

## Original Article

# Low back pain in residents of Comalcalco, Tabasco, Mexico: Prevalence and associated factors.

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## Objective:

Cross-sectional analytical study, to determine the prevalence of low back pain and its association with known risk factors, in users of the Mexican Institute of Social Security, in Comalcalco, Tabasco, Mexico. Material and methods: A multistage sample was taken, randomly selecting a medical center of six, and 100 of 420 selected medical center users. Respondents were chosen by convenience, gathering different variables: sociodemographic, anthropometric, lifestyle, chronic degenerative diseases, and low back pain, by personal interviews and review of medical records. Descriptive statistics and odds ratio ( $p \leq 0.05$ ) were estimated. Results: Prevalence of low back pain was observed in 63% beneficiaries. A significant association with occupation, age, sex, obesity, unhealthy habits and chronic degenerative diseases was found, concluding that the prevalence is high, and that risk factors identified in other areas are not applicable to this population.

## Introduction

Low back pain has clinical, social and economical importance since it is a public health problem that affects the population indiscriminately. The available literature is heterogeneous and contradictory.

It is unknown exactly what the proportion of affected people around the world is. Globally, it is estimated that 4-33% of the population exhibits it [1]. While in the United States (USA), Spain and Africa this ranges from 8% to 56% [2-4]. Recent data indicate that its incidence and prevalence have remained stable over the last 15 years [5]. However, the prevalence in the general population is rarely under study, compared with the prevalence in specific groups, like schoolchildren, adolescents, medical students, construction workers, nurses, farmers and indigenous people, to mention a few [6-14].

Most of the research has been developed in the field of occupational medicine, even over orthopedics, since industrialized societies are presenting an disability epidemic due to low back pain, with a tremendous socioeconomic and labor impact, that tend to increase [15]. In Mexico, Noriega-Elió et al. [16] stated that 10-15% of the disability reports in the Mexican Institute of Social Security (IMSS), are issued for low back pain.

Given the frequency of low back pain, attempts have been made to identify its etiology, and so far, approximately 57 causes have been pointed out [17]. However, there is no linear correlation between clinical and anatomic alterations, so an etiological diagnosis is only possible in 10-20% of the cases, i.e., 80-90% of low back pains were "non-specific" [18,19]. Therefore, approximately 90% are cared for and controlled by primary care [3].

Risk factors are numerous, varied and heterogeneous, amongst them are: prolonged static posture, heredity, old age, heavy labor, smoking, obesity, stress, low psychological well being, female gender, operating

heavy machinery, exposure to intense vibrations, emotional and behavioral problems, abdominal pain, tiredness, odynophagia, rapid growth rate, tendon and quadriceps stiffness, study and work, previous episode of low back pain 12 months before current, age >25 years old,

Tall stature ( $\geq 1.80$  m), overweight, construction work, nursing and office work, repetitive and monotonous, frequent twisted postures, driving vehicles daily, lifting and carrying heavy loads, work dissatisfaction, unemployment, and work in the field [2-32]. On the other hand, it has not always been able to corroborate the significant association of these factors with low back pain, so it is recommended to check in different populations.

In the IMSS in Tabasco, low back pain is one of the main reasons to request medical attention. In the Family Medicine Unit (UMF) No. 11 of the IMSS, Comalcalco, Tabasco, it's one of the top 20 reasons for consultation in adults over 20 years old, and one of the 20 most common reasons for temporal disability [33-35].

Therefore, an investigation was conducted aimed at determining the prevalence of low back pain and its association with some known risk factors, in beneficiaries in the UMF No. 11 of the IMSS, Comalcalco, Tabasco, Mexico.

## Materials and methods

An analytic cross-sectional investigation was conducted, in which the universe of the study were beneficiaries of the UMF 11 of the IMSS, in Comalcalco, Tabasco, México, a finite and undetermined number, from which a multistage sample was taken: 1) Sub-universe of medical centers (6 units), random sample with maximum error acceptable 5%, estimated percentage of sample 10%, and  $p=0.05$  obtaining 1 medical center, randomly selected by raffle method, "Medical Center No. 6". 2) Sub-universe of 420 beneficiaries appointed to the selected medical center, probability sampling with maximum error acceptable 5%, estimated percentage

of the sample 25%, and  $p=0.05$ , obtaining 100 beneficiaries, selected by nonprobability sampling by convenience. Selecting people >15 years old, of either sex, who went to receive medical and/or preventive attention in the selected location during September-December 2007; excluding: pregnant women, carriers of cognitive diseases, locomotive disabilities and/or musculoskeletal malformations, users of wheelchairs or crutches, and people with a history of spinal surgery.

### Accepted after external review

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Sociodemographic and anthropometric variables on lifestyles and unhealthy habits, chronic degenerative diseases and low back pain were studied. The information was gathered in an interpretive survey, filled in by direct examination (subject to signature of informed consent [of the parents / guardians in the case of minors under 18 years old]) and clinical record review.

The data were analyzed using the software Epi Info® v3.3.2 (freeware distributed by the USA Center of Disease Control and Prevention) in two phases: 1) Descriptive statistics to identify characteristics of the sample, and 2) Odds ratio (OR) with 95% confidence ( $p \leq 0.05$ ) to identify factors associated with Low Back Pain. The research was conducted with prior approval of the Local Committee of Inquiry 2701 of the IMSS.

## Results

### Description of the population:

100 beneficiaries, 57% male and 43% female were studied. The mean age was  $32.5 \pm 12.49$  years, mode 28, minimum 17, and maximum 76 years. The sociodemographic, lifestyle and health conditions of the population are shown in Table I, while the anthropometric characteristics are shown in Table II.

### Prevalence of Low Back Pain

The prevalence of Low Back Pain was 63% of beneficiaries.

Table I. Sociodemographic, lifestyle and health conditions of the population

Features		Frequency	Percentage
Sex	Female	43	43
	Male	57	57
Occupation	Housewife	1	1
	Housewife with wage labor	4	4
	Student	22	22
	Student with wage labor	11	11
	Employee	62	62
Lifestyle	Sedentarism	84	84
	Smoking	38	38
	Alcoholism	44	44
	Regular physical activity	36	36
Health conditions	Overweight	30	30
	Obesity	54	54
	Chronic degenerative disease	40	40
	Diabetes Mellitus	10	10
	Systemic Arterial Hypertension	18	18
	Dyslipidemia	27	27
	Metabolic Syndrome	7	7

Table II. Anthropometric characteristics of the population

Statistical measure	Variables		
	Weight (Kg)	Size (m)	BMI (Kg/m <sup>2</sup> )
Mean	75.8	1.63	28.34
Standard deviation	12.6	0.08	4.14
Median	74.0	1.65	27.32
Mode	68.0	1.65	25.95
Minimum value	52.0	1.42	20.90
Maximum value	112.0	1.88	43.52

### Factors associated with Low Back Pain

When looking for factors associated with Low Back Pain, it was found an association statistically significant with: student occupation, age >25 years, male gender, wage earning worker, obesity, sedentarism, smoking, alcoholism, chronic degenerative disease, Diabetes Mellitus, Systemic Arterial Hypertension, and Metabolic Syndrome (Table III). Table III. Odds Ratio: Independent Variables / Low back pain

Table III. Odds Ratio: Independent Variables / Low

Independent Variables	OR	IC <sub>95</sub>	P
Occupation housewife	1.80	0.18-17.94	>0.05
Occupation students with wage labor	0.67	0.19-2.36	>0.05
Size >1.80m	1.18	0.10-13.48	>0.05
Overweight	0.87	0.25-2.94	>0.05
Physical activity	0.88	0.37-2.04	>0.05
Dyslipidemia	2.58	0.93-7.15	>0.05
Occupation student	0.18	0.65-0.51	<0.05
Age >25 years	5.59	2.19-14.23	<0.05
Sex male	2.93	1.26-6.79	<0.05
Occupation employee	4.30	1.80-10.25	<0.05
Obesity	3.44	1.46-8.05	<0.05
Sedentarianism	18.56	3.91-88.11	<0.05
Smoking	4.15	1.59-10.83	<0.05
Alcoholism	4.83	1.91-12.22	<0.05
Chronic degenerative disease	6.05	2.21-16.54	<0.05
Diabetes Mellitus	1.69	1.42-2.01	<0.05
Systemic Arterial Hypertension	5.95	1.28-27.61	<0.05
Metabolic Syndrome	1.66	1.40-1.95	<0.05

## Discussion

The prevalence of low back pain in this series (63%) was higher than that reported worldwide (4-33%) [1], in USA (8-56%) [2], and Africa (10-14%) [4]. This high prevalence may be related to the high BMI of the people (which denotes a population with overweight and obesity), and the large proportion of sedentary people. Given these findings, it is necessary to investigate on this matter in order to identify causes and associated factors.

Regarding associated factors, the data was able to corroborate the association of some risk factors described in the literature. Smoking is consistent with what Manchikanti [2], Feldman et al. [7], Deyo [30], Croft [31], and Brage [32] reported. The significant risk with obesity agrees with that informed by Manchikanti [1], Latza et al. [9], Deyo [30], Croft [31], and Brage [32]. Likewise, it also coincided with the risk of sedentarianism, noted by Juul-Kristensen et al. [22] and by Ozguler and his group [23]. It also agreed with the results published by Latza et al. [9] which pointed out that the group people >25 years old, were at risk. In addition, the data was able to corroborate that the workers represent a risk group, which agrees with that reported by several authors [2,10,12,22,23,28,29]. On the other hand, there were no references that mention as risk factors: male gender, alcoholism and chronic degenerative diseases; and protective association with the student occupation so it is believed that they are factors associated particularly with the research population. Finally, there was no significant association with female gender, students workers, tall stature and overweight, contrary to the findings reported by Manchikanti [2], Feldman et al.[7], Latza et al. [9], Ozguler et al. [23], and Acouffe et al. [27].

## Conclusions

The prevalence of low back pain in beneficiaries of the IMSS, in Comalcalco, Tabasco, Mexico, is greater than that reported in the international literature.

The significant association of low back pain with some risk factors identified in developed countries was not corroborated in the Comalcalco inhabitants, therefore the epidemiological findings reported in several areas should not be adopted by the health care providers without having ratified or rejected such association within its user population. This conclusion and recommendation is applicable to other Latin American populations. To provide better conclusions, larger studies with larger samples, a narrower selection criteria and the inclusion of other variables are required.

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