

"Childhood obesity and quality of live: psychosocial risks in children aged 6 to 12 years"

Beatriz Mabel Pacheco Amigo (Chile-México) [1] , Ma. Guadalupe Cabral Enciso (México) [2], Jorge Luis Lozano Gutiérrez (México) [1].

Autonomous University of Zacatecas[1] and Mexican Social Insurance Institute Zacatecas Delegation [2].

Abstract

Objective. To analyze quality of life factors in obese school children aged 6 to 12 years. **Material and method.** The World Health Organization's Quételet index and The Development of the World Health Organization's Quality of Life Instrument were used, using the mixed model with a descriptive-correlational scope. **Results.** 98% of the sample obtained some type of obesity, and the data obtained indicate that childhood obesity is directly related to the psychological domains (.936), physical (.917), children's environment (.864) and level of independence; obtaining positive bivariate correlations; highlighting that there is an inverse type correlation in children with obesity in the academic domain indicator (.917). **Conclusions.** Lifestyle factors are proportional to the development of a risk factor in childhood obesity, therefore, childhood obesity is a direct predictor of quality of life.

Keywords: Obesity; Children; Risk factors.

1. Introduction

Childhood obesity and overweight, is one of the alarming pathologic conditions of community health, not because of the immediate effect, but because of the comorbidity causes that will gestate in the future, in which behavioral and environmental patterns are included.

The consumption of foods with high energetic density is an accepted lifestyle in the general population, this characteristic that favors the appearance of risks, which originates in infancy, makes the subject prone to present other alterations of health related to overweight and obesity.

Nowadays, there is a prevalence to obesity in all stages of the subject's development, including infancy; this one has turned into one of the biggest problems of the health sector ¹

and the incidence associated to the family lifestyle, thus, the importance of researching and studying the different multidisciplinary approaches that help understand the problem of child obesity, that offers a perspective and integral intervention diagnosis, from the connection subject

family and the environment in which the children interacts to identify those factors that help or put the children's health in danger.

Obesity is defined as the increase of corporal weight related to an energetic unbalance due to the excessive consumption of calories, in other words, it is understood as the abnormal or excessive fats accumulation that can be damaging for the health, for that reason, it is considered as a chronic illness originated by different causes and remarkable complications, related to it, criteria of multi-causality that cause physical health problems, as well as mental, in this way, obesity is a cause that carries a shorter lifespan for the young².

On the other side, the study of child obesity is important, because, to its prevention in the adult stage, it is defined in three critical stages that are from five to seven years, in adolescence and during pregnancy, mainly³. In this way, the factors that get involved in the weight control are decisive in the future evolution of such pathology.

From the perspective of public health, obesity is not just an ailment, but it has turned into a world health problem. This situation represents high institutional costs, as well as personal, family and thus, social; in which an epidemiologic profile of morbidity and mortality in the national public health are evident, being obesity one of the main causes related to comorbidity of other illnesses⁴. In this way, the relevance of attending children at school age related with the family interaction. The social environment and the means related to them, are indispensable to determine the child risk factors and in this way be able to prevent them⁵.

The relevance of comprehending the obesity problem at early ages, is a factor of impact in public health, because it has a bearing in the prevention of another health problem in the short, medium and long term; because during childhood habits are formed that can remain during all life, including nutrition⁶. Some studies reveal that one out of three children between the ages of 5 to 19 will suffer overweight and will have a high tendency to present chronic diseases like diabetes mellitus, hypertension, cardiovascular risks, resistance to insulin, among others by 2018⁷. Also, with risk factors as malnutrition in the uterus, overweight, obesity and metabolic alterations in childhood or adolescence⁸.

The statistics, related to child obesity, show that three out of 10 kids, from 5 to 11 years old, present overweight and obesity, with a significant decrease in males, however, during 2016 an increase of 2.7 percent of overweight was observed in adolescence, compared to 2012, it reached higher levels in females 39.2%⁹. For that reason, the information of health and nutrition. The need of identifying risk groups in order to plan public health interventions with the help of other disciplines prevails¹⁰; in fact, the prevalence of overweight and obesity increased 26% in average, which represents more than 4.1 million schoolchildren with such ailment.

On the other side, the lifestyle is significant for the child's assessment related to obesity, specifically in the family. It is calculated that the risk of obesity in dysfunctional families is more than 63%, in other words, when children do not have the capacity of confrontation, they end up in disorders of alimentary behavior, and other risk factors such as maltreatment, abuse and family poverty are linked to it; considering scholars, as the most vulnerable members to the influence of an obesogenic family in conjunction with the environment that favors the consumption of products with little nutritional value¹¹.

The importance of detection of children with overweight or obesity, in clinical aspects related to mental health, gets higher interest¹², due to the diverse alterations in the psychosocial function, in general terms they require psychological support, since the corporal image is damaged due to the

family assessment; creating different characteristics as a poor self-opinion, feelings of incompetence, passivity, apathy and feelings of despair¹³.

The developed efforts in the health sector to control overweight and obesity, not only for food consumption, but also, the identification of socio-cultural factors that negatively impact on the growth of children, for that reason, the importance of identifying risk factors that predispose a conduct of food ingestion, as well as, those life factors that help to determine their perception in their cultural context¹⁴.

For all the mentioned above, the prevalence of children's overweight and obesity in early life and adolescence suffer social stigmatization, discrimination and low self-esteem. Psychological stress, as family dysfunction are valued as positive or negative indicators that influence the person's behavior,¹⁵ who can present alterations and risks in the eating habits. For that reason, the family dysfunction is not just a bond in the infants, but it makes reference to confrontation difficulties, that impedes the adherence to treatment due to the lack of conduct and psychosocial changes that are present in the familiar social environment¹⁶.

2. Objectives of the study

The objective of this work is to analyze the children's quality of life from 6 to 12 years old who suffer overweight and obesity, in order to identify the factors of psychosocial risk and its relationship with the children's obesity present in the already mentioned population.

3. Material and methods

3.1. Design

The design in the study was transversal type, non-experimental of a mixed cut, with a descriptive-correlational analysis, integrated in the values sheet through codes that permitted to group the specific thematic constructs of the body mass index and the Quality of life, that permitted to evaluate the psychosocial risks. The research was approved by the department of investigation of the Autonomous University of Zacatecas and the consent of the children's parents and tutors was obtained with the authorization of the school institutions.

3.2. Population and Sample

The used sample was of a non-probabilistic type with a procedure of sampling representation adjusted of 95% of reliability, with specific subject type characteristics, organized to a n= 74 (31= female and 43 male), such population characteristics of population were students with an age range of 6 to 12 years who were in public primary schools, morning shift, registered in the central sector of the capital, Zacatecas.

The initial inclusion criteria were designed by the authorities of the institutions in charge of the Physical Education department (teachers of the subject) from the Ministry of Education, who made, in an observational way, the referring of minors for the corresponding evaluation. Subsequently, possible illnesses that increased the weight were discarded through the medical record, mainly, metabolic illness type and the use of some medication. (steroids).

3.3. Measurement and establishment of variables

First phase

In order to reach the designed objectives on the research, two instruments were applied. First, the body mass index was evaluated, through the recollection of anthropometric measures by using a scales with measuring rod, skinfold caliper, and fiberglass tape of 180 cm, instruments that permitted evaluate the Quetelet index that was obtained through the division of body weight (kg) by the square of the height in cm² to determine the degree of overweight and obesity, as well as the and tricipital skinfold, to complete the anthropometric rating¹⁷.

Consequently, the children's' chronologic age was determined, determined by the date of birth up to the application of the instrument, the Body Mass Index (BMI), which was obtained for every child and was coded through the classification according to the WHO in subjects with standard values <24.9 kg/ cm² and overweigh with values ≥ 25 Kg/m²; integrating specific values in a percentile from 85 to 95, the first corresponding to overweight and the second one to obesity¹⁸; in this way, the independent variable was established that corresponds to the physical characteristics that integrate age, BMI, and tricipital skinfold.

Second phase

As a second evaluation, The Development of the World Health Organization Quality of Life Instrument (WHOQOL-100)¹⁹ was used, and its objective is to determine the subjects' perception of the life situation in their cultural context and the value system in which they live, including expectations and interests.

The WHOQOL-100 instrument was first piloted in a similar population of minors and its validity was obtained through Cronbach's Alpha, obtaining a reliability of (.820), with the scalar standard function in children of primary school. The instrument contains a total of 24 items, grouped in four basic domains: 1) Physical; 2) Psychological; 3) Level of independence; 4) Environment. The scores of the domains were expressed in five levels with the Likert scale, that makes reference to intensity, frequency, satisfaction or capacity; it was hierarchically structured and it permits a global evaluation of the life quality in the above mentioned domains that are part of the dependent variable, in this study, life quality.

The initial procedure was to obtain the authorization of corresponding schools to be evaluated, to continue with the data gathering of the instrument No. 1: measurements of weight and height, by using a scale and measuring rod that registers to the closest 0.1 cm. the waist's perimeter was measured with a flexible Gulick fiberglass tape. The mid-point between the lower costal edge and the iliac crest was the references, as well as, the evaluation of the perimeter and the tricipital skinfold, in this case with the use of the skinfold caliper. Subsequently, the No. 2 instrument was implemented. The questionnaire contained closed questions and it was administered on a case-by-case basis in the corresponding educational facilities.

The data were integrated on an SPSS data sheet statistics software Version 22, that permitted to process the obtained data of both instruments.

4. Results

74 elementary school level students were included (42% females and 5% males), averaging 8.5 years old. On the prevalence of the identified frequential type line in the unit of analysis and risk

of health degree²⁰. It was detected that there is a global percentage of 98% of the population that is, in ascending order indicators, from type 1 obesity to morbid obesity.

Table 1. Percentage of representation of obtained data of BMI (through anthropometric measures) and percentage of evaluated subjects:

Obesity type	Percentage in children population	Risk
Weight upper limit	2%	Slight
Type 1 Obesity	5%	Moderated
Type 2 Obesity	35%	Severe
Type 3 Obesity	18 %	Very severe
Morbid obesity	50 %	Extreme

* Values extracted from the studied sample. Source: direct study, Zacatecas, February 2017.

With respect to the overweight, it was obtained that the obesity levels are more remarkable in males than in females, with an average percentage of 48% above their normal weight, unlike women that reaches a 24% above their normal weight.

The relation of the variable was established through the test of hypothesis, Pearson's correlation coefficient, in which it is intended to integrate the correlation of the study between the BMI and life quality, based on the assigned ranges in the WHOQOL-100 instrument, obtaining a measurement correlation of .817 through an R index and Pearson's positive correlation Rho in direct sense.

Table 2. Study's correlation measure hypothesis.

Variables	Correlation N	Life quality	BMI
	Pearson Correlation	1	.027
Life quality	Sig (2-tailed)		.817
	N	74	74
	Pearson Correlation	.027	1

BMI	Sig (2-tailed)	.817	
	N	74	74

*** Values extracted from the studied sample, Software SPSS V.22. Source: direct study, Zacatecas, February 2017. Own elaboration.**

The prevalence of the evaluated indicators in the dependent variable refer to a positive correlation; so, it directly affects the areas of children's development as: constant pain, somatic discomfort, alteration of thought –memory and learning with a higher prevalence among males, adverse indicators of positive feelings and alterations in the physical security and its relation with rest/sleep.

Table 3. Correlation between BMI and indicators of quality of life Areas in the children.

Indicators	Domain of the test	Correlation
Care of health and positive feelings indicator	Psychologic	.936
Indicator of thought-memory and learning	Psychologic	.917
Dependence to the treatment and presence of pain and distress	Physical	.917
Day-to-day activity/mobility	Independence	.916
Physical security and rest/sleep indicator	Entorno	.864

*** Values extracted from the studied sample. Source: direct study, Zacatecas, February 2017. Own elaboration.**

5.- Discussion and conclusion

The main objective of the research was to study the relationship between children obesity and the minor's lifestyle, to respond to the objective. The study demonstrated that there are real correlations between both variables; so children obesity can be crucial as a direct predictor of quality of life, pointing out that the highest obtained frequency was morbid obesity, followed, in descendent order, obesity type 2, obesity type 3, obesity type 1 and finally, upper limit weight.

In the studied sample, the care of health and positive feelings indicator was stated as higher correlation between children obesity and Quality of life, that refers to the domain of psychological factor that affects other areas of children's development as body image, appearance, self-esteem and social welfare in which the child interacts; besides, there is a potential risk to the minor due to parental neglect.

Conversely, the bivariate type correlative finding, present in the sample, shows sleep and rest alteration. Thus, in the present study, it suggests new heuristic topic related alternatives for the same constrain of the research and specifying that the sleep is other detected complication within the children's health²¹ related to symptoms that make it difficult to have an appropriate style for the infant's development.

From the perspective of the theoretical plane, the articulation of different studies that are related to obesity in scholars of elementary school is observed. It suggests the scientific interest to diminish the organic and affective risks that the children with characteristics of obesity show. For that reason, the studies, related to the nutritional disorders, refer to the presence of emotive-behavioral indicators, which must be worked on along with the food intake¹⁶ and those factors of the child's quality of life; in this way, the work with the parents and the integral treatment is an urgent need, since, the data obtained during the research shows, as a priority, a correlative lineal regulation; specifically, with the abandon or tutors' neglect (.917); finding related, in a direct form, to the obesogenic condition. In this way, the analysis of the different topics that are related to quality of life suggest that the problem of children obesity is closely related with the characteristic of the family environment.

It is stated that the studied population has high levels of sedentary lifestyle, evaluated in the domain of independence, this situation frames the diverse studies related to obesity²², but at the same time, a pattern of quality of life emerges that makes the rebound effect on scholar environments, that is the diminishing of learning-memory capacity and concentration in the children; this data was exposed in other researches of children obesity²³, and referred to within the results of bivariate correlation in the present study reaching a .917.

One of the strategies to consider to stop children obesity is the detection and early diagnosis ²⁴, in order to reduce the risk factors of biologic type, as well as the social, considering that obesity is the non-inherited disease with the most prevalence in the world ²⁵ and, bringing the indicators of quality of life together, it favors a representativity and importance of the gathered results; thus, it is concluded that there is a highly significant correlation through the R and Rho index according to the stated objective at the beginning of the study.

SPECIAL THANKS

Thanks to the Ministry of Public Education in the State of Zacatecas, Physical Education teachers and to the Autonomous University of Zacatecas for the support of the study.

References

1. Domínguez-Vásquez P, Olivares S, Santos J. (2008). Influencia familiar sobre la conducta alimentaria y su relación con la obesidad infantil. *Archivos Latinoamericanos de Nutrición*; 58 (3).
2. Grossman S, Mattson Porth C. (2014). *Fisiopatología. Alteraciones de la Salud. Conceptos Básicos.* Novena Edición ed. Uribe Martínez GE, editor. España: Wolters Kluwer.
3. Escott-Stump S. (2016). *Nutrición, diagnóstico y tratamiento.* 16th ed. Cristina S, editor. London: Wolters Kluwer.
4. Periodismo de investigación. (2015). Mueren por obesidad al año 170 mil. *El Universal*, Julio.
5. Guzmán Saldaña RM, Castillo Arreola A, García Meraz M. (2010). *Factores Psicosociales Asociados al Paciente con Obesidad México.* Universidad del Estado de Hidalgo.
6. Bonvecchio A, Safdie M, Villalpando S, Monterrubio E, Gust T, Rivera J. (2009). Overweight and Obesity Trends in Mexican children 2 to 18 years of Age from 1988 to 2006. *Salud Pública de México*, 51 (1).
7. Encuesta Nacional de Salud y Nutrición. ENSANUT (2012). México. Instituto Nacional de Salud Pública.
8. Escobar Juzga MA, Ruiz Á. (2011) *Factores de Riesgo en Sobrepeso y Obesidad Infantil.* Primera Edición ed. España. Editorial Académica Española.
9. Encuesta Nacional de Salud y Nutrición. ENSANUT. (2016) In Instituto Nacional de Salud Pública. México. p. 11-14.
10. Shamah-Levy. T, Villalpando-Hernández. S, Mundo-Rosas. V, Morales Ruán C, Cervantes Turribiates L. (2008). Health and Nutrition Status of Older Adults in Mexico: Results of a National Probabilistic Survey. *Salud Pública de México.* Octubre, 50 (5).
11. Raya Trenas AF. (2008). *Estudios Sobre los Estilos Educativos Parentales y su Relación con los Trastornos de Conducta en la Infancia.*

12. Guía de Referencia Rápida. Prevención y Diagnóstico de Sobrepeso y Obesidad en Niños y Adolescentes en el Primer Nivel de Atención Salud CNdETe (2012). México. CENETEC-Secretaría de Salud.
13. Korbman de Shein R. (2006). Tratamiento y Prevención de la Obesidad en Niños y Adolescentes. México. Trillas.
14. Bobes García J, Portilla MP, Bascarán Fernández MT, Sáiz Martínez PA, Bousoño García M. (2004). Banco de Instrumentos Básicos para la Práctica de la Psiquiatría. Tercera Ed. Barcelona: Ars Medica.
15. Rodríguez Marín J. (1995). Psicología Social de la Salud España: Síntesis.
16. Guillén Riebeling RdS. (2014). Psicología de la Obesidad. Esferas de vida. Multidisciplina y complejidad. Segunda edición ed. Ciudad de México: Manual Moderno.
17. Salas-Salvadó J, García-Lorda P, Sánchez Ripollés JM. (2005) La alimentación y la nutrición a través de la historia Barcelona: Glosa.
18. Organización Mundial de la Salud (2017). Informe de Comisión: Notas descriptivas Región de las Américas. OMS.
19. Bobes García J, G.Portilla M, Bascarán Fernández M, Sáiz Martínez P, Bousoño García M. (2004). Banco de Instrumentos Básicos Barcelona: Ars Medica.
20. OPS/OMS. (2010). Estudio de prevelencia de la diabetes tipo 2 y sus factores de riesgo. El Paso TX: Organización mundial de la salud.
21. Sánchez-Carpintero R. (2008). Trastorno del sueño en la niñez. Protocolos Diagnósticos de AEP: Neurología Pediátrica. Diciembre.
22. Sociedad Española de Cardiología. (2010). El sedentarismo y la obesidad, dos tendencias en adolescentes que potencian el riesgo cardiovascular. Guía. Barcelona: Sociedad Española de Cardiología, Cardiología.
23. Pacheco-Amigo B, Meza-Rodríguez K, Lozano-Gutiérrez J, Caignet S. (2016). La obesidad: Factor que impacta en el rendimiento escolar. Revista Sociología Contemporánea. Septiembre; 3(8).
24. Achor MS, Benitez Cima N, Brac E, Barslund S. (2007). Obesidad Infantil. Revista de Posgrado de la Cátedra de Medicina, Abril (168).
25. Manson J. (2011) Child Obesity: A Parent's Guide Need2Know , Editor. United Kingdom: New Paperback.