



Article Type: Review Article

Received: 13/02/2021

Published: 26/02/2021

DOI: 10.46718/JBGSR.2021.07.000179

Prevalence of Diabetes Mellitus, Hypertension, Overweight / Obesity and Associated Factors in Education Workers, Guerrero

Elvia Peña Marcial¹, Lorena Inés Bernal Mendoza², Leticia Reyna Avila^{3*}, Rodrigo Pérez Cabañas⁴, María Isabel Ramos Herrera⁵, Nelissa Rodríguez Dorantes⁶

¹Maestría en Salud Pública. Docente-investigadora de la Unidad Académica de Enfermería No.1, de la Universidad Autónoma de Guerrero, México

²Maestría en Salud Pública. Docente-investigadora de la Unidad Académica de Enfermería No.1, de la Universidad Autónoma de Guerrero, México

³Maestría en Enfermería. Docente-investigadora de la Escuela Superior de Enfermería No.1, de la Universidad Autónoma de Guerrero, México

⁴Maestría en Estadística Aplicada. Docente-investigador de la Escuela Superior de Enfermería No.1, de la Universidad Autónoma de Guerrero, México

⁵Maestría en Salud Pública. Docente-investigadora de la Unidad Académica de Enfermería No.1, de la Universidad Autónoma de Guerrero, México

⁶Doctorado

*Corresponding author: Leticia Reyna Avila, Maestría en Enfermería. Docente-investigadora de la Escuela Superior de Enfermería No.1, de la Universidad Autónoma de Guerrero, México

Abstract

Introduction: Chronic degenerative diseases are one of the leading causes of morbidity and mortality worldwide in people over 20 years of age. The urbanization process of the last 50 years, has conditioned the increase in the incidence and prevalence of these diseases that correspond to overpopulation, but mainly to the social process, economic crisis, habits and customs, deficit of knowledge that denote deviation in the Health.

Objective: Know the prevalence and factors associated with Diabetes Mellitus, Hypertension and Overweight / Obesity in education workers in Guerrero.

Material and Method: A cross-sectional study was conducted, with a population of 1477 workers over 20 years of age in the administrative, administrative and foreman departments of the Autonomous University of Guerrero and primary school teachers in Chilpancingo Gro., from the central state region.

Results: The prevalence found for Diabetes was 17.5%, Arterial Hypertension 35.7%, and Overweight / Obesity 73.5%.

Conclusion: The importance of this study is that despite being a population with professional training at different levels is not prepared for these diseases and even the name generates fear.

Keywords: Adult health; Anthropometry; Non-communicable diseases; epidemiology, nursing

Introduction

Chronic non-communicable diseases such as Type 2 Diabetes Mellitus (DM), Arterial Hypertension (HBP) and Overweight / Obesity, are a serious current public health problem. They constitute one of the greatest challenges facing the health system due to the large number of affected cases, their increasing contribution to general mortality, their appearance at an increasingly early age, the fact that they are the most frequent cause of premature disability, as

well as the complexity and high cost of its treatment.

Overweight and Obesity are conditions that are related to genetic susceptibility, with psychological, social and metabolic disorders; that increase the risk of developing comorbidities such as: hypertension, type 2 DM, cardiovascular and cerebrovascular diseases, among other conditions [1]. Worldwide, in the year 20018 Mexico ranks second in Obesity (OB), being a public health problem

and is considered an epidemic, due to its magnitude and significance [2]. According to a report by the World Health Organization (WHO), Mexico has the highest rate of adults with OB in Latin America with 28.9% of the population, followed by Argentina (28.3%), Chile (28 %) and the Dominican Republic (27.9%), among other countries [3]. ENSANUT 2016, reported in Mexico the prevalence of Overweight and Obesity in the population older than 20 years of 72.5%, [4] being one of the countries with the highest prevalence of HT (31.5%) [5] The OECD estimates that by 2030, 40% of Mexican adults will have OB, the main risk factor for the development of chronic diseases [2]. Therefore, OB is considered a multifactorial and complex disease in which genetic, behavioral and environmental problems intervene; being a risk factor for developing DM, HT, cardiovascular diseases, among others [5].

In 2015, the WHO considered hypertension as the leading cause of death worldwide, with figures close to 7 million people a year. It affects approximately one in four adults and reduces life expectancy by 10 to 15 years. [6] Surveys conducted in Mexico in the last 22 years have shown a sustained increase in its prevalence in people 20 years of age and older, with 31.5% [7]. It is estimated that 450,000 new cases are diagnosed annually and this figure could double if it is considered that 47.3% of people with HT are unaware that they have this disease [8]. HT has remained among the first nine causes of death in Mexico [9] in 2015 it was 18.1% of all deaths and is the main risk factor for preventable deaths [8].

DM is recognized as an epidemic by the WHO, it is estimated that there are currently more than 347 million people with DM in the world and it is likely that this figure will more than double by 2030. More than 80% of deaths from diabetes is registered in low- and middle-income countries, most of which are less prepared to face this epidemic; In Mexico it represents a high burden for the community, according to WHO projections, diabetes will be the seventh cause of mortality in 2030 [10].

The ENSANUT 2016; reported that 9.4% of the adults interviewed answered having received a diagnosis of DM from a doctor [11]. Mexico is on the list of the 10 countries with the highest number of people living with DM; According to national surveys for 2030, the prevalence would reach 12 to 18%, and by 2050, 14 to 22%. This pathology is responsible for complications such as blindness, kidney failure, myocardial infarction, stroke and amputation of the lower limbs [12].

In the state of Guerrero, the Mexican Institute of

Social Security (IMSS) in 2017 reported 62,924 people who suffered from DM and specifically in Chilpancingo 3,975 beneficiaries diagnosed with this pathology. The secretary of health reports that in the last five years in the state, more than 12 and 13 thousand new cases have been detected in people aged 20 years and over, who suffer from type 2 DM. In the last five years there have been around 13 thousand 500 deaths from diabetes in the state [13].

The foregoing makes it necessary to approach these pathologies from the labor perspective, since these are a health problem that affects performance, with social and economic repercussions in relation to quality of life and in the social security system. Therefore, the objective of this study is to know the prevalence and factors associated with Diabetes Mellitus, Arterial Hypertension and Overweight / Obesity in educational workers in Guerrero; Mexico. The data of this research will give an overview of the health situation of the economically active population of the educational sector of the central region of the state of Guerrero and with it the decision-making in public policies that allow promoting healthy lifestyles in young populations to decrease the prevalence of chronic degenerative diseases and thereby improve the quality of life in adulthood.

Material and Methods

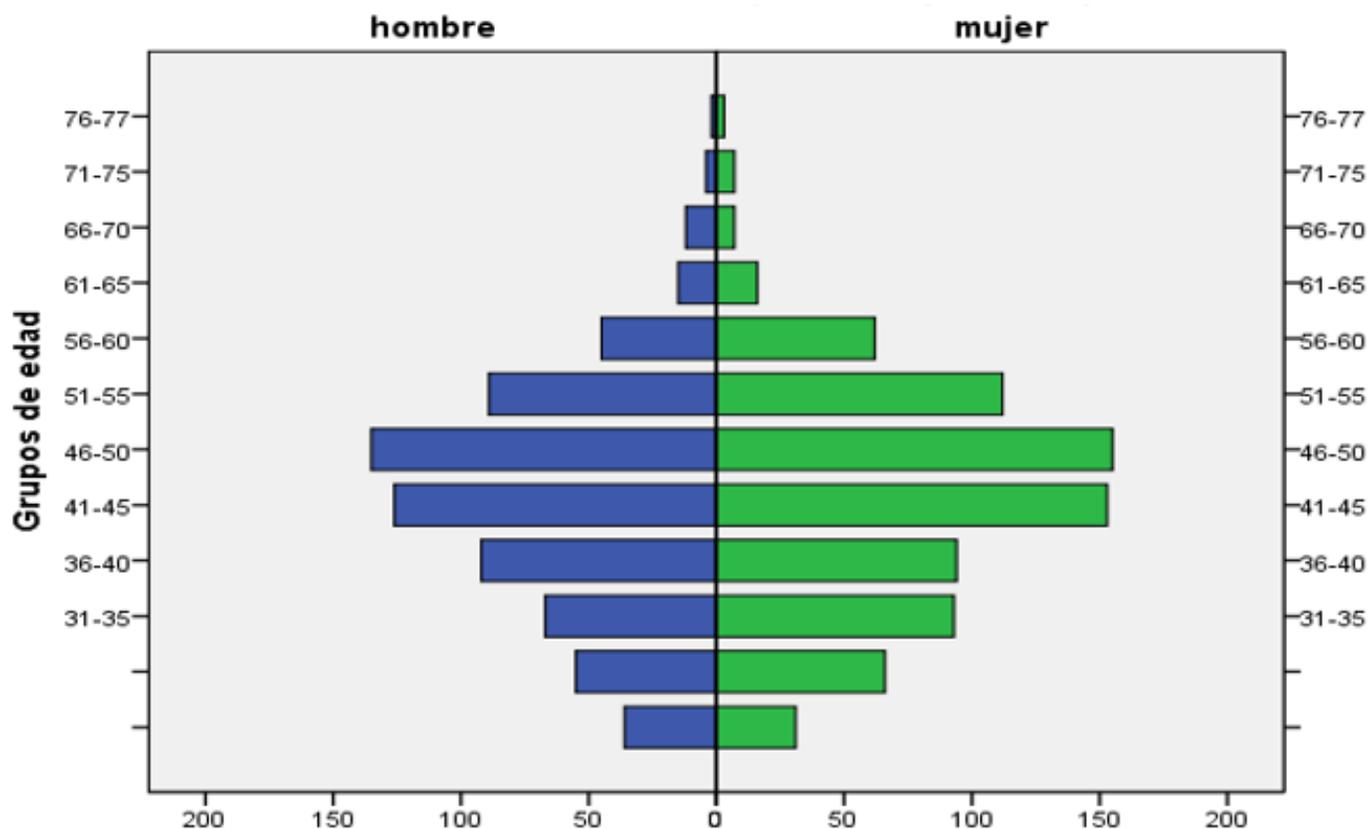
A cross-sectional study was carried out, with simple random sampling, the population was of 1477 workers of educational institutions (directors, administrative and quartermaster of the Autonomous University of Guerrero and teachers of elementary schools of Chilpancingo Gro; of the central zone) older than 20 years of age who agreed to participate in the study by signing the informed consent, with a working seniority of more than 5 years and in the case of women, who were not pregnant or in the puerperium stage. Data collection was from February to June 2018. To collect the information, a self-applied instrument was applied in which the following sections were integrated: sociodemographic data (sex, age, marital status, professional training, institutional dependency, work seniority, position and contract), food consumption, health status (record of anthropometric measurements, blood pressure and glycemia measurement, confirmed diagnosis of diabetes and hypertension, stress), family history of chronic degenerative diseases and consumption of harmful substances (alcohol and tobacco). The instrument was validated by sections, in the anthropometric measurements it was with a cronbach alpha of .775, the blood glucose measurement with a cronbach alpha of .619 in two reagents and the blood pressure measurement with a cronbach alpha of .894 with four reagents. The dependent variables

were Overweight / Obesity, Diabetes Mellitus and Arterial Hypertension; were constructed through the following measurements: weight, height to assess their body mass index (BMI) that determines whether or not there is obesity, (normal 18 -24.9, overweight 25 -29.9, Obesity grade I 30 - 34.5, Obesity grade II 35 - 39.9 and Obesity grade III 40+) (2), likewise, the blood glucose values were determined through a glucometer, Altered fasting glucose (GAA): at fasting glucose > 100 and <125 mg / dl at elevation of glucose above normal; fasting (> 100 mg / dl), after an 8-hour fasting period and postprandial (> 140mg / dl), two hours after a meal. Hypoglycemia: with the decrease in glucose less than 70mg / dl [1], the blood pressure in two doses separated by ten minutes, repeating this last test every third day for three more times (for diagnostic and treatment purposes, will use the following clinical classification: Optimal blood pressure: <120/80 mm Hg Normal blood pressure: 120-129 / 80 - 84 mm Hg. High normal blood pressure: 130-139 / 85-89 mm Hg, Hypertension Arterial: Stage 1: 140-159 / 90-99 mm Hg, Stage 2: 160-179 / 100-109 mm Hg, Stage 3:> 180 / > 110 mm Hg). A descriptive statistical analysis

was performed, calculating measures of central tendency, association, correlation, linear and multivariate regression analysis with the SPSS version 21.0 statistical program. This study complies with the ethical aspects of research in human beings according to Art.13 and Art.14, stipulated in the regulations of the General Health Law on research that establishes respect for their dignity and the protection of human beings. rights and welfare of the individual; the research carried out mentions the contribution to the solution of health problems and the development of new areas [14]. And for the structure of the project, it is subject to the provisions of NOM-012-SSA3-2012 for research in humans, which establishes criteria for the execution of research projects for health in human beings [15].

Results

1,477 education workers participated in Guerrero, 56.1% were female and 43.9% male, the mean age was 43.66, with a standard deviation of 10,576, the variance of 111,857 and the age range from 20 to 77 Most of the workers are in the 40-50 age group (Figure 1).



Fuente: Encuesta a trabajadores de la Educación, Guerrero.

Figure 1: Distribution de la población por edad y sexo.

Table 1: Prevalence of chronic degenerative diseases in the study population.

	F	%
Arterial hypertension	528	35.7%
Diabetes mellitus type 2	258	17.5%
Overweight / Obesity	1084	73.4%

Table 2: Prevalence of overweight / obesity related to diabetes Mellitus and Arterial Hypertension.

	F	%
Arterial hypertension	444	30.06%
Diabetes mellitus type 2	216	14.62%

Table 3: Bivariate analysis between dependent and independent variables.

	Chi2	Tau-b of Kendall	Tau-c of Kendall
Overweight and obesity			
Age	.000		.205
Sex	.009	-.063	
Marital status	.018		.466
Antiquity	.000		.213
Waist	.000		.563
Hip	.000		.544
Arterial hypertension	.000	.181	
Mellitus diabetes	.000	.108	
Exercise	.011	.061	
Cream consumption	.016		.009
Chicharrón consumption	.032		.064
Pork meat consumption	.023		.073
Arterial hypertension			
Age	.000		.310
Sex	.000	-.152	
Marital status	-.018		-.495
Antiquity	.000		.229
Family History of HA	.000	-.151	
Alcohol consumption	.109	-.033	
Flour Tortilla Consumption	.502		.025
Mellitus diabetes			
Age	.000		.195
Labor Old	.000		.134
Chicharrón consumption	.0115		.016
Corn tortilla consumption	.142		.045

Citation: Elvia Peña Marcial, Lorena Inés Bernal Mendoza, Leticia Reyna Avila*, Rodrigo Pérez Cabañas, María Isabel Ramos Herrera, Nelissa Rodríguez Dorantes. Prevalence of Diabetes Mellitus, Hypertension, Overweight / Obesity and Associated Factors in Education Workers, Guerrero. Op Acc J Bio Sci & Res 7(1)-2021.

DOI: 10.46718/JBGRS.2021.07.000179

The prevalence of chronic diseases found in the population was: 35.7% suffer from Arterial Hypertension, 17.5% Type 2 Diabetes Mellitus and 73.4% Overweight / Obesity. The findings showed that of the reported prevalence of Type 2 Diabetes Mellitus only 7.58% know their diagnosis and 28.23% know that they have Hypertension. (Table 1) Of the surveyed population with Overweight / Obesity, 30.06% have Arterial Hypertension and 14.62% have type 2 Diabetes Mellitus (Table 2).

Overweight and Obesity is related to age, sex, marital status, work seniority, waist, hip, Arterial Hypertension, Diabetes Mellitus, exercise and food consumption (cream, pork rinds and pork). There is a moderate relationship between Overweight / Obesity with waist measurement (Tau-c = .563) and hip (Tau-c = .544.). Arterial Hypertension was related to age, sex, marital status, work seniority, antecedent's family members of HA, alcohol consumption and flour tortilla consumption. Type 2 Diabetes Mellitus was related to age, work seniority, and food consumption (pork rinds and corn tortilla). (Table 3).

Discussion

In the analysis of this research, a global prevalence of type 2 DM of 17.5% was detected in workers, higher than the figures of the Mexican Diabetes Federation that establish the national prevalence of 10.7%. The prevalence of HT in the study population was 35.7% above the national average (31.5%). Regarding Overweight / Obesity in the study population was 73.4%, higher than that reported by

ENSANUT 2016 (72.5%) and that reported in the state of Guerrero (55%). Of the prevalence of type 2 DM and HTN reported in the study population, it was found that 7.58% and 28.23% know their diagnosis, respectively, and a large percentage of respondents do not know it. Predominant results were found in the female sex of the age group of 40 to 49 years, which represents an outstanding health data since it manifests itself as the main health problem in the studied population. The factors associated with HT were age, sex, seniority and family history of HT. Diabetes was related to age, work seniority, and pork rind consumption. There is a moderate relationship between Overweight / Obesity with waist and hip measurements. Differing from what was reported in the Brazilian study in 2014 in which they found smoking, body mass index, abdominal circumference, type 2 DM, and dyslipidemia showed a positive association with HT [16].

This shows that these comorbidities are related and multifactorial; Therefore, it is necessary for health institutions to place greater emphasis on prevention by promoting healthy lifestyles from an educational and community level with the support of the multidisciplinary team through social participation.

Conflict of Interest : None declared.

Thanks

To the population participating in this study for the time dedicated to the researchers.

References

1. Segob. Project of Official Mexican Standard PROY-NOM-015-SSA2 (2018) For the prevention, detection, diagnosis, treatment and control of Diabetes Mellitus. Obtained from the Official Gazette of the Federation.
2. Forbes (2018) By 2030, 40% of adults in Mexico will suffer from obesity.
3. WHO (2017) Mexico, leader in obesity in Latin America: WHO. Alliance for food health.
4. SEGOB (2018) Official Mexican NORM NOM-008-SSA3-2017, For the comprehensive treatment of overweight and obesity. Official Gazette of the Federation.
5. Beard Evia JR (2018) Mexico and the challenge of chronic non-communicable diseases. The laboratory also plays an important role. *Rev Latinoam Patol Clin Med Lab* 65: 4-17.
6. Lyre C MT (2015) Impact of Arterial Hypertension as a cardiovascular risk factor. *Rev Med Clin Counts* 26(2): 156-163.
7. SSA (2017) Project of Official Mexican Standard PROY-NOM-030-SSA2-2017, For the prevention, detection, diagnosis, treatment and control of systemic arterial hypertension. Official Diary.
8. Campos Nonato I (2018) Arterial hypertension in Mexican adults Prevalence, diagnosis and type of treatment. *Public health of Mexico* 60(3): 233-243.
9. INSP (2018) Overweight and obesity in Mexico. INSP.
10. WHO (2018) Diabetes. world website, WHO.
11. Oment (2016) Latest diabetes figures in Mexico - Ensanut MC 2016.
12. Rojas Martínez R (2018) Prevalence of diabetes due to previous medical diagnosis in Mexico. *Public health of Mexico*. 60 (3): 224-232.
13. Briseño H (2019) It is suffered by 12 million people in Mexico; it is one of the main causes of death due to complications, says José Astudillo Nava. Type 2 diabetes reaches alarming levels in Guerrero.
14. SSA (2014) Segob-Official Gazette of the Federation.
15. SSA (2013) Official Mexican NORMA NOM-012-SSA3-2012, which establishes the criteria for the execution of research projects for health in human beings. SEGOB-Official Gazette of the federation. 2013 Jan 04.
16. Trindade A, Dos Santos, de Barros Carvalho, Silva Marcon S (2014) Hypertension and other risk factors associated with cardiovascular diseases in adults. *Rev. Latino-Am. Enfermagem* 22 (4): 547-53.

Citation: Elvia Peña Marcial, Lorena Inés Bernal Mendoza, Leticia Reyna Avila*, Rodrigo Pérez Cabañas, María Isabel Ramos Herrera, Nelissa Rodríguez Dorantes. Prevalence of Diabetes Mellitus, Hypertension, Overweight / Obesity and Associated Factors in Education Workers, Guerrero. *Op Acc J Bio Sci & Res* 7(1)-2021.

DOI: 10.46718/JBGSR.2021.07.000179

*Corresponding author: Leticia Reyna Avila, Email: crysl81@hotmail.com

Next Submission with BGSR follows:

- Rapid Peer Review
- Reprints for Original Copy
- E-Prints Availability
- Below URL for auxiliary Submission Link: <https://biogenericpublishers.com/submit-manuscript/>