RESEARCH ARTICLE

PREVALENCE OF CARIES ACCORDING TO THE SOCIO-ECONOMIC LEVEL IN PATIENTS ATTENTEND IN CLINICS' UAZ, UV, UAS, BUAP AND UATLX

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ABSTRACT

The socio-economic level is used to discriminate social, political, educational, consumption of products and media; Caries is a disease that occurs in all social strata. Objective. To determine the prevalence of caries with respect to the socio-economic level at university clinics. Methodology. Descriptive-transversal study. By compiling identification forms, AMAI questionnaire (8x7), CPOD. Results. 1416 patients were interviewed, with caries distributed: 74.7% UAZ, 89.1% UV, 60.4% UAS, 19.6% BUAP, 39.5% UATLX. Regarding the Socio-economic Level: in the UAZ level A/B with 34.7%, level C+ in UV, UAS, BUAP with 27.4% for UATLx level D 25.3%. Finding significance in stadistics related to CPOD with Universities.
Conclusion: It was determined a high prevalence of caries on patients from different Socio-economiclevels.

INTRODUCTION

Dental caries is a disease that affects 92% of population in Mexico mainly to high-risk groups according to the World Health Organization (1999) and to the different economic levels, regardless of age, race, ethnic group and can be presented in different degrees of affection. Dental caries is not a cause of death rates but it's morbidity can cause disability in children and adolescents during the study and academic performance, in adults might cause inability at work and lack of production. It can be considered that population with a high socio-economic level should have better oral health conditions but this does not happen (Dho 2015). Oral health knowledge is not always strongly associated with individuals behaviors towards the prevention of oral diseases. (Moreno 2015), mentionate that dental caries is a multifactorial disease involving the diet habits, like ingesta of sugars and starches, bacteria present in the oral cavity causing susceptibility on tooth surfaces. Even though the measures of prevention of dental caries implemented in the different social sectors of the country, the rates of this disease are very high and it is a healthuy public problem causing absence at work.

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The socio-economic level (NSE) developed by the Mexican Association of Market Intelligence and Opinion Agencies (AMAI 8x7, 2011), based on the model statistical development which allows the classification in households by been objective and quantifiable manner according to their NSE; which is the most used social and marketing segmentation, that allows industry, commerce, media, communication agencies, public institutions, academia and research companies to analyze in a scientific, standardized and simple way the groups conformed by Mexican society. This segmentation classifies households, and therefore all it's members, according to their economic and social well-being, in away, to find out how satisfied are their needs for space, health, hygiene, comfort, practicality, connectivity, training within home, and planning for future. There are studies that are documented showing, that oral health knowledge is directly related to the level of education, socio-economic level, attitudes towards prevention of oral pathologies and the state of health that individuals present. The knowledge about oral health is acquired from the experienced ones by the way each people unfolds in their social area, knowledge that is inherited through the families and generations, like actions to cure oral problems, using home remedies and those acquired by their level of academic instruction, learned from basic issues until conditions with scientific knowledge about oral conditions on how to prevent

tooth decay, the use of dental brushing auxiliaries and ion action fluoride on the enamel surface; this is learned during a solid training of undergraduate and postgraduate education, therefore it is assumed that, the more economic solvency, the greater knowledge on oral health care. Ojeda J., Soto L., Mambuscay J. (2016), described the prevalence of caries and the relationship with social factors in adolescents attended in public hospitals in Valle de Cauca, the primary variables; an analytical cross-sectional study was performed in patients treated in the dental services of 10 hospitals. We evaluated 305 adolescents, 26% of whom were women, 50.5% were 15 years old finding prevalence of caries of 82.3%, considering caries with or without cavitation and a prevalence of 62.6%, considering caries with cavitation. By exploring logistic regression, possible hypothesis of social variables related to the COP index, we founding: age, the type of vulnerable population (indigenous population and Afro descendants with mortality, but their morbidity may be due to dental caries and risks), type of social security affiliation (poor population represented in the subsidized and uninsured population) both the presence of caries and the prevalence of caries were associated with age, social security, and membership in a vulnerable population group.

Katherine N., Carolina Rivas Z., Chumpitaz D. (2015), performed a study in patients attended at the Clinic of Dentistry of the University of San Martín de Porres - Chiclayo Branch, Lima Peru, it was descriptive, to demonstrate a possible relationship between in the presence of caries and the quality of life of the respondents. The sample consisted on110, 51 male and 59 female patients, the ratio was 87.27% of dental caries with a moderate average quality of life of 64.54% and only 12.72% did not experience dental caries also in a moderate average life of 7.27%; demonstrating the significant association between the caries experience and poor quality of life with the Spearman correlation coefficient, rho = 0.56 (p<0.05) obtained by indicating a moderate relationship between the variables. Moreno (2015), pointed out a greater socio-economic problem and lower education level, the prevalence of oral pathologies increased, in his study were found that 65% presented a socio-economic status under the prevalence of caries which was 30%, and 67.7%. was with significant association. Gomez (2015), in a study of 3 and 5 year-old children, found that the prevalence of dental caries in 53% of the children, had cavitational caries and 59% in total (cavitational and non-cavitational), dental caries in a 61% in total. The average number of decayed teeth (cavitational and non-cavitational teeth) is bigger in children (male) at the age of 5 years, whose parents or significant adults were ≥ 28 years old, with low educational level, to those whose occupation was housework. The average was also higher, in those affiliated to the contributory regime to those were not reported displacement status, so it is considered in this case, that children are young and obey their parents, besides they do not have an adequate information about how to prevent this disease. Cruz G. *et al* (2014), guided a study, on the association of some social determinants in it is population, occurrence and prevalence of dental caries in Mexican infant population in 32 federative entities. 22.3% and 46.3% of the cases with caries prevalence to the aforementioned causal combination is a great advance in relation to: totally ignoring (G), gross domestic product (P), percentage of illiterate population (A), percentage of rural population (R), percentage of indigenous population (I), net migration rate, indicated distribution of fluorinated iodized salt (F) per state with this

disease in the states of the Mexican Republic. It can be observed that within the factor of income inequality in the causal models of caries prevalence indicates that there is greater inequality in the income presenting a higher prevalence of dental caries. Hernández (2013), In a study of 46 adolescents it was found a prevalence of caries in 14 to 15 years old with 57.7%, in the male was 14.16% and in the female was found in 43.1% of those affected with this disease.

The most recent results on the System of Epidemiological Surveillance of oral diseases (SIVEPAB, 2015), obtained from 420 sentinel units of the 32 federative entities, in which 279,342 patients were examined with an age range of 2 to 99 years, there was an increase of 1.84% with respect to 2013. The experience of caries in permanent molars measured through the CPOD index for the total users (5 to 9 years) was 2.4 while the general average of the CPOD index was 3.3, which allowed us to detect that 72.6% of the caries index was derived from permanent molar lesions. Since dental caries is a multifactorial disease that affects a large percentage of the world population at any social level, the relationship between this oral condition and the socio-economic level of society must be determined, according to the socio-economic level, and educational guidelines between better instruction better conditions and quality of life of people; that is because those with high levels of studies should have a low index of oral diseases since they use a proper brushing technique, brushing auxiliaries as floss, oropharyngeal rinses, gum massagers, interdental brushes and invest enough time to oral hygiene so as the family. The socio-economic level allows to consider the type of situations and characteristics in which the human being develops the satisfaction of it is needs according to this level, those human beings who have the opportunities to be educated at medium, high and high levels, have the possibility of an instruction in which knowledge of prevention and appropriate actions to avoid oral pathologies; that those who do not have these opportunities and do not have the education, the economic solvency and the information to face the demands of health in the individual as well as the family.

As described above, the public universities through the education of Dentistry are concerned about the integral health of the patients, the recent research was carried out, with the objective of comparing the prevalence of dental caries to the socio-economiclevel (NSE) of (UAS), Universidad Autonoma de Sinaloa (UAS), Universidad Autónoma de Tlaxcala (UATx) and the Benemérita Autonomous University of Puebla (BUAP); this information will give an overview of the pathology as well as the relationship of variables that allow us, to find alternative solutions in terms of knowledge of prevention measures and actions aimed to reduce the prevalence of caries in patients.

MATERIALS AND METHODS

A descriptive cross-sectional and comparative study was held, in which the study population was constituted an accidental sample determined for each university in a period of one month in those patients who attended clinical care in the universities mentioned before. A data collection instrument was designed including: identification form, AMAI index 8x7 for socio-economic level and CPOD index. The socio-economic level index of the Mexican Association in Market Research Agencies with the 8x7 rule (AMAI, 2011) classifies households into seven levels with eight indicators using

weighted questions about: number of rooms, type of floor, number of bathrooms, if you have shower, gas stove, number of lights and cars; (C) (practical life), C (practical minimum), D + (basic sanitary conditions), D (walls and some services), E (shortage). To evaluate dental caries, the index decayed teeth (CPOD) was applied in which all the teeth present were checked, giving a code: 0 (empty space), 1 (permanent caries), 2 (permanent closed), 3 (permanent extracted), 4 (permanent suitable extraction), 5 (permanent healthy), 6 (temporary caries), 7 (temporary sealed), 8 (temporary suitable extraction), 9 (temporary healthy).We obtain an arithmetic mean obtained from the sum of the codes between the number of teeth present, the value obtained is classified as: very low, low, moderate, high and very high.

Prior to the application of the instrument, there was collaboration of interns in social service of the career of Medico Cirujano Dentista of the Unidad Acaémica de Odontologíacollege from Universidad Autónomade Zacatecas who were trained at the clinics of the same and had the participation of interns and students from the universities involved in the project who were given prior theoretical and practical training before beginning to capture the participants. Patients who participated in the study were randomly chose from the waiting room of the clinics, asking if they wanted to participate in the research, if they did informed, form consent was given specifying that there was no risk and identity was confidential, after applying the questionnaire and finished it, they were transferred to a dental unit to proceed with clinical examination using OMS criteria. With the information obtained, a database was generated in the statistical package SPSS version 22 to process and analyze the information by means of descriptive measures in addition to the ANOVA test for a factor with a level of significance of p<0.05.

RESULTS

We treated a total of 1416 patients distributed as follows: at UAZ 364 patients with 25.70%; UV 220 patients with 15.53%; UAS 303 patients corresponding to 21.39%; BUAP with 296 patients corresponding to 20.90% and finally UATx were examinated233 patients representing 16.45%. When the data was analyzed regarding the prevalence of caries and the socio-economic level of the patients attended at these clinics, the following results were found:

Table 1. Prevalence of caries by University

University	Prevalence of Caries		Total
	Healthy	Caries	
UAZ	94	270	364
	25.8%	74.2%	100%
UV	24	196	220
	10.9%	89.1%	100%
UAS	120	183	303
	39.6%	60.4%	100%
BUAP	238	58	296
	80.4%	19.6%	100%
UATX	141	92	233
	60.5%	39.5%	100%
	617	799	1416
TOTAL	43.6%	56.4%	100%

The prevalence of dental caries Table 1 in each of the Universities surveyed were identified from the following way,

from Universidad Autónoma de Zacatecas (UAZ) the prevalence of caries in 74.2% (270); from Universidad Veracruzana (UV) with 89.1% (196); from Universidad Autónoma de Sinaloa (UAS), was observed 60.4% (183) respondents; from Benemérita Universidad Autónoma de Puebla (BUAP), prevalence was 19.6% (58) and finally at the Universidad Autónoma de Tlaxcala (UATx) 39.5% (92) cases. The CPOD showed in Table 2 it can be observed the concentration in moderate to 77.5% (282) at the Universidad Autónoma de Zacatecas (UAZ); while at the Universidad Veracruzana (UV) with 80.9% (178) in the same category; for the Universidad Autónoma de Sinaloa (UAS) the index was concentrated in low with 44.2% (134); however, for the Benemérita Universidad Autónoma de Puebla (BUAP) it was in very low category with 35.8% (106); and for the Universidad Autónoma de Tlaxcala (UATx), the CPOD also was concentrated in very low category with 50.2% (117).

Table 2. CPOD by university

University	Cpod					Total
	Very Low	Low	Moderate	High	Very High	
UAZ	8	29	282	42	0	364
	2.2%	8%	77.5%	12.4%	0.0%	100%
UV	1	27	178	8	6	220
	0.5%	12.3%	80.9%	3.6%	2.7%	100%
UAS	91	134	41	25	12	302
	30%	44.2%	13.5%	8.3%	4%	100%
BUAP	106	29	80	25	55	296
	35.8%	9.8%	27%	8.4%	18.6%	100%
UATX	117	36	17	22	38	233
	50.2%	16.7%	7.3%	9.4%	16.3%	100%
	323	258	598	125	111	1416
TOTAL	22.8%	18.2%	42.2%	8.8%	7.8%	100%

Regarding the socio-economic Level, we observed that, for the Universidad Autónoma de Zacatecas (UAZ), the concentration of patients attended was at "AB" level planning and future with 43.6% (159) respondents; for the Universidad Veracruzana (UV), Universidad Autónoma de Sinaloa (UAS) and the Benemérita Universidad Autónoma de Puebla the highest behavior was in "C+" entertainment and communication with 26.4% (58), 27.4% (83) and 24.7% (73) respectively; for the case in the Universidad Autónoma de Tlaxcala (UATx) was NSE "D" with walls and some services with 25.3% (59) of the patients surveyed.

When using the ANOVA test for a factor considering a p <0.05 of caries index and it's components when comparing by Universities, statistical significance was found for CPOD of p=0.000, while for caries p=0.000, extracted p=0.000, obturated p=0.000, extraction indicated p=0.000; according to Table 4, the highest mean CPOD was at the UAZ with 3.5639 ± 0.86622 while the lowest value was presented in UATX of2.2017 ± 1.52779, the highest number of decayed teeth was in at the UV with 6.16 ± 4.904 and lower in the BUAP with 0.41 ± 1.025; in terms of extracted teeth were higher in the UAS with 7.14 ± 10.453 as opposed to the BUAP with 0.22 ± 0.388. The highest number of teeth sealed were in UV with 5.72 ± 4.693 and the lowest in the BUAP with 0.58 ± 0.749; finally, the highest average of those requiring extraction indicated were in the BUAP with 2.81 ± 0.439 being the lowest in UAZ with 0.43 ± 1.120.

Table 3. Socio-economic level by university

University	Socio-economic level							Total
	E: Escases	D: Walls and some services	D+: Basic Sanitary Conditions	C-: Minimum practice	C: Practical life	C+: entertainment and communication	Ab: planning and the future	
	0	20	23	29	41	92	159	364
UAZ	0.0%	5.49%	6.31%	7.96%	11.26%	25.27%	43.68%	100%
	1	29	42	36	26	58	28	220
UV	0.5%	13.2%	19.1%	16.4%	11.8%	26.4%	12.7%	100%
	1	34	38	49	51	83	47	303
UAS	0.3%	11.2%	12.5%	16.2%	16.8%	27.4%	15.5%	100%
	1	36	53	42	51	73	40	296
BUAP	0.3%	12.2%	17.9%	24.2%	17.2%	24.7%	13.5%	100%
	1	59	43	43	25	39	23	233
UATX	0.4%	25.3%	18.5%	18.5%	10.7%	16.7%	9.9%	100%
	4	178	199	199	194	345	297	1416
TOTAL	0.3%	12.6%	14.1%	41.1%	13.7%	24.4%	21%	100%

Table 4. Descriptive values of CPOD and its components by University

		N	Media	Desviación estándar	Error estándar	95% del intervalo de confianza para la media		Mínimo	Máximo
						Límite inferior	Límite superior		
CPOD	UAZ	364	3.5639	.86622	.04540	3.4746	3.6532	.00	5.20
	UV	220	3.3514	.91424	.06164	3.2299	3.4728	.00	7.70
	UAS	303	2.6677	4.66020	.26772	2.1408	3.1945	.00	64.00
	BUAP	296	2.6216	1.49079	.08665	2.4511	2.7922	1.00	5.00
	UATX	233	2.2017	1.52779	.10009	2.0045	2.3989	1.00	5.00
	Total	1416	2.9180	2.46085	.06540	2.7897	3.0463	.00	64.00
CARIADO	UAZ	364	4.64	4.360	.229	4.19	5.09	0	18
	UV	220	6.16	4.904	.331	5.51	6.82	0	24
	UAS	303	3.51	4.499	.258	3.00	4.02	0	28
	BUAP	296	.41	1.025	.060	.29	.53	0	4
	UATX	233	.66	1.084	.071	.52	.80	0	4
	Total	1416	3.10	4.234	.113	2.88	3.32	0	28
EXTRAIDO	UAZ	364	2.35	4.576	.240	1.88	2.82	0	32
	UV	220	5.45	5.530	.373	4.71	6.18	0	26
	UAS	303	7.41	10.453	.600	6.22	8.59	0	32
	BUAP	296	.22	.388	.023	.17	.26	0	3
	UATX	233	.79	5.427	.356	.09	1.49	0	83
	Total	1416	3.21	6.772	.180	2.86	3.56	0	83
OBTURADO	UAZ	364	3.26	3.251	.170	2.93	3.60	0	17
	UV	220	5.72	4.693	.316	5.10	6.35	0	18
	UAS	303	5.06	4.565	.262	4.54	5.58	0	21
	BUAP	296	.58	.749	.044	.49	.67	0	5
	UATX	233	1.26	6.506	.426	.42	2.10	−5	99
	Total	1416	3.14	4.627	.123	2.90	3.38	−5	99
EXTRACCIÓN INDICADA	UAZ	364	.43	1.120	.059	.31	.54	0	7
	UV	220	.45	1.155	.078	.29	.60	0	7
	UAS	303	.22	1.572	.090	.05	.40	0	17
	BUAP	296	2.81	.439	.026	2.76	2.86	1	3
	UATX	233	2.65	.606	.040	2.57	2.73	1	3
	Total	1416	1.25	1.578	.042	1.17	1.33	0	17

DISCUSSION

Social inequality is a present-day high-profile topic that marginalizes a large percentage of the world population, translating into income, property, basic services, opportunities to study as well as obtaining a good job, all of which interfere with the general and oral health of the patients, which will be met due to the satisfaction of their needs and/or priorities; there will be some who put in a balance of having a dental treatment or buy food to feed their family or those who have sufficient resources to perform costly first generation treatments, this is quite related to the presence of dental caries which is a disease that affects a large number of people in the world without distinction of age and gender, does not respect socio-economic status or social position. Concerned to know the epidemiological profile and the socio-economic situation of the patients attending the clinics at public Universities, it is essential to contrast with, what has been found by other authors.

According to information obtained by Katherine (2015), who held a study in the Dentistry Clinic at the Universidadde San Martín de Porres in Lima, Peru, in 110 patients finding a prevalence of caries of 87.27% in a median socio-economic level, values similar to ours where a mean prevalence of moderate caries is 56.4% in an average socio-economic level was identified at University clinics with 41.1% of the patients being attended at the five Universities involved. In the study by Moreno (2015), where the prevalence of dental caries is higher at a worse socio-economic level and lower educational level, it was found that 65% presented a socio-economic status under caries prevalence was 30%. Gomez (2015), in a study conducted found that the prevalence of dental caries 53% of children have cavities, whose parents or significant adults were ≥28 years old, with low educational levels and whose occupation was housework. Compared to our study, the meaning of the socio-economic level and the scope of living conditions is reflected, as follows, we have a prevalence of caries of 41.1% average of patients attended at University

clinics and a mean socio-economic level with the necessary conditions to survive in which we have 56.4% in this socio-economic level.

Conclusion

The good customs and social traditions, as well as the level of education,where the society has access, has the necessary knowledge for an adequate oral hygiene, avoiding in this way the prevalence of dental caries, the inhabitants of low socio-economic levels will lack the knowledge and suitable means for avoiding tooth decay; However, as we observed in the present study, tooth decay does not differentiate between age or sex, ethnicity, access to education, health services or socio-economic position, the disease occurs in any person and affects a large number of people in the world. It is present in patients attending University clinics affecting any socio-economic level, of any educational level or social position. Despite the oral health programs, a high prevalence of caries was found in four of the Universities highlighted that patients from different socio-economiclevels were included; however, better strategies have to be created and intervention programs to control and prevent oral pathologies. With the information, given each institution must carry out an exhaustive analysis to prevent as well curative measures carried out inside and outside the institution based on the socio-economic level to determine the conditions of development besides the needs of their population.

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