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ORIGINAL ARTICLE

INFLUENCE OF ANTHROPOMETRIC INDICATORS IN QUALITY OF DIABETIC SUBJECTS' LIFE

INFLUÊNCIA DOS INDICADORES ANTROPOMÉTRICOS NA QUALIDADE DE VIDA DE DIABÉTICOS

INFLUENCIA DE INDICADORES ANTROPOMÉTRICOS DE LA CALIDAD DE VIDA DE LA DIABETES

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ABSTRACT

Objective: to analyze the influence of obesity on quality of diabetic subjects' life. ***Method:*** epidemiological, cross-sectional and census study, conducted with 101 diabetic patients enrolled in HIPERDIA program in a Family Health Unit. For tabulation and analysis of the data we used SPSS version 21.0, presented in tables and compared with the literature. ***Results:*** it was observed that 62.4% (n=63) of subjects are female, with a mean age of 60 years-old (± 14.0). Statistical significance (p <0.05) were identified between the anthropometric variables BMI and WHR with the Environment domain questionnaire on Quality of Life. ***Conclusion:*** in general, obesity influences people's quality of life searched, requiring planning educational activities that encourage behavioral changes related to lifestyle. ***Descriptors*:** Diabetes Mellitus; Quality of Life; Obesity.

RESUMO

***Objetivo*:** analisar a influência da obesidade na qualidade de vida dos diabéticos. ***Método*:** estudo epidemiológico, transversal e censitário, desenvolvido com 101 diabéticos cadastrados no programa HIPERDIA em uma de Unidade de Saúde da Família. Para tabulação e análise dos dados foi usado o programa SPSS versão 21.0, apresentados em tabelas e confrontados com a literatura. ***Resultados*:** foi observado que 62,4% (n=63) dos indivíduos são do sexo feminino, sendo a média de idade de 60 anos (±14,0). Foram identificadas significâncias estatísticas (p<0,05) entre as variáveis antropométricas IMC e RCQ com o domínio Meio Ambiente do questionário sobre Qualidade de Vida. ***Conclusão*:** de forma geral, a obesidade influencia na qualidade de vida da população pesquisada, sendo necessário o planejamento de atividades educativas que estimulem mudanças comportamentais relacionadas aos hábitos de vida. ***Descritores*:** Diabetes Mellitus; Qualidade de Vida; Obesidade.

RESUMEN

Objetivo: Analizar la influencia de la obesidad sobre la calidad de vida de los diabéticos. ***Método:*** Estudio epidemiológico, transversal censo, realizado con 101 pacientes diabéticos inscritos en el programa HIPERDIA en una Unidad de Salud de la Familia. Para la tabulación y análisis de los datos se utilizó el programa SPSS versión 21.0, se presenta en las tablas y en comparación con la literatura. ***Resultados:*** se observó que el 62,4% de los sujetos (n = 63) son mujeres, con una edad media de 60 años (± 14,0). Ellos fueron identificados significación estadística (p <0,05) entre las variables antropométricas IMC y la RCC con el cuestionario de dominio de Medio Ambiente sobre la Calidad de Vida. ***Conclusión:*** en general, la obesidad influye en la calidad de vida de las personas buscadas, lo que requiere la planificación de actividades educativas que fomenten cambios de comportamiento relacionados con el estilo de vida. ***Descriptores*:** Diabetes Mellitus; Calidad de Vida; Obesidad.

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INTRODUCTION

Diabetes mellitus (DM) is a non-communicable chronic diseases (NCDs) related to the metabolic changes associated with human behavior change in relation to diet and the life style.[1] It was estimated that in 1995, DM reached about 4, 0% of the adult population in world, and in 2025 it will reach a prevalence of 5.4%. Most of this increase will occur in developing countries, accentuating the pattern of concentration of cases in the age group of 45-64 years-old.[2]

Diabetic patients require special attention to the control of comorbidities, such as physical inactivity and obesity, both related to the lack of care about the disease, physical inactivity, nutrition.[3] These changes can compromise the quality of life (QOL) if there is no proper guidance on the importance of the complications that arise.

The evaluation of health related to QoL has grown in the general population. Studies show that the increase in NCDs and their risk factors influence the QOL of indiviuals.[4,5] Thus, QOL is perceived by the individual through their physical, emotional and cognitive through relationships and social roles adopted in life, besides the various aspects related to the environment where they live.[6]

To ensure means and situations that increase QoL could help to reduce diseases.[7] Thus, the relevance of this study is able to take information that can contribute to a reflection about the QoL. Moreover, it may will unveil the view of users of the family health unit (FHU) in relation to the QV and then propose by this knowledge, public policies that can be proposed and discussed in the health scenario. This study aims to analyze the influence of obesity on the QOL of diabetics.

METHOD

This is an epidemiological, cross-sectional and census study conducted from April to May 2012 with 101 diabetic patients enrolled in HIPERDIA program in a USF in the city of Jequié-BA.

The study included individuals of both sexes; registered in HIPERDIA program in monitoring the health team. On the other hand they were excluded five diabetics who did not agree to participate, 6 with cognitive impairment that prevented them from responding or understand the questionnaire and 4 that were not found at home after three visits on alternate schedules.

Data were collected through questionnaires from interviews conducted in households where participants were invited and informed about the nature of the study. After agreeing to participate and sign the Informed Consent and Informed (IC), it gave start to the proceedings. The study was approved by the Research Ethics Committee of Universidade Estadual do Sudoeste da Bahia (Protocol CEP / UESB No 135/2008). The interviews were conducted by standardized interviewers, which are able to address the questions of the participants on the issues of the study.

We used two instruments for data collection, the first with socio-demographic and economic issues, lifestyle, being affected by diseases and anthropometric measurements; and the second one, WHOQOL Bref, which consists of 26 questions that represent four areas of assessment of quality of life: physical, psychological, social and environment relations.[8]

To measure the Abdominal Circumference (AC) and Circumference Hip (CQ) we used a tape measure with minimum unit of 0.1 cm; for the measurement of body weight we used portable scale (Tech Line) and height (in centimeters), a compact Stadiometer (E210-Wiso).

To calculate the Body Mass Index (BMI) we used the formula [WEIGHT/HEIGHT^2]. Thus, it is possible to classify individuals as underweight (BMI <18.5); normal weight (BMI 18.5-24.9); overweight (BMI 25-29.9) and obesity (BMI ≥ 30.0).[9] The measure of waist/hip ratio (WHR) was calculated from the reason WHR=CA (cm)/QC (cm) and the AC was measured through the midpoint between the lower costal margin and the iliac crest. We considered having abdominal obesity individuals with WHR ≥ 1.0 for men and ≥ 0.85 for women, and CA ≥ 102 cm for men and ≥ 88 cm for women.[9]

Data were entered into Microsoft Excel spreadsheet software, and the analysis in Statical Package for Social Sciences (SPSS) version 21.0. A descriptive analysis (relative and absolute frequency) for categorical variables and the mean and standard deviation for numerical variables was carried out. The normality of the data was analyzed using the Kolmogorov-Smirnov normality test. To compare the QOL between the sexes of the individuals we used the nonparametric Mann-Whitney. The correlation between anthropometric indicators and domains of QOL was done by Spearman correlation. The significance level was $p < 0.05$.

RESULTS

The population consisted of 101 diabetics, aged 15 to 91 years-old, with a mean of 60 years-old(± 14). Table 1 shows the characterization of the sample, which prevailed female subjects, who lived with a partner (a), they declare themselves as nonwhite, with incomplete 1st degree and monthly income of 1 minimum wage.

The prevalence of smoking was 49.5%, alcohol 63.4%, the systemic arterial hypertension (SAH) of 86.1% and 54.5% of cardiovascular disease. Among the 61.4% respondents did not practice regular physical activity.

In the analysis of anthropometric indicators, when measured BMI, we found that 67.3% of subjects were overweight or obese (Table 1).

Table 1. Distribution of sociodemographic characteristics of diabetics in numerical values and percentages (Jequié- BA, 2012).

Variables	Categories	n	%
Gender	Female	63	62,4
	Male	38	37,6
Age group	< 60 years-old	53	52,5
	≥ 60 years-old	48	47,5
Marital status	With partner	57	56,4
	No partner	44	43,6
Color or race	White	22	21,8
	Non white	79	78,2
Education	Illiterate	11	10,9
	incomplete Elementary school	54	53,5
	Complete Elementary school	11	10,9
	Incomplete High school	02	2,0
	Complete High school	17	16,8
	Incomplete College	02	2,0
	Complete College	04	4,0
Monthly income	1 wage	52	51,5
	between 2 or 3 wages	36	35,6
	More than 3 wages	13	12,9
Tobacco consumption	At present	10	9,9
	Have never smoked	50	49,5
	Ex-smokers	41	40,6
Alcohol consumption	Yes	64	63,4
	No	37	36,6
Hipertension	Yes	87	86,1
	No	13	12,9
Cardiovascular disease	Yes	55	54,5
	No	46	45,5
Physical activities	Yes	39	38,6
	No	62	61,4
BMI	Under weight	03	3,0
	Eutrophic	30	29,7
	Overweight	36	35,6
	Obese	32	31,7

When comparing age with the anthropometric variables, it is possible to show that individuals aged 60 or older had the means of AC and WHR higher than those aged less than 60 years-old. As for the individuals with the lowest age of 60 revealed a higher mean BMI than individuals above 60 years-old (Table 2).

Table 2. Distribution of means, standard deviations and confidence interval between anthropometric variables by age group (Jequié- BA, 2012).

Variables	< 60 years-old			≥ 60 years-old		
	Average	DP	IC (95%)	Average	DP	IC (95%)
AC	97,1	±12,4	(93,5-100,5)	100,3	±11,7	(96,8-103,6)
BMI	27,8	±5,2	(26,4-29,2)	26,8	±4,9	(25,4-28,2)
WHR	1,01	±0,12	(0,97-1,04)	1,04	±0,14	(1,00-1,07)

Evaluating the results of the anthropometric data between the sexes, it was found that men had a higher average of AC than women's. In relation to BMI, women obtained a higher average than men. As for the WHR, the results were similar between the sexes (Table 3).

Table 3. Anthropometric measurements and body composition by gender (Jequié- BA, 2012).

Variables	Female			Male		
	Average	DP	IC (95%)	Average	DP	IC (95%)
AC	97,8	±12,6	(94,6-100,9)	99,9	±11,4	(96,1-103,6)
BMI	27,6	±5,2	(26,3-28,9)	26,8	±4,8	(25,3-28,4)
WHR	1,02	±0,13	(0,99-1,05)	1,02	±0,11	(0,98-1,05)

For the assessment of QoL domains according to gender, it was observed that the highest and lowest score achieved in women was, respectively, for the domains Social and Environmental Relations. For males the highest and lowest scores were achieved respectively the domains Social and Physical Relations. It can also show a statistically significant difference (p <0.05) between the fields Environment and Self-assessment of QOL (Table 4).

Table 4. Distribution of the means of QOL domains between genders (Jequié-BA, 2012).

Domains	Gender		
	Female	Male	P
Physical	58,3 (±12,1)	55,7 (±8,2)	0,852
Psychological	60,6 (±10,5)	60,5 (±11,5)	0,051
Social Relations	65,7 (±17,3)	69,3 (±17,1)	0,433
Environment	50,8 (±10,2)	56,0 (±10,7)	0,005*
QoL Self-assessment	50,4 (±19,3)	60,8 (±19,8)	0,006*

Teste de Mann-Whitney: *p<0,05**

Regarding the correlation between anthropometric variables with the domains of QOL, they generally showed weak correlations, but statistically significant difference was identified between BMI, WHR with the Environment (p <0.05) (Table 5).

Table 5. Correlations between anthropometric variables with the domains of QOL of diabetics, Jequié- BA 2012.

Domains	BMI	AC	WHR
Physical	r	r	r
Psychological	0,073	0,002	0,047
Social Relations	-0,098	-0,104	-0,119
Environment	-0,041	-0,085	-0,018
	-0,198*	-0,064	-0,133*
QOL Self-assessment	-0,024	0,100	0,073

Correlation of Spearman: p<0,05*

DISCUSSION

The study showed that diabetic subjects had low education. According to a survey of Basic care[10], the adherence to treatment in services it has a tendency to be lower in individuals who have a low level of education. Thus it is necessary to develop strategies that allow control the complications of the disease as a result of non-adherence to treatment.[1]

With respect to people's living habits, studies of individuals with NCD and dependent cigarette consumption showed a high prevalence on the use as a factor that influences the diseases with high morbidity and mortality, resulting in worsening health and QoL.[11-3] It was showed that the adoption of activities to promote discussions about tobacco use should be used for different populations in order to prevent diseases aggravated by cigarette consumption.[14]

Regarding the use of alcohol, studies report that there are diabetogenic effects in people with diabetes, including the accumulation of fat in the body, which provides the increase in obesity, in addition to causing excessive periods of fasting and case of hipoglicemy.[15-7] It is observed that the effects of alcohol consumption of the individual's health damage contributes to increased risk of developing several diseases.[5]

Regarding the increase of overweight individuals, they may be related to cases of SAH and DM of population.[18] In this sense, the NCD as SAH and DM represent the main factors complications and cardiovascular risk, being the main cause of morbidity and mortality also are related living conditions, work and consumption of the general population, which leads to changes in QoL.[2,19]

As for physical exercise, the study showed that diabetics are sedentary and do not perform regular physical activity. The physical activity helps to control diabetes and obesity, by the increase in resting metabolic rate after physical exercise completion.[20] In individuals

with NCDs it is essential to adopt a healthy lifestyle by carrying regular physical activity to provide disease control and improved QoL.[21]

Considering the demographics of diabetics in relation to age, we can show that individuals with an average age of 60 years-old presented prevalence of abdominal obesity in the AC identified variables, BMI and WHR. So obesity can be explained as in the aging process, there is an expected increase in abdominal fat accumulation in individuals.[22] And the impact that cause disease in physical, psychological, social and economic affects QOL of individuals bringing limitations in carrying out daily activities.[23]

Regarding gender, it was observed that between male and female, the elevation of AC and WHR was presented. The increase in anthropometric values such as AC and WHR influence the development of obesity.[24] In this sense, studies show that interventions related to reducing body weight are very important for the prevention of diseases, by conducting activities that can promote health and QoL to population.[25-6]

This study found that diabetics are overweight, which may be related to sedentary lifestyle associated with lack of regular physical activity, in addition to changes in nutrition patterns.[4]

Another point to be highlighted are the domains of QOL between the sexes, there was significant difference in the fields Environment and Self-Assessment of QOL. This finding is justified by most individuals reside in poor areas that do not provide environments for better personal care, leisure, transport and protection, also there are difficulties in joining the treatment of the disease which causes health damage influencing in control of disease.[5]

As for the evaluation of correlation between anthropometric variables and domains of QOL, it was revealed statistical difference between BMI and WHR $p < 0.05$ with the Environment domain. This result is justified by the precarious housing and leisure environment associated with lack of personal care, access to information and low level of education can provide problems in health and QOL of people.[4,27-8]

CONCLUSION

There was the prevalence of abdominal obesity in both sexes, reinforcing the importance of clinical and nutritional monitoring in reducing the risk of cardiovascular disease.

As the influence of obesity on the QOL of individuals, revealed to Overweight relationship with the environment in which the study population resides. This fact can negatively influence the QOL of diabetics. This issue was justified by the lack of health care and access to information, which may be related to the social conditions that experience population.

Among the limitations of this study, there is the cross-sectional design adopted, which allowed observation of statistically significant associations without, however, allow for the possibility of a causal relationship inference, a fact that delineated the highlighted findings.

There is a need to plan and program educational activities that encourage behavioral changes related to lifestyle of individuals. So these measures may influence the reduction of cardiovascular risk and possible improvements in QOL of diabetics.

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