

Association Among Self-perception Lifestyle with Overweight / Obesity in People with a Family History of Type 2 Diabetes: A Cross Sectional Study

ABSTRACT

Aim. To analyze the association among perception of lifestyle and overweight / obesity in people with diabetic parents.

Study design. Cross-sectional, analytical study.

Place and Duration of study. It is a community study in Celaya, Guanajuato, Mexico between January and December 2014.

Methodology. Bioethics Committee approved the study. We included 100 offspring from people with Type 2 diabetes; it was applied the questionnaire of self-perception of lifestyle and anthropometry was used know the body mass index and overweight/obesity status. Chi Squared-test, Odds Ratio, confidence intervals to 95%, between self-perception and lifestyle dimensions and overweight / obesity status, were calculated.

Results. Of the 100 offspring of people with Type 2 diabetes, 61 (61%) were self-perceived with healthy lifestyle and overweight / obesity; $X^2 = 3.16$, $p = .075$, $OR = 5.51$, 95% CI .69 to 44.24; association between self-perception of fitness unhealthy ($X^2 = 5.33$, $df = 1$, $p = .02$, $OR = 2.94$), stress and social support ($X^2 = 4.37$, $df = 1$, $p = .037$, $OR = 3.74$) and sexuality ($X^2 = 4.52$, $df = 1$, $p = .03$, $OR = 3.38$) with overweight / obesity.

Conclusions. Among the offspring of people with Type 2 diabetes, it was found an association and effect between three-dimensions of self-perception of lifestyle: fitness, stress and social support, sexuality with overweight / obesity was found.

Keywords: *Self-perception lifestyle; Type 2 diabetes; overweight; obesity.*

1. INTRODUCTION

Type 2 diabetes is one of the most common chronic degenerative diseases and represents a significant burden on health services. [1] It is a metabolic disorder of carbohydrate-deficient in the production or release of insulin, increasing levels glycemia. [2] This chronic disease and its complications are a leading cause of death in Mexico [3], and more than 400,000 new cases annually. [4]

Mexican Official Norm for the prevention, treatment and control of diabetes [5], considered at risk of developing diabetes, those with overweight / obesity, sedentary lifestyle, first-degree relatives with diabetes, age greater than or equal to 65 years, women with a history of macrosomy or gestational diabetes.

Despite the benefits, that implies a healthy lifestyle to delay its appearance in those with risk factors such as a family history, many of them do not maintain a healthy lifestyle.

The lifestyle is the role that the person in preserving health or to avoid the onset of the disease; the healthy lifestyle is what the human being does, says or thinks to preserve health; the unhealthy life style is what the person does, says or thinks, resulting in the weakening of health. [6]

It is important to the perception that the person himself, as to be aware that something is not right, there may be better placed to a favorable change. If people perceive an unhealthy life style they are more likely to be more receptive to a change in the lifestyle to a healthier way.

The level of physical activity and food consumption are related to Body Mass Index (BMI), blood glucose levels, and blood levels of HDL cholesterol and triglycerides [7], it is essential to change them to prevent the onset of diabetes. The lifestyle is responsible for an efficient or good health, so that if you want to be a person, family and healthier community, you must modify the current lifestyle, but as the effects of lifestyle unhealthy are not immediate, the subject falls into a vicious circle of not changing your lifestyle because you do not feel affected, but that his health is deteriorating progressively leading to expensive chronic diseases. [6]

A group at risk for type 2 diabetes are the offspring of people with Type 2 diabetes, as they not only have potentially genetic factors involved, but share the lifestyle of the diabetic parents, who is generally unhealthy leading to obesity, dyslipidemia and hypertension. [8]

It has also been reported that patients with proper weight and a level of vigorous physical activity, take longer to develop diabetes. [9,10]

Based on the above, it was intended to analyze the relationship between self-perception of lifestyle and overweight / obesity status, in people without type 2 diabetes, with a parent diagnosed with the disease.

2. MATERIAL AND METHODS

The protocol was reviewed and approved by the Research Committee and the Bioethics Committee of the Division of Health Sciences and Engineering Campus Celaya Salvatierra, University of Guanajuato, Mexico.

2.1 Study design.

Cross-sectional, analytic, observational study.

2.2 Study place.

It is a community-based study, in the region of Celaya, Guanajuato Mexico..

2.3 Target population.

Offspring of people with Type 2 diabetes, in the region of Celaya, Guanajuato, Mexico. The people with Type 2 diabetes were registered in self-help groups in health care settings in Celaya, Guanajuato, Mexico

2.4 Sampling.

Simple random sampling was performed, with the sampling scheme the list of persons registered in three groups of self-help groups in health care settings and their offspring were invited to participate.

2.5 Selection of subjects.

2.5.1 Inclusion criteria.

Offspring of people with Type 2 diabetes aged 18 or older, male or female, who agreed in writing to participate in the study and signed the consent form.

2.5.2 Exclusion criteria.

Who did not agree to participate in the study; less than 18 years old; who were diagnosed with Type 2 diabetes.

2.6 Study procedures.

Subjects were asked to sign informed consent and subsequently fill the self-perception lifestyle questionnaire [11] and proceeded to anthropometry.

2.7 Variables

2.7.1 Sociodemographic variables.

Age, gender, marital status, education, weight, height, Body Mass Index were obtained.

2.7.2 Independent variable.

Self-perception of lifestyle is a dichotomous variable; are habits regarding physical activity, diet, smoking, alcohol consumption, self-care, values, environment, stress, sexuality; measuring scale is through self-perception of lifestyle questionnaire [11], healthy 41-80 points, and unhealthy from 0 to 40 points; It was summarized with frequencies and percentages. Its reliability is Kappa 0.9 intra-observer and 0.87 inter-observer. It is not correlated with health.

2.7.2.1 Dimensions of lifestyle.

Fitness, self-care and medical care, eating habits, alcohol or tobacco intake, prevention of accidents, values and spirituality, stress and social support, environment and sexuality.

2.7.3 Dependent variable.

Overweight / obesity is a dichotomous variables; is greater than 25 kg / m² of BMI; It measured as appropriate with BMI equal to or less than 25 kg / m² or overweight / obesity greater than 25 kg / m² of BMI; it was summarized with frequencies and percentages.

2.8 Sample size

Assuming that 70% of the group with style unhealthy life are overweight / obese and 40% of the group with healthy lifestyle are overweight / obesity, the minimum sample size is 42 with lifestyle unhealthy and 42 with healthy lifestyle, with 95% accuracy and 80% power for diabetics (Epidat 3.1, 2006, Xunta de Galicia and Pan American Health Organization).

2.9. Statistical analysis.

For description of variables descriptive statistics, with means and standard deviations for quantitative variables and frequencies and percentages for categorical variables were used.

To demonstrate association among self-perception of lifestyle and overweight / obesity status, Chi squared test and P-value was calculated; Odds Ratio (OR), confidence intervals at 95% (95%) to quantify the effect of self-perception of the lifestyle of overweight / obesity in offspring of people with Type 2 diabetes was calculated.

To demonstrate statistical significance of the results the *P- value* was set at .05.

All statistical tests were conducted in STATA 13.0® (Stata Corp., College Station, TX, USA).

3. RESULTS

The sample consisted of 100 children of parents with type 2 diabetes.

Categorical sociodemographic characteristics are shown in Table 1; predominated in the sample of female subjects (74%), single (45%), with high school education (25%) and bachelor degree (25%).

109 **Table 1 Sociodemographic characteristics of people with a family history of type 2 diabetes,**
110 **Celaya, 2014 (n = 100)**

Variables	People without Type 2 diabetes	
	n	%
Gender		
Male	26	26.00
Female	74	74.00
Status civil		
Singled	45	45.00
Married	38	38.00
Divorced	3	3.00
Separate	1	1.00
Widowed	12	12.00
Free unión	1	1.00
School		
None	16	16.00
Elementary	13	13.00
Secondary	18	18.00
High school	25	25.00
Bachelor	25	25.00
Posgraduate	3	3.00

111 Source: Study forms

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113 Table 2 show ranges, means and standard deviations of quantitative sociodemographic variables.

114 **Table 2 Quantitative sociodemographic characteristics of people with a family history of type 2**
115 **diabetes, Celaya, 2014 (n = 100)**

Variables	Offspring of people with Type 2 diabetes
Age (years)	
Range	18 to 65
Mean	34.92
Standard deviation	12.60
Weight (Kg)	
Range	42 to 125
Mean	71.87
Standard deviation	16.10
Height (cm)	
Range	134 to 190
Mean	159.92
Standard deviation	10.10
Body Mass Index (Kg/m ²)	
Range	17.44 to 47.63
Mean	27.96
Standard deviation	4.93

117 Source: Study forms

Among the subjects involved only 14 reported perceiving style unhealthy life and overweight / obesity and 1 perceived lifestyle non-healthy living and proper weight, finding that the relationship is not statistically significant ($P = .075$); a fact to note is that 61 people were perceived with healthy lifestyle and had a corresponding BMI overweight / obese ($25 \text{ kg} / \text{m}^2$) (Table 3).

Table 3 Tabulation among self-perception of lifestyle and status of overweight / obesity in people without type 2 diabetes, Celaya, 2014 (n = 100)

	Body Mass Index $\geq 25 \text{ Kg/m}^2$ n %		Body Mass Index < 25 kg/m^2 n %		χ^2	DF	P-value
Self-perception of lifestyle					3.16	99	.075
Non-healthy	14		1				
Healthy	61		24				

DF=degree of freedom

Source: Questionnaire of self-perception of lifestyle and study forms

When analyzing the dimensions of perception lifestyle in the participants a strong association between self-perception of unhealthy physical condition and status of overweight / obesity, with OR = 5.33 with 95% CI 1.12 to 7.72 was found; similar situation detected between self-perception of stress and social support unhealthy overweight / obesity OR = 3.74, 95% CI 0.98 to 14.22. As for self-perception of sexuality as unhealthy lifestyle and status of overweight / obesity, OR = 3.38, 95% CI 1.02 to 11.24.

In the sample of study subjects, no statistically significant association between the dimensions of lifestyle found: self-care, eating habits, accident prevention, values and social support, environmental care, showed no association with overweight / obesity ($P > 0.05$) (Table 4).

Table 4 Tabulation among the dimensions of self-perception of lifestyle and status of overweight / obesity in people without type 2 diabetes, Celaya, 2014 (n = 100)

Dimensions of lifestyle	Body Mass Index $\geq 25 \text{ Kg/m}^2$ n%		Body Mass Index < 25 kg/m^2 n%		χ^2	DF	P-value
Fitness					5.33	1	.02
Non-healthy	49		10				
Healthy	25		15				
Self-care and medical care					0.16	1	.69
Non-healthy	30		9				
Healthy	44		16				
Eating habits					0.08	1	.78
Non-healthy	32		10				
Healthy	42		15				
Alcohol or tobacco intake					0.03	1	.87
Non-healthy	8		3				
Healthy	66		22				
Prevention of accidents					--	-	---
Non-healthy	1		0				
Healthy	73		25				

Values and spirituality			1.33	1	.25
Non-healthy	13	2			
Healthy	61	23			
Stress and social support			4.37	1	.037
Non-healthy	25	3			
Healthy	49	22			
Environment			0.54	1	.46
Non-healthy	17	4			
Healthy	57	21			
Sexuality			4.52	1	.03
Non-healthy	29	4			
Healthy	45	21			

Source: Questionnaire of self-perception of lifestyle and study forms

4. DISCUSSION

The sample of 100 offspring of people with Type 2 diabetes was selected randomly, representing the diabetic children in the region of Celaya, Guanajuato. The participation rate was 93%.

A major disadvantage is that it was expected to find more people with perceived unhealthy lifestyle, but only 15 participants self-perceived their lifestyle as non-healthy (Table 3), and the sample size was not completed and the results are not significative.

The finding that the offspring of people with Type 2 diabetes perceived a healthy lifestyle, can generate not feel there is any need to make changes in their lifestyle as they are considered no problems in his (her) lifestyle, although most were overweight / obesity.

Those offspring of diabetic patients, showed that physical fitness, stress and social support and sexuality unhealthy as part of the lifestyle, are related to overweight / obesity, which should be considered if it combines the hereditary familial factor diabetes, are at increased risk of developing the metabolic disorder (Table 3), as mentioned by Hu et al., that the most important for developing type 2 diabetes predictors are overweight / obesity, lack of exercise, poor diet, smoking. [12]

Dominguez et al., in diabetic patients with caloric restriction (1400-2000 cal / day) and physical five days a week activity, BMI decreased from 26 to 21 kg / m². [13] In the group of children of diabetic participants they perceive that their eating habits are healthy and therefore do not require changes in that section, although they have overweight / obesity.

Castillo et al., studied the perception of risk of developing diabetes in relatives of hospitalized diabetic finding that perception was adequate in 87% of subjects, but 67% were overweight and 73% were sedentary. [14] In the sample of the offspring of diabetic patients, 49% of them overweight / obesity were perceived sedentary lifestyle (Table 4).

It was also found that there was a statistically significant association between the size of the perception of lifestyle stress and social support overweight / obesity ($p < 0.05$), with an OR of 3.74, meaning that people with overweight/obesity were almost 4 times more likely to have a lifestyle unhealthy in relation to the dimension of stress and social support. It was reported that 60% of people with hyperphagia suffer stress as a pathological form of defense, accompanied by immature personalities, with anxious features and depresivos.[15]

A fact worth noting is that the participants had an OR 3.38 among those who were overweight / obesity and style not healthy style life from the perspective of sexuality (Table 4). This shows that for young people a healthy life from the perspective of sexuality is an important factor in maintaining a healthy lifestyle factor. Obese patients tend to have limitations in their sexuality affecting their self-esteem.[15]

5. CONCLUSION

Although people with a family history of type 2 diabetes are more aware of the importance of a healthy lifestyle, many of them do not apply that healthy lifestyle.

It would be important to relate the perception of lifestyle diseases such as heart disease, stroke and others.

In people without Type 2 diabetes, but with a family history of the disease, it should further be encouraged to implement a healthy lifestyle, trying to delay the onset of the disease.

CONSENT

All participants signed the consent form.

ETHICAL APPROVAL

The protocol was approved by Bioethics Committee of Division of Health Sciences and Engineering of Campus Celaya Salvatierra University of Guanajuato Mexico with the register number: **CIDCSIC-1381310**

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