>	<b>180201.</b> Description of the recommended diet.
	<b>180205.</b> Explanation about the relation between the diet, exercise and body weight.
	<b>180206.</b> Description of the foods allowed in the diet..
<b>Expected Results NOC: Understanding: therapeutical programme</b>	
<b>INDICATORS</b>	<b>181301.</b> Description of the justification for the therapeutical programme.
	<b>181305.</b> Description of the prescribed diet.
	<b>181313.</b> Selection of the recommended foods in the diet.
<b>Nursing interventions NIC: 4360. Behaviour modification</b>	
<b>ACTIVITIES</b>	<ol style="list-style-type: none"> <li>1. Facilitate the involvement of the family in the change process.</li> <li>2. Encourage the patient to participate in the registration of behaviours.</li> <li>3. Promote the change of undesirable habits for desirable habits.</li> </ol>
<b>Nursing intervention NIC: 200. Promote exercise</b>	
<b>ACTIVITIES</b>	<ol style="list-style-type: none"> <li>1. Help the patient to integrate the exercise programme to his weekly routine.</li> <li>2. Help the patient to develop an exercise programme adequate to his needs.</li> <li>3. Inform the patient about the benefits of exercise for his health <sup>(30)</sup>.</li> </ol>

**Table 5.** Independence problems 3: NOC-NIC (Own creation)

#### 4. Implementation stage

The time involved in developing this care plan was a monitoring period of 4 months. This care plan was performed in the patient's residence in the afternoons. We must highlight the health education activity since in each visit both the patient and the family members, present at the time, were taught new knowledge.

In the first month the visits were on Mondays, Wednesdays and Fridays and the activities were focused especially in teaching the patient and his family to integrate healthy eating habits, to replace all processed foods, sugary drinks like soft drinks and bottled juices, and to eliminate industrial pastries from the diet. Also, informing and teaching the family about the cares which must be applied, informing the patient about suffering obesity and

about the implemetations he must include in his new lifestyle. Last but not least, solving doubts arised and coaching the patient whenever he needed help in relation to nutrition.

During the second month, the visits continued three days a week. We started working with his family teaching them how to make healthy and simple dishes, which benefited the nutrition of all the family. Also, we explained to them what they needed to buy and what was not recommended, trying to replace processed foods, industrial pastries, soft drinks, and so on, with healthier food such fruit and vegetable, fish, meat, legumes, milk, yoghurt, cheese, nuts, among others. The patient started walking three days a week in the afternoons and also continued playing football two days a week. This resulted in a weight loss of 6 kg of body weight, as a consequence, the child felt lighter and experienced less fatigue.

In the third month, the patient's health improved considerably so the visits were reduced to once a week. Nevertheless, we kept contact with him, his parents, and his grandmother by telephone, and we continued monitoring his diet and physical exercise through text messages. We kept track of all the weight loss which started to be significant, losing around 10 kg. Keeping the body weight steady during this month was the result of the balance between the calorie intake in the diet and the energy expenditure due to physical exercise.

The fourth month, there were four visits to the family residence to check the patient's progress, to solve doubts arised and explained the main recommendations he had to follow. At the beginning of March the patient weighed in at 52 kg and had lost 14 kg in almost four months, he had healthier lifestyle habits. The physical activity, and therefore the energy expenditure, was the most variable component since the exercise intensity and lenght were increased, causing a significant amount of weight loss. In the last week of the monitoring he weighed in at 50.7 kg. We explained to him that he had to maintain these healthy habits throughout life. Also, we talked to his parents and parental grandparents to inform and teach them about the habits they should continue to apply throughout life to have good health and avoid the risk of developing chronic diseases.

November 2018	December 2018	January 2019	February 2019	March 2019
Bibliographic research. Book reviews related to childhood obesity. <b>Assessment</b>	Bibliographic research. Review the basic needs according to Virginia Henderson.. <b>Diagnosis</b>	<b>Planning</b> <b>Implementation</b>	<b>Implementation</b>	<b>Evaluation</b>

Table 6: FDP chronogram 2018/2019 (Own creation).

## 5. Evaluation Stage and Results

<b>Independence Problem (1)</b>					
<b>NANDA: [00001] Nutritional imbalance due to excess r/t a sedentary lifestyle and high-calorie intake d/b BMI higher than 30.</b>					
<b>Expected results NOC: [1612] Weight control</b>					
<i>Likert Scale: 1 (Strongly agree) / 2 (Agree) / 3 (Neutral) / 4 (Disagree) / 5 (Strongly disagree)</i>					
INDICATORS	Number of visits (4 months)	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
	<b>161201.</b> Monitoring body weight.	5	3	1	1
	<b>161203.</b> Balance between exercise and calorie intake.	5	3	1	1
<b>Expected results NOC: [1802] Understanding the diet</b>					
<i>Likert Scale: 1 (Strongly agree) / 2 (Agree) / 3 (Neutral) / 4 (Disagree) / 5 (Strongly disagree)</i>					
INDICATORS	Number of visits (4 months)	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
	<b>180201.</b> Description of the recommended diet.	5	2	2	2
	<b>180212.</b> Strategy development to change feeding habits <sup>(30)</sup> .	5	2	2	1

Table 7: Independence problems 1: Expected results (Own creation)

<b>Independence problem (2)</b>					
<b>NANDA: [00093] Fatigue</b> r/t physical discomfort d/b lack of energy, inability to maintain a normal level of physical activity and tiredness.					
<b>Expected results NOC: [0005] Activity tolerance</b>					
<i>Likert Scale: 1 (Strongly agree) / 2 (Agree) / 3 (Neutral) / 4 (Disagree) / 5 (Strongly disagree)</i>					
<b>INDICATORS</b>	<b>Number of visits (4 months)</b>	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>
	<b>000508.</b> Respiratory distress in response to activity.	5	2	2	1
	<b>000510.</b> Walking distance.	5	2	2	1
	<b>000511.</b> Climbing stairs tolerance <sup>(30)</sup> .	5	2	2	1

Table 8: Independence problems 2: Expected results (Own creation)

<b>Independence Problem (3)</b>					
<b>NANDA: [00078] Ineffective management of the therapeutical programme</b> r/t lack of confidence and subjective perception of the severity d/b the difficulty to modify his lifestyle and expressing the difficulty of the therapeutical programme.					
<b>Expected results NOC:</b>					
<i>Likert Scale: 1 (Strongly agree) / 2 (Agree) / 3 (Neutral) / 4 (Disagree) / 5 (Strongly disagree)</i>					
<b>INDICATORS</b>	<b>Number of visits (4 months)</b>	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>
	<b>[11802]</b> Understanding: diet.	5	3	2	1
	<b>180205.</b> Explanation about the relation between the diet, exercise and body weight.	5	3	2	2
	<b>180206.</b> Description of the foods allowed in the diet.	5	3	2	2
<b>Expected Results NOC: [01813] Understanding: therapeutical programme</b>					
<i>Likert Scale: 1 (Strongly agree) / 2 (Agree) / 3 (Neutral) / 4 (Disagree) / 5 (Strongly disagree)</i>					
<b>INDICATORS</b>	<b>Number of visits (4 months)</b>	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>
	<b>181301.</b> Description of the justification for the therapeutical programme.	5	3	2	2
	<b>181305.</b> Description of the prescribed diet.	5	3	2	1
	<b>181313.</b> Selection of the recommended foods in the diet <sup>(30)</sup> .	5	3	2	1

Table 9: Independence problems 3: expected results (Own creation)

### 3. DISCUSSION

Before creating this NCP, a bibliographic research was carried out to deal with the problem of childhood obesity and its risk factors. There is a multifactorial causation (Borrás and Ugarriza, 2013) as evidential factors for obesity. Overall, the intake of a higher number of calories than those expended, measured in time units of generally 24 hours, will create an increase of the deposits of adipose tissues and fat accumulation, which will result in obesity (Martínez, Moreno-Aliaga, Marques-López, and Martí, 2002).

According to results of the Framingham study (Murillo, Meriño-Ibarra, Duarte, and López-Oliva, 2004), obesity and inactivity multiply by 3 the risk of sudden death, by 2 the risk of suffering congestive heart failure and even coronary disease. It has been proven in several studies that, in people with obesity, to lose from 5 to 10% of body weight (Bartrina, Rodrigo, Barba, and Majem, 2005) can delay the onset of multiple obesity consequences, such as cardiovascular diseases, strokes, diabetes among others (Burrows-Argote, 2000). In this respect, the nursing job plays a vital part, making the interventions very necessary. The interventions are mainly about health promotion and prevention as regards to childhood obesity and other related diseases listed above. The holistic approach, which nurses are used to applying, put the implementation of healthy habits and/or the replacement of unhealthy ones into effect.

After having consulted the literature and articles in relation to this project, we realised that the treatment had to be aimed at both the child and his family addressing the following aspects: healthy eating habits for the patient and his family and an increase in physical activity. The most important health care provider in this NCP were his parents, who were responsible for the nutrition, continued monitoring and preparation of the meals daily. We observed that when the parents collaborated actively in this treatment we obtained better results.

The perspective of VH on the patients 14 basic needs to be able to identify autonomy, independence and collaboration problems, led to a more objective evaluation of this case.

#### **4. CONCLUSIONS**

- The situation of the patient has been assessed taking into account 14 basic needs according to Virginia Henderson.
- The health problems have been identified and classified according to NANDA-I taxonomy.
- Interventions in line with the situation of the patient have been programmed.
- The collaboration of the family has been encouraged to achieve a healthy lifestyle.
- The patient has been informed of the benefits of a healthy and balanced diet.
- The patient's body weight has been reduced during the development of the care plan.
- As a final conclusion, the nursing intervention through a care plan has contributed to the improvement on the patient's health and has facilitated our intervention as nurses.

## **Glossary of abbreviations:**

ALADINO: Nutritional, physical activity, child development and obesity research.

BMI: Body Mass Index.

BN: Basic Needs.

BP: Blood Pressure.

BPH: Benign Prostatic Hyperplasia.

BT: Body Temperature.

Cm: centimetres.

COSI: Childhood Obesity Surveillance Initiative.

CNCD: Chronic Non-communicable Disease  
d/b: demonstrated by.

DBP: Diastolic Blood Pressure.

DM: Diabetes Mellitus.

FDP: Final Degree Project.

Gr: grammes.

HDL: High Density lipoproteins (good cholesterol).

HR Heart Rate, represented in beats per minute (bpm).

IOTF: International Obesity TaskForce.

Kg: kilogrammes.

LDL: Low Density Lipoproteins (bad cholesterol).

mg/dl: milligramme per decilitre.

mmHg: millimetre of mercury.

NANDA: North American Nursing Diagnosis Association.

NAOS: nutrition, physical activity, obesity and health strategy.

NCD: Non-communicable disease.

NIC: Nursing Interventions Classification.

NOC: Nursing Outcomes Classification.

NCP: Nursing Care Plan.

PCTL : Percentile.

PHC: Primary Health Care.

PIPO: Intervention and prevention of childhood obesity programme.

r/t: related to.

RR:Respiratory Rate, represented in respirations per minute (rpm).

SBP: Systolic Blood Pressure.

SS: Secondary School.

TV: Television.

VH: Virginia Henderson.

WHO: World Health Organization.

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