

Aging and factors associated with quality of life for elderly people in State of Mexico

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Abstract

This article presents an analysis of the relationship between socio-demographic, economic and health conditions with the quality of life of elderly who participated in the Survey on Demographic Aging in the State of Mexico. Using the technique of Principal Component Analysis, an index of quality of life considering objective and subjective variables grouped into four areas: well-being, income, housing conditions and health conditions was calculated. From the analysis it emerged that more than half of the study population lacks adequate conditions that affect their quality of life and shows that the factors that greatly related to the quality of life of elderly are the level of schooling, marital status and rightfulness condition.

Key words: Quality of life, aging, principal component analysis, State of Mexico.

Resumen

Envejecimiento y factores asociados a la calidad de vida de los adultos mayores en el Estado de México

En este artículo se aborda la relación que existe entre las condiciones sociodemográficas, económicas y de salud con la calidad de vida de los adultos mayores que participaron en la Encuesta sobre Envejecimiento Demográfico en el Estado de México. Se usó la técnica de Análisis de Componentes Principales para calcular el índice de calidad de vida y considerar variables objetivas y subjetivas agrupadas en cuatro dimensiones: bienestar, ingreso, condiciones de la vivienda y condiciones de salud. Del análisis se desprendió que más de la mitad de la población en estudio carece de condiciones adecuadas en su calidad de vida y se muestran los factores relacionados, tales como escolaridad, estado civil y condición de derechohabencia.

Palabras clave: Calidad de vida, envejecimiento, análisis de componentes principales; Estado de México.

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INTRODUCTION

In demographic terms the demographic transition is understood like going on from high valuations to low valuations of natural growth (Ramírez, 2002). This in turn bears to a change in the population structure that turns out to be reflected in a continuous and intensive process of population aging. In this article there is studied the quality of life and the aging, for the purpose of knowing what factors are related in major measurement to the well-being of the elderly people.

This article is organized in four paragraphs that next are described of brief form: 1. Aging population, in this first paragraph the population aging is defined as a study object and there is done a brief description of the situation through that the elderly people live in the country and in the entity mexiquense; 2. Quality of life, in this paragraph there are mentioned the different approaches of study that has had the quality of life topic; 3. Methodology, the statistical model is explained applied to construct an index of well-being of the Elderly people and, finally, 4. Results, where there are detailed the conditions of quality of life of the aged population as well as its relation with specific type variables sociodemográficas, economic and of the health.

AGING POPULATION

As it was indicated previously, this article takes the quality of life conditions as a study object in the aging, the last one is understood how

a process through that one lives from the birth and it is characterized by different changes in physical, mental, individual and collective levels; it is also a natural, irreversible process not necessary tied to stereotypes and debit turn like a stage of the vital cycle full of potential to grow and to keep on learning” (Pan-American Organization of the Health, 2002: 2). While by quality life is understood “an expression tied to multiple factors, both objective and subjective, with the well-being and the satisfaction for the life and whose evidence is intrinsically related to its own experience, its health and its grade of social and environmental interaction (Edge, 2007: 285).

Certain differences exist with regard to the age that demarcates the aging, since one can consider from diverse perspectives: chronological, biological, psychic or social. The United Nations Organization (ONU) establishes the age of 60 years to think that a person is an elderly, although in the developed country it is considered that the old age starts at the age of

65. Nevertheless, for effects of this investigation and under the chronological perspective, thinking that the aging is tied to changes in the position of the person in the society, he is considered to be an adult bigger than the 60-year-old individual or more, associating it also with the employment and the retirement; also, in fidelity to the Legislation of the country and of the State of Mexico, which also they understand for adult bigger than men and women from 60 years of age.

The demographic aging is a result of a process of transition characterized by an increase both in percentage and absolute numbers of the 60-year-old population group or more, product of the decrease in the rates of fecundity and mortality, and also for the increase in the life expectancy thanks to the technological advances in medicine and to the biggest access to the health services that the governments have implemented for decades. The aging population happens in all the regions of the world and in countries that reached different development levels. It increases with major rapidity in the developing countries, included those that also have an important proportion of young population. Next there appears some important information regarding the demographic aging on the part of the World Organization of the Health (WHO, 2012), in order to show why it is considered to be a topic of supreme importance on a global scale:

- The population projections indicate that in the year 2050 there will be in the world nearly 400 million persons with 80 years or more. The same way, there will be for the first time more persons of advanced age than children younger than 15 years.
- At present Japan is the only country of the world which population in advanced ages represents more than 30 per cent of its entire population. About 2050, there will be 64 countries that share this situation.
- The number of elderlys in Africa will increase from 54 millions to 213 millions.
- At present, the main causes of death in the elderly people are the cardiac illnesses, the cerebrovascular accidents and the chronic pulmonary illnesses, while the main causes of disability are the visual deficit, the dementia, the auditory loss and the artrosis. These illnesses will be on the increase.
- The WHO thinks that all the sanitary professionals should receive formation on the questions related to the aging.

It turns out to be important to mention some information of the population in Mexico in order to contextualizar the phenomenon of the *demogra-*

phic aging and for it, in the following Table 1 and Table 2, it is observed that in 2015 more of the tenth part of the population in the country corresponds to 60-year-old persons or more, and if the age status is annotated, it is observed that 7.16 per cent of the population are located in the age group of 65 years or more. In the State of Mexico it is had that nine persons of every 100 belong to the 60-year-old group or more, while 6.15 per cent concern the group of bigger than 65 years and in accordance with the projections of the National Council of Population, one hopes that the above mentioned numbers should be on the increase.

Table 1: Elderly population by sex in Mexico, 2015

	Men	Women	Total	%
Total population	58,013,739	61,430,245	119,443,984	-
Population 60 years and over	5,750,299	6,686,022	12,436,321	10.41

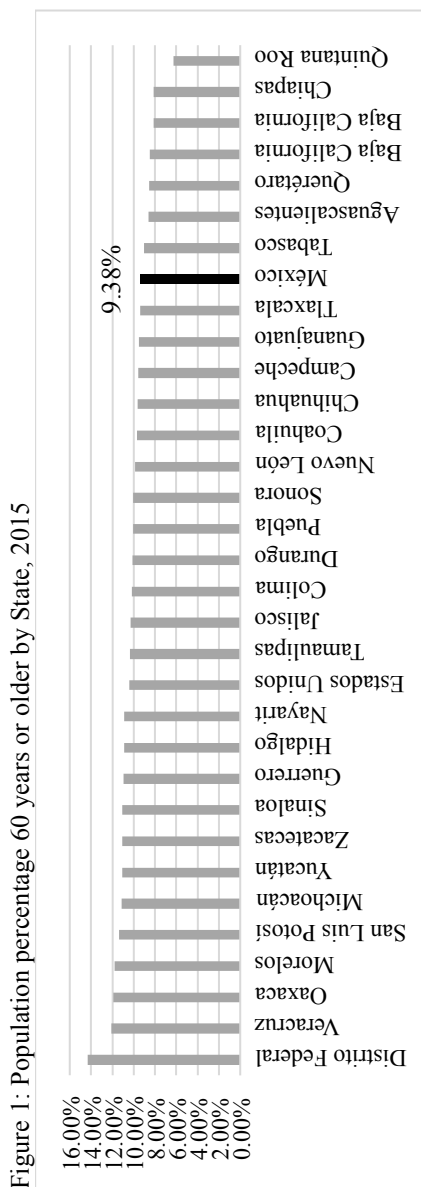
Source: Own elaboration based on results of intercensal survey, 2015.

Table 2: Elderly population by sex in State of Mexico, 2015

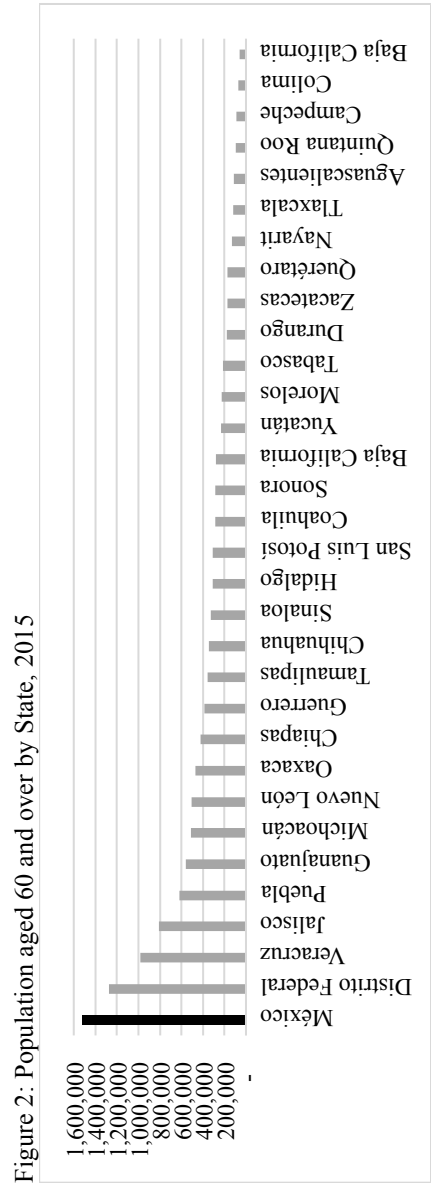
	Man	Women	Total	%
Total population	7,826,440	8,345,140	16,171,580	-
Population 60 years and over	693,384	824,041	1,517,425	9.38

Source: Own elaboration based on results of intercensal survey, 2015.

Although in 2015 the State of Mexico is one of the entities with less percentage of 60-year-old persons or more in the Mexican Republic (9.38 per cent as is observed in the Table 2), it is the state with major absolute number of 60-year-old persons or more and it lodges more of the twelfth part of them at national level, in the next years there will appear an increase supported in the proportion of elderlys in reference with the entire population of the entity, by what a future situation is foreseen with large number of persons in advanced ages, which implies facing challenges for the governments, institutions and principally the family and the society, such as the development of infrastructure and necessary equipments to meet the demands of this group etario, the same way they will face questions related to pensions, rightfulness, health, dependence, between others (Figure 1 and Figure 2).



Source: Own elaboration based on results of intercensal survey, 2015.



Source: Own elaboration based on results of intercensal survey, 2015.

The descent of the mortality and the fecundity has provoked transformations in the distribution for ages of the population, therefore one hopes that the percentage of elderly persons should increase. Mexico is one of the countries that crosses a phase of full and intensive demographic transition and this situation has become considered by important demographers like Manuel Ordorica (2012) like the demographic topic of the XXIst century, since the importance of this phenomenon takes root in the relation that it has with diverse aspects, like for example the health of the persons, the dependence, the life expectancy, the age of labor retirement and the pensions.

In previous decades the challenge for the science was to add up years in the life expectancy of the persons; this one has come managing thanks to the advances in medicine, preventive programs and major access to the health services. In Mexico, in accordance with the National Institute of Statistics and Geography, in 1930, the life expectancy for the persons of feminine sex was 35 years and for the masculine one of 33. For 2010 this indicator was 77 years for the women and 71 for the men; in 2014 it was located in little more than 77 years, almost equally for the women and in 72 years for the men. Nevertheless, the current challenge not only must consist of increasing him years to the life, but of improving it and of increasing the level of well-being of the population. Regarding the increase in the life expectancy, Welti (2013) affirms that this increase has not gone along with modifications in the Institutions that they bear in that the biggest adult lives in acceptable conditions.

In accordance with the Economic Commission for Latin America and the Caribbean Sea (CEPAL, 2002), a phase of demographic aging lives through Mexico moderately advanced; we can observe this in the numbers of the Interrequired Survey that they indicate that in 2015 there was a whole of 119,443,984 inhabitants in the country of whom 10.41 per cent they correspond to elderly to 60 years. Also, one of the indicators most used to study the growth of this population group is the index of aging that relates the quantity of elderly persons to the quantity of children and young people and allows to observe the speed to which each of these groups grows. Another indicator is the index of dependence that relates the inactive or economically dependent population to the potentially active population. In 2015 38 60-year-old elderly registered for every 100 minors of 15. In the same way it is possible to mention that for this year regarding the relation of demographic dependence, for every 100 persons in economically active age there were 16 60-year-old persons or more.

The tendency of these indicators allows to prepare projections and although it is important to remember that the future is uncertain, since there are great the factors that determine it:

The projections of the population at present represent a fundamental instrument of the politics of population, since they allow to be anticipated to the social demands and evaluate the different trajectories that would arise of falling ill or there are supported the current tendencies of the variables that affect in the total, structure and demographic dynamics (Ordorica, 2010: 33).

This way then, in accordance with the National Council of Population (Conapo, 2016) one waits that for 2030, in the country, the 60-year-old population or more scope 14.81 per cent of the whole; the aging index will grow since it is predicted that there will be 63 persons in ages of 60 years or more for every 100 15-year-old minors. Also, as for the dependence index 24 elderlys are expected by every 100 persons in economically active age.

In accordance with great Tuirán (1999) of the economic and social institutions they have been founded on the assumption of which the number of children and adolescents is significantly major than the number of elderlys. The changes in the distribution for ages that are foreseen in the next years will affect in the formation of new behaviors, demands and needs. The aged population will demand in major measurement, medical and psychological attention of quality; in the economic ambience, the working population will have to maintain an increasing number of major dependent adults, guaranteeing a basic revenue to them and with it a worthy life. In the services, probably less nursery schools and pediatric services are needed, in counterpart, of course spaces will be necessary for elderlys, geriatricians, gerontologists, oncologists, cardiologists and specialists in the attention of chronic-degenerative illnesses. It is necessary from now on to initiate educational programs and training as which all the sanitary professionals receive formation on the questions related to the aging; also it is necessary to create the infrastructure for the suitable attention of the demands of the increasing adult population.

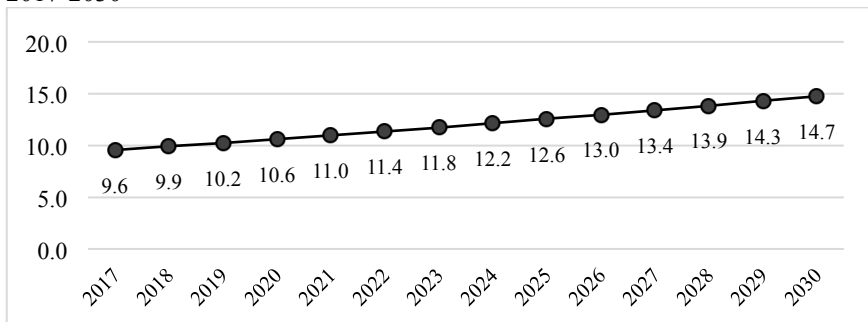
The topic of the aging is important to think inside the development plans position that “the current situation and the projections allow to infer that in the XXIst century, Mexico will share, as most of the world, a process of aging that will have to be taken much into consideration and from now on if it is about to aspire to a future with planeación and perspectives adapted for the sake of this population group and of the society in general” (Ham, 1998: 32).

Aging in the State of Mexico

In the State of Mexico, as in the rest of the country, the demographic transition directs to a modification in the structure for ages and to a gradual aging process. In accordance with the results of the Interrequired Survey 2015, the entity mexiquense was registered by an entire population of little more than 16 million inhabitants, number similar to the sum of the population of 11 states of the Mexican Republic, which turns it into the entity with the biggest number of inhabitants of the country, for it the importance of studying the phenomenon of the aging in this entity. In 2030, according to the projections of the Conapo, the State of Mexico will keep on being the entity most populated with little more than 20 million inhabitants, while the Federal district will have almost 8.5 millions, so that in the center of the country a strong population concentration will keep on prevailing and between both entities there will concentrate the fifth part of the national population.

The biggest adult population in the entity mexiquense happened from 7.5 per cent in the year 2010 to 9.3 per cent in 2015, while the population from zero to 14 years registered a descent on having spent from 28.9 to 26.5 per cent in the same period. Conapo (2016) has estimated a gradual increase and for 2030 he foresees that the population proportion with 60 years or more in the entity will be 14.7 per cent (see Figure 3). Although in relative terms the entity mexiquense is not the most aged, it is suitable from now on to take the necessary measures to face to the economic, social, political, territorial and cultural implications that will be had in the future years, in addition to guaranteeing that the population in advanced age enjoys a worthy old age.

Figure 3: Projection of the percentage of elderly people in the state of Mexico, 2017-2030



Source: Own elaboration based on projections of the Conapo, 2017-2030.

QUALITY OF LIFE

The quality of life concept is relatively recent, in accordance with Cuenca (2008) this expression was used for the first time by the president of the United States, Lyndon Johnson, in 1964, in a speech on the health plans. Previously the concept had already been used under an approach economic and quantitatively but at present it has reached a high specialization level in different fields like the doctor, the economic one, the cultural one, the religious one, the ecological one, between others; nevertheless, in accordance with García (2008) there is no only quantitative quality of life measurement, because it depends precisely on the conceptualization that is had of the same one, of the contemplated indicators and of the available statistical information.

The quality of life is related to different intentions like the evaluation of the needs of the persons and its levels of satisfaction, the evaluation of results of programs and services, the direction and guide in the provision of these services and in the formulation of national and international politics directed to the population in general and to more specific others (Robles *et al.*, 2010).

The quality of life topic has been studied from different both objective and subjective approaches, Schwartzmann mentioned by Vinnacia (2005) associates the quality of life with diverse domains or dimensions, coincides that it has been defined as a subjective judgment of the level of satisfaction or of happiness reached, or in simple terms like a feeling of personal well-being, nevertheless he adds the importance of relating this subjective judgment to biological, psychological objective indicators, comportamentales and social.

Quality of life in old age

In accordance with Zetina (1999) generally to the old age he is perceived as an age of deterioration associated with the decrease in the physical and mental capacities, in contrast to other stages of the life that are considered of growth and development. In counterpart, the Pan-American Organization of the Health (2002) conceives it like a natural process and like a stage of the suitable life to grow and to keep on learning. In previous decades the perception that was had of the elderly people was a source of knowledge, knowledge and fortitude; it was even important to count with an elderly person inside the family, yet, at present such a perception it has changed and collaborates to the old age principally with dependence or illness, so

that the families less and less want to take charge of the elderly people. According to the National Survey of Discrimination in Mexico (Enadis, 2010) the biggest adult persons are considered to be the fourth group of vulnerable population to the discrimination, being indigenous populations, persons of color and homosexuals who occupy the first places. The discrimination to the elderly people according to Romero (2005) is characterized by the negative attributes of the unproductiveness, the inefficiency, the illness and the general decline, like that of that time, the aging far from see like a natural stage inside the life cycle, unites to a process full of threat and degradation, for which the above mentioned condition is expected precisely happily by the persons.

The elderly people experience physical, psychological and social changes, which turns them into a vulnerable population, understanding for vulnerability to

multidimensional and multicasual process, in that they come together simultaneously the exhibition to risks, the incapability of answer and adaptation of individuals, hearths or communities, which ones can be hurt, injured or damaged before changes or permanence of external and/or internal situations that affect its level of well-being and the exercise of its rights (Busso, 2005: 16).

The elderly people present disadvantages like the biggest exhibition to illnesses, especially chronic - degenerative and incapacitantes, show also conditions of economic dependence and poverty, loss on the physical and mental capacities and decrease on its grade of autonomy and adaptability. As regards the previous thing and in accordance with Ordorica (2010) it is believed that between 2010 and 2050 the number of persons in advanced ages that it will present physical impediments will spend from three to 15 millions, so that it will multiply for five in this period and without considering the possible increase in the life expectancy, what of course will accentuate the above mentioned number.

The quality of life of the elderly also turns out to be of the union of different factors, like the housing, the goods, the revenue, the garment, the feeding, the education, the perceived and enclosed social support variables sociodemográficas like the age and the sex. Vera (2007) concludes in its investigation that both for the biggest adult, and for its family, the quality of life also collaborates to secondary elements, like the care and a worthy protection on the part of the members of the family, in addition to the respect towards its condition of person and of human being, since the biggest adult generates ambiances of dependence that reverberate in the quality of life of the hearth.

This way, for this study and in accordance with the definition of the Group for the Evaluation of the Quality of life of the World Organization of the Health, “the quality of life is considered to be the perception of the individual on its position in the life inside the cultural context and the value system in which he lives and with regard to its goals, expectations, norms and worries” (WHO, 2002: 98), therefore to measure the quality of life of the biggest adult in this investigation, elements are considered to be both objective and subjective and gather together in four areas: I) Conditions of the housing, II) Income, III) Subjective Well-being and IV) Conditions of Health.

Conditions of the housing

It is understood by housing like the “space delimited generally by walls and roofs of any material, with independent entry, which was constructed for the persons’ room, or which at the moment of the required raising is used to live” (INEGI, 2005: 120).

The housing is then a physical space where the persons develop daily activities and are protected from the inclemencies of the time. While better housing conditions exist, there will be a positive impact in the level of well-being of the persons, position that those housings constructed with resistant materials like dividing wall, brick, block or I cement, they offer a major protection than those who were constructed by precarious materials like plates of pasteboard, asbestos or metallurgies, wood or adobe and even materials of waste (INEGI, 2005).

The housing collaborates then with the quality of life of the persons who inhabit it, since he is one of the basic satisfactores for the survival of the population, also it collaborates to to the ideal of conceiving it like a space that must provide its occupants protection, hygiene, privacy, serviceability and safety of being in a situation of property that provides to its occupants the certainty to have her in the present and future.

Income

A topic that acquires supreme importance is the economic situation like essential aspect in the quality of life in the old age, since during this stage of the life they diminish the physical and mental capacities that limit the gainful occupations development and generally one stops perceiving a revenue (Nava and Ham, 2014). Studies as those of Guzmán and Huenchuan (2006) have demonstrated that the family plays an important role in the economic support of the elderly people and is who provides the factors

necessary for its attention and integral development; nevertheless, the respect and the support towards the elderly every time gets lost more. The economic safety of the biggest adult persons is understood like the aptitude to arrange and to use of independent form a certain quantity of economic resources, sufficient to assure a good quality of life (Guzmán, 2003).

In accordance with the National Survey of Employment and Social security (ENESS, 2013) the fourth only one part of the elderly people is given a pension, with a 26.1 per cent proportion, while of the population in study scarcely 18 per cent of the whole of elderlys have access to the payment of a pension, situation that is much tied at the low educational levels that most of this population present, and the masculine sex being seen benefited, since of the whole of adults major who receive pension, men are a 75 per cent.

The situation regarding the low access to a system of pensions and to the financial unfeasibility in the long term has produced in the last years reforms on the subject of social and labor security that in accordance with Welte (2013) will affect negatively in the living conditions of most of the biggest resident adults in Mexico, because they lack sufficient resources to gain access to the satisfaction of its needs and that, especially on the subject of health, they need of considerable resources totals to be attended.

Subjective Well-being

Although the inclusion of subjective elements is important in the measurement of the quality of life, an important point of considering is if these really reflect the quality of life of the societies. In this sense, it has been indicated that the perceptions are half-full for psychological aspects, in such a way that the fact of having good objective well-being conditions not always coincides with high subjective well-being conditions, and on the contrary.

The previous thing owes principally to the adaptation of the expectations that it implies the fact that the persons adapt themselves to its life circumstances and, therefore, its expectations fit to these conditions (Sen, 1985, mentioned by Ochoa (2011)). The quality of life concept

has been evolving in the last years from a basically materialistic conception, in which they were distinguishing the objective standard of living aspects, happening towards a perspective where the subjective aspects constitute the fundamental element (Puig *et al.*, 2011: 13).

The importance of considering these variables in the study of the quality of life in accordance with ovalle and Martínez (2006) owes principally, to that the individuals focus its quality of life in the domains that surround them, more than in the material values that they possess; in particular, authors as Ochoa (2011) have demonstrated that the most used objective indicators, as the revenue level per capita, in effect they are related to the quality of life, but not in its entirety, because a wide space exists for the discussion about the elements that shape it, he proposes to incorporate in the study of the quality of life, in addition to the economic domains, subjective dimensions that throw information about the level of satisfaction with the life.

The same way Millán (2011: 8) supports that

the quality of life is related to the happiness perception. Are you happy? If the answer is yes then it is possible to admit that its quality of life is good, since the opposite —the unhappiness— would generate unease, discomfort or dissatisfaction. The happiness understood like the affective reflection that is done on the satisfaction grade with the life, and that sometimes expresses itself like the attainment of for what one longs, will help undoubtedly, to have a good quality of life.

In general, agreement exists in pointing out that the happiness is related to the health and to the duration of the life.

On the other hand Eamon O'Shea mentioned by Vera (2007), supports that the quality of life of the biggest adult is a satisfactory life, subjective and psychological well-being, personal development and diverse representations of what constitutes a good life, and what it is necessary to investigate, asking the biggest adult on how it gives sense to its own life.

Conditions of Health

The technological advances and in medicine to prolong the life they must go accompanied by better levels of quality of this life that extends. In an aged population the so called pathologies age - clerk will appear with major predominance, that is to say, illnesses which incidence increases with the age, as it is the case of the degenerative chronic illnesses and for it the importance of guaranteeing the existence and access to suitable services of medical attention that meet the demands of the elderly people.

Also, the disability will be affecting the faculty of the biggest adult to realize the activities of the daily life: first of all, considered as the most complex or advanced, of the type of those of free time and of the social re-

lations; secondly, the sets of instruments, like using the phone or handling the money and, finally, the basic ones will be affected, that is to say, the aptitude to dress themselves, to tidy themselves up or to feed.

The dependence is the most important factor at the time of which the subject values its quality of life, since somehow it generates in him the need for a support on the part of a third one, that in many cases it is not available and that it is always a limiter of its own autonomy (Millán, 2011: 1).

METHODOLOGY

In this work there was applied the statistical skill of analysis of main components, which target is to reduce the information about a set of individuals, of whom diverse remarks have taken on several of its characteristics. This skill allowed to construct quality of life indexes for the 60-year-old persons or more that they took part in the Survey of Demographic Aging in the State of Mexico in 2008 realized by the Research Center and Advanced Studies of the Population (CIEAP). It is important to mention that the above mentioned survey has the disadvantage of the time that has passed since he got up, nevertheless, there does not exist available statistical information more recent that allows to do a measurement of quality of life of the elderly people of the entity mexiquense. Once the above mentioned indexes were obtained risk tables were prepared considering variables sociodemográficas, economic and of the health in order to know the situation and the relation that they present at the level of quality of life calculated for the elderly people.

Description of the database

The Research center and Advanced Studies of the Population (CIEAP) proposed to carry out a detailed diagnosis of the demographic aging in the State of Mexico and as analysis instrument used the Survey Sociodemográfica of the Aging in the State of Mexico (ESEDEM, 2008).

The method of analysis applied in the investigation was the quantitative descriptive one, across a frame design muestral that was content taking all the areas as a base geoestadísticas basic and rural localities of the State of Mexico. The sample was selected across a scheme probabilístico polietápico, with proportional probability to the number of particular housings, so much in urban areas as rural localities (localities with less than 2,500 inhabitants), and consisted of the application of questionnaires of hearth and individual in field. In each of the chosen hearths, the number of

applied individual questionnaires was the same that the number of persons 60-year-old and more identified like habitual residents of the hearth. In the field operative one 2,304 housings were visited to achieve 1,998 finished hearth interviews. In these hearth interviews 2,434 finished individual interviews were achieved.

Analysis of Main Components

The Analysis of Main Components (ACP) is a statistical skill of synthesis of the information or reduction of the dimension (number of variables). Namely before a data bank with many variables, the target will be to limit them to a minor number losing the least quantity of possible information. Given n remarks of p variables, he analyzes if it is possible to represent appropriately this information with a less number of variables constructed like linear combinations of originals. He considers a series of variables $X_1, X_2, \dots, X_p$ on a group of objects or individuals and it is a question of calculating, from them, a new set of variables $Y_1, Y_2, \dots, Y_p$ not correlated between themselves, whose variances are decreasing progressively.

Every y_j for all $j = 1, \dots, n$ is a linear combination of the originals $X_1, X_2, \dots, X_p$ that is to say:

$$y_j = a_{j1} X_1 + a_{j2} X_2 + \dots + a_{jn} X_p = a_j X$$

Where: $a_j = a_{j1}, a_{j2}, \dots, a_{jn}$ is a constants vector.

$$\sum_{k=1}^p a_{k2}^2 = 1$$

The first component is calculated choosing a_1 so that y_1 it has the biggest possible variance, subject to the restriction.

The second component is calculated obtaining a_2 so that the obtained variable, y_2 is not correlated by it with y_1 , and this way successively, so that the obtained variables are having every time less variance (Of the Source, 2011).

RESULTS

Estimation of the index of quality of life

Since it has been mentioned, the quality of life in general depends both on objective and subjective factors, and in this investigation the index of qual-

ity of life of the biggest adult constructed itself considering I to be 4 dimensions) Conditions of the housing, II) Economic (Revenue), III) subjective Well-being and IV) Conditions of Health. The following eight variables were used: 1. Right to receive the payment of a pension, 2. Frequency with which the biggest adult brings to enjoy the life, 3. Brought happiness level, 4. Perception of the health, 5. Possession of lasting goods, 6. Rightfulness, 7. Material of walls and 8. Material of the roof in the housing.

In the Table 3 show themselves the variables earlier mentioned, as well as the respective percentages, where it is observed that 82 per cent of the elderly people lack the use of a pension or retirement, 96 per cent of the elderly people mentioned to feel happy, with regard to the health condition, scarcely 16 per cent indicated an excellent state of health, since the majority brought a good or regular state of health and scarcely nine per cent qualified it like villain; as for the conditions of its housings little more than 58 per cent of elderlys are provided with appropriate spaces (roof and walls of durable materials); while on the other hand, 42 per cent of the elderly people lack lasting goods. Finally, one emphasizes that scarcely 44 per cent have access to an institution of health that is not the Popular Insurance to receive medical attention.

In Mexico a system stays segmented and fragmented in which the labor welfare is obligatory and public while the National System of Social Protection in Health (SNPSS), better acquaintance like the Popular Insurance (SP), is voluntary and only the population without labor welfare is capable to be a member. The SP is financed by fiscal contributions of the federal and state governments, also it offers a services bundle —the Universal Catalog of Health services (CAUSES)— very lower than the medical insurances of the institutes of labor welfare, and only it includes a limited number of illnesses of high cost (Laurell, 2013). For such a motive, and considering the lacks in infrastructure and personnel of the SP, in this study to be affiliated to the SP is not synonymous of rightfulness.

In this investigation the ACP it throws the first one component that it contains close to 33 per cent of the explained entire variance, therefore this happens to be the index of quality of life looked for the elderly people since he explains the biggest changeability of the set of six original variables.

Table 3: Variables for the construction of the Quality of Life Index

Indicator	Question	Original scale	Scale used	% (*)	Coding	Type of variable
Pension	Do you get any money for pension or retirement?	Yes	Yes	17.62	2	Dicotomics
		No	No	82.38	1	
Happiness	How often do you feel happy?	don't know	Lost values **	N = 722,726		Ordinal
		Always	Always	36.4	3	
		Many times	Sometimes	59.41	2	
		Sometimes	Never	4.19	1	
		Never	Lost values **	N = 722,726		
		Don't know	Lost values **	15.64		
Perception of health	How would you say what is your health status?	Excellent	Very good to excellent	15.64		Ordinal
		Very good	Very good to excellent	15.64	3	
		Good	Regular-good	75.1		
		Regular	Regular-good	75.1		
		Bad	Bad	9.26	2	
		Don't know	Lost values **	N = 722,726	1	
Possession of goods	Does this household have radio, television, refrigerator, computer, washing machine, telephone, owner's automobile, water heater?	Yes	Less than 5 goods	42.34		Dicotomics
		No	5 goods or more	57.56		
		Waste material	Tabique, brick, block, stone, quarry, cement or concrete	72.76	2	
		Cardboard sheet	Tabique, brick, block, stone, quarry, cement or concrete	72.76		
		Asbestos sheet	Other material	27.24		
		Adobe	Tabique, brick, block, stone, quarry, cement or concrete	72.76		
Housing (walls)	What material is most of the walls or walls of this household?	Wood	Other material	27.24		Dicotomics
		Concrete	Lost values **	N = 722,726	2	
		Not answer	Other material	27.24		
		Waste material	Concrete slab, tabique, brick	62.53		
		Cardboard sheet	Concrete slab, tabique, brick	62.53	37.47	
		Asbestos sheet	Other material	62.53		
House (ceiling house)	What material is the most part of the roof of this house?	Adobe	Other material	37.47		Dicotomics
		Wood	Other material	37.47	2	
		Concrete	lost values **	N = 722,726		
		Not answer	lost values **	37.47		
		IMSS	Right to receive medical attention from at least one institution of health	44.19	1	
		ISSSTE	lost values **	N = 722,726		
Derechohabiencia	¿Tiene derecho a recibir atención médica de... ?	ISSEMYM	Right to receive medical attention from at least one institution of health	44.19		Dicotomics
		PEMEX	Right to receive medical attention from at least one institution of health	44.19		
		Health insurance	Does not receive medical attention from any health institution	55.81		
		Seguro popular	Does not receive medical attention from any health institution	44.19	2	
		INAPAM (antes INSEN)	Does not receive medical attention from any health institution	55.81		
		Private institution	Always	N = 722,726	1	
Self-employed well-being	How often do you feel like enjoying life?	other institution	Always	36.27		Ordinal
		Always	Sometimes	55.29	3	
		Many times	Sometimes	55.29		
		Sometimes	Never	8.44		
		Never	Sometimes	55.29		
		Don't know	Never	8.44	2	
			Lost values **	N = 722,726		
			Lost values **	N = 722,726	1	
			Lost values **	N = 722,726		

(*) Percentages with expansion factors.

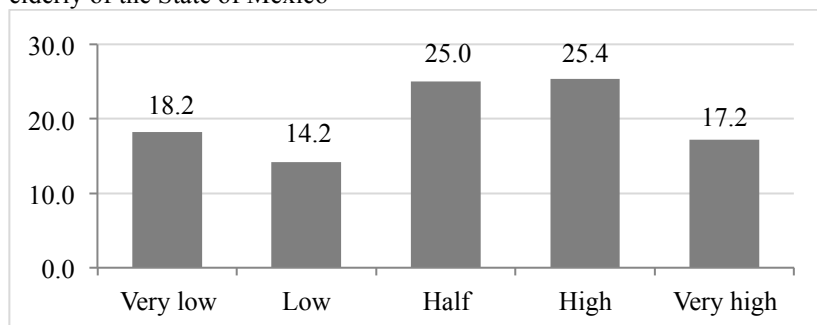
(**) These values were not considered in this investigation, so these observations were omitted.

The viability of the ACP happened across two statisticians: Test of esfericidad of Barlett, which allows to confirm the hypothesis of which the interrelations counterfoil is a counterfoil identity and the Test of Kaiser-Meyer-Olkin (KMO) that measures the suitability of the information to realize a factor analysis comparing the values of the coefficients of interrelation observed with the coefficients of partial interrelation, the statistician KMO changes between zero and one, the least values indicate to 0.5 that the ACP must not be used with the information that are used. As soon as the above mentioned index was constructed, there was applied the method of stratification of Dalenius and Hodges, which in accordance with García (2013) is the method most used in the analysis of information of the relative conditions of life (be called an index of alienation, social vulnerability, levels of well-being that are multidimensional indexes that include positive and negative values) and that a group as homogeneous as possible allows to obtain between the remarks of a database, as well as construct so many strata as one wishes it, taking into consideration the proper distribution of the information and minimizing the variance.

Using the mentioned stratification five groups formed for the quality of life: much it goes down, goes down, regular, high and very high. 1,949 cases were analyzed in whole and the results of the above mentioned analysis allow to affirm that 42.6 per cent of the population present quality of life of high to very high, he codes that it seemed very encouraging; nevertheless, 32.4 per cent this population group has a low level or much low of quality of life, as it is observed in the Figure 4; given this situation, it turns out to be interesting to know the behavior of the variables sociodemográficas, economic and of the health in order to propose or to improve public politics directed to increase the well-being of the elderly people.

Next the frequency is analyzed in the well-being levels by every variable used for its construction, it is possible to point out that the elderly people with right to the payment of a pension, with good conditions of housing (roof and walls of suitable materials and possession of lasting goods), with right to get medical attention for some public or private institution, which they enjoy the life often and with good conditions of health and happiness brought correspond to individuals at levels of high and very high quality of life. In the Table 4 the percentages that appear omit the individuals who qualified with average, low and very low quality of life and it is possible to appreciate it earlier commented.

Figure 4: Percentage distribution of the level of quality of life in the elderly of the State of Mexico



Source: Own elaboration based on results of ESEDEM, 2008.

Table 4: Distribución de Quality of life por variables empleadas para la construcción del índice

Variables	Indicator	Percentage
Derechohabiencia	Yes	84.5
	No	15.5
Possession of goods	4 goods or more	92.3
	Less than 4 goods	7.7
Happiness	Always	42.9
	Sometimes	54.3
	Never	2.8
Roof	Adequate	95.7
	Inadequate	4.3
Walls	Adequate	98.3
	Inadequate	1.7
Health	From regular to excellent	90.0
	Bad	10.0
Pension	Yes	39.0
	No	61.0
Enjoy life	Always	44.8
	Sometimes	50.1
	Never	5.1

Source: Own elaboration based on ESEDEM, 2008.

It turns out to be interesting to question why motives a wide percentage of the elderly people good sample quality of life, although big number of them also presents lacks like the absence of medical services, income for concept of pension or worthy housing, but as well it was mentioned, in the quality of life there play both objective and subjective and variable factors as the perceived support, familiar networks, recreation or non-enduring chronic illnesses incapacitantes there are elements even more excellent than economic factors or material lacks.

Descriptive analysis of the supplementary variables

The idea, as soon as the quality of life index was obtained, is to associate it with different variables, supplementary or illustrative calls, which are other measurements of the individuals of the sample, because they do not intervene in the formation of the components (González *et al.*, 2002). Then, as soon as the quality of life index was calculated for the elderly people, it is suitable to analyze the characteristics sociodemográficas and of the health that tackles this investigation and the relation that each of them keeps with the quality of life index.

Characteristics sociodemographics

Of 1,949 adults biggest considered in the study 51.46 per cent correspond to persons of the feminine sex. For effects of a better analysis for the variable age age groups were content, it is possible to appreciate that the age status from 60 to 74 years practically lodges almost 70 per cent of the whole of the elderly people, although given the tendencies in the population aging this status will be covered towards more advanced ages (Figure 5).

As for quality of life level for sex, the masculine genre presents better conditions. It is observed that 45 per cent of the men present high and very high quality of life, while the percentage is less in the women, with 39; so that it is possible to assume that variable sex has certain influence in the quality of life and is observed in the Table 5 and Table 6.

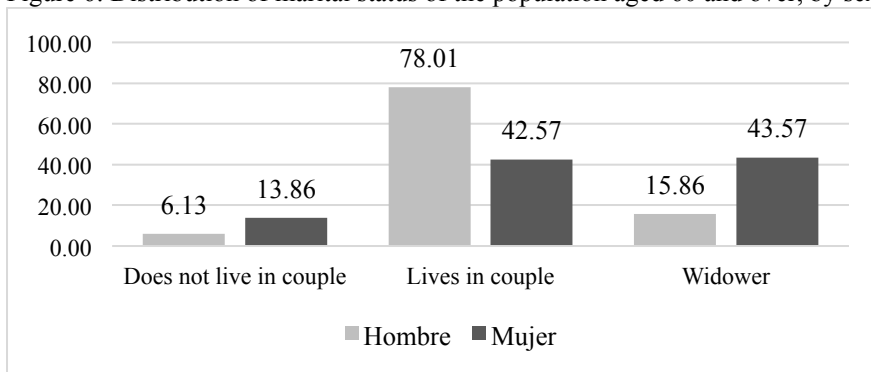
Another sociodemográfica variable for analyzing is the marital status, 59 per cent of the elderly people bring to live in couple (married or in free union), 10 per cent do not live in couple (bachelors, separated or divorced) and the rest corresponds to elderly widowers. The biggest percentage of the men (78.01%) lives in couple, in contrast to 42.47 per cent of the women; and on the other hand there is much major number of women widows that men, principally because of the biggest life expectancy in the feminine sex (Figure 6).

Table 5: Percentage distribution of Quality of life by gender

	Men	Women
Nivel de Quality of life		
Very low	17.02	19.34
Low	14.06	14.36
Half	23.47	26.42
High	23.15	27.52
Very high	22.30	12.36
Total	100.00	100.00

Source: Own elaboration based on ESEDEM, 2008.

Figure 6: Distribution of marital status of the population aged 60 and over, by sex



Source: Own elaboration based on results of ESEDEM, 2008.

The social relations of the persons affect its mental and psychological health, since for the man to maintain contact with the persons who surround him is essential. In accordance with Montoya and Montes de Oca (2010) to age in company of other persons generates major conditions of resistance and recovery, both of illnesses and of emotional and economic crises. In accordance with the CEPAL,

Table 6: Percentage distribution of quality of life, according to marital status and sex

	Men					Women					
	Very low	Low	Half	High	Very high	Very low	Low	Half	High	Very high	Total
Quality of life											
Does not live in couple	7.11	3.55	9.14	5.58	4.06	8.63	7.61	21.83	19.80	12.69	100.00
Lives in couple	10.04	8.50	13.82	15.71	15.28	7.04	4.29	9.96	12.53	2.83	100.00
Widower	5.11	4.60	7.33	4.26	4.26	16.18	13.46	18.06	15.50	11.24	100.00

Source: Own elaboration based on ESEDEM, 2008.

the familiar relations are crucial for the maintenance and the well-being of the aged population. Between these relations he emphasizes in importance the marital status, more specially the coexistence in couple. To be provided with the spouse represents essential benefits as there are the sentimental and psychological satisfaction of the company, the possibility of attention and mutual care and the opportunity of material and moral support. In another side of the scales, it has been proved that the solitude is a big depression factor in the old age, question that affects particularly the men who remain alone. Also, the dependence for the care and the sustenance on other members of the family is neither so constant nor so reliable as that of the proper couple. This way, a psychic and social mark of the individual aging is the special solitude state and lacking in support that comes with the widowhood, especially for the women (CEPAL, 2002: 24).

In the Table 7 and Table 8 appreciates that a tall percentage of adults major who are widowers presents levels of low and very low quality of life, while of the whole of elderlys with very high well-being, 84 and 26 per cent of men and women respectively said to be married or to live in free union. Thus it is possible to confirm that the marital status also influences the quality of life of the biggest adult.

Table 7: Distribución de Quality of life, according to marital status

	Does not live in couple	Lives in couple	Widower	Total
Quality of life				
Very low	8.73	56.06	35.21	100.00
Low	7.94	53.79	38.27	100.00
Half	12.53	56.88	30.60	100.00
High	10.10	66.46	23.43	100.00
Very high	9.85	62.99	27.16	100.00

Source: Own elaboration based on ESEDEM, 2008.

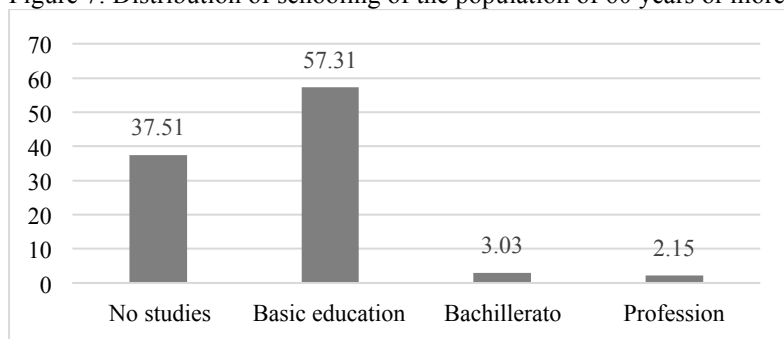
Table 8: Percentage distribution of quality of life, according to educational level and sex

	No studies		Basic education		Bachillerato		Profession	
	Men	Women	Men	Women	Men	Women	Men	Women
Very low	27.24	28.98	13.73	12.65	0.00	0.00	0.00	0.00
Low	19.71	18.58	12.44	11.45	4.55	2.70	0.00	12.50
Half	24.01	26.77	24.56	27.31	0.00	10.81	11.54	25.00
High	20.79	20.13	23.91	33.94	31.82	35.14	23.08	18.75
Very high	8.24	5.53	25.36	14.66	63.64	51.35	65.38	43.75
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own elaboration based on ESEDEM, 2008.

As for the level of schooling of the population in study, 57.31 per cent passed primary or secondary, a high percentage (37.51) of the elderly people is not provided with any approved studies grade and scarcely their five per cent have some technical career, profession or posgrado. The educational levels are more favorable for the masculine sex, since 71 per cent of the men at least approved at least a study level and only 55 per cent of the women did it (Figure 7).

Figure 7: Distribution of schooling of the population of 60 years or more



Source: Own elaboration based on results of ESEDEM, 2008.

In the Table 9 is clear the relation that exists between the level of well-being and the educational level in the elderly people; it is appreciated that at major educational level in the quality of life and also major percentages for the masculine sex.

Table 9: Distribution of perceived support by government, by age group*

	No	Yes	Total
Age group			
60 to 64 years	79.59	20.41	100.00
65 to 69 years	75.76	24.24	100.00
70 to 74 years	54.91	45.09	100.00
75 to 79 years	46.05	53.95	100.00
80 to 84 years	46.79	53.21	100.00
85 years and over	42.14	57.86	100.00

* Economic or care support

Source: Own elaboration based on ESEDEM, 2008.

In the same way, Rodríguez (2007) affirms that one of the factors of major significance in the quality of life of the biggest adult is the schooling level. It supports that at major educational level, major grade of satisfaction with the perceived social support and major satisfaction grade with the use of the free time, therefore, better quality of life. In another investigation, it is mentioned that the elders at less level of schooling and revenue present major difficulties of access to opportunities of free time and diversion, what can influence its health conditions and hence its level of well-being (Mara dos Santos *et al.*, 2013).

Perceived support

There exist many cases in which unfortunately the biggest adult is seen like an economic load for the family and the society since it turns into an individual who completes without producing. Generally the pensioner diminishes its income and, on not having worked, a series of implications comes untied, principally its physical and mental capacity deteriorates (Cuenca, 2008).

On the other hand, Murillo and Venegas (2011) affirm that a proportion significativa is economically active to elderlys and that for numerous hearths with elderlys in Mexico, the labor income derived from the work constitutes the only revenue or an important complement of the familiar income. In the Table 10 it is observed that as age increases, the perceived support also increases, this because the elderly people of major age are who are more vulnerable and need major care and support of others persons.

In the Table 11 observes that in the categories of quality of life of much fall to be regulated there appears the characteristic of which there is major number of adults that receives some type of help (governmental support), while in the categories of high and very high well-being the opposite happens. The adult population biggest dependent of the supports and with bad goods situation it shows serious disadvantages, like low levels of schooling, widowhood or that principally they inhabit in the rural ambience, as what these disadvantages have a direct effect on its economic safety, generating dependence and affecting its quality of life (Madrigal, 2011).

Table 10: Percentage distribution of quality of life, depending on whether or not it receives government support

	Does not receive support	Does receive support	Total
Quality of life			
Very low	34.08	65.92	100.00
Low	46.93	53.07	100.00
Half	63.45	36.55	100.00
High	74.55	25.45	100.00
Very high	89.85	10.15	100.00

Source: Own elaboration based on ESEDEM, 2008.

Table 11: Distribution of Quality of life according to rightfulness status

	With health services	Without health services	Total
Quality of life			
Very low	0.85	99.15	100.00
Low	12.27	87.73	100.00
Half	21.56	78.44	100.00
High	74.34	25.66	100.00
Very high	99.40	0.60	100.00

Source: Own elaboration based on ESEDEM, 2008.

Typical of the health

“The health is the state of finished physical, mental and social well-being, and not only the absence of complaints or illnesses”. The appointment comes from the Preamble of the Constitution of the World Organization of the Health, which was adopted as the International Sanitary Conference celebrated in New York from June 19 until July 22, 1946, signed on July 22, 1946 by the representatives of 61 States (Official Records of the World Health Organization, N° 2: 100), and it came into force on April 7, 1948 and it has not been modified. As for the right to get medical attention for some health institution, scarcely 43 per cent of the population in study have coverage of medical services, being also a major percentage of men with this right.

With the information of the Table 12 is possible to do a comparison between two categories of the level of well-being, practically the whole of elderlys whose quality of life is very low has not a right to get medical attention for any institution, while in the category of very high quality of

life almost 100 per cent are provided with medical services therefore it is possible to say that this is a variable that also has high impact in the quality of life of the biggest adult.

Table 12: Distribution of quality of life according PAVD

	Any problem	No problem	Total
Quality of life			
Very low	63.38	36.62	100.00
Low	56.32	43.68	100.00
Half	61.19	38.81	100.00
High	55.15	44.85	100.00
Very high	53.43	46.57	100.00

Source: Own elaboration based on ESEDEM, 2008.

On the other hand, 58 per cent of the AM endure some Problem to carry out Activities of the Daily Life (PAVD), of which the biggest percentage there are women, been due principally to its biggest life expectancy and to the disadvantages with which they come to the old age, in contrast to the men. Nevertheless, many relation does not seem to exist between this variable and the level of quality of life, since as it is observed in the Table that 13 there is no significant difference in the percentages between the different well-being categories.

A number that turns out to be worrying is the percentage of adults major who endures at least a degenerative chronic illness, since almost 64 per cent of the population present this characteristic, with the peculiarities of which the biggest number of them is women and which the presence of these illnesses does not exclude to any age group as is visualized in the Table 13.

The relation that in the beginning it was possible to raise between the index of quality of life and the suffering of chronic illnesses would be that invariably the presence of some illness would influence in a negative way the quality of life; nevertheless this exposition is not most adapted so as it is possible to see, of the whole of elderlys with very high quality of life, 71 per cent endure some illness; also the percentage is major also for the categories of high, average and low, and very similar quality of life in the category of very low quality. Still, other investigations conclude that the elders with chronic illnesses feel more worried due to the difficulties of access to other resources of health and the worsening of the problems of health, what reverberates on its quality of life because they diminish also

its functional capacities (Mara dos Santos, 2013). Also, Ballesteros (1999), it raises straight that a notable decrease in the physical health has immediate aftereffects in the psychological functioning, for what these concepts constitute an inseparable unit. The physical disability in the biggest adult disables the tasks achievement like a work, then very probably do not be provided with an economic revenue to satisfy its needs and this is translated in happening to be an individual dependent on third persons. Authors as Kikuchi (2010) mentions that with the current conditions and given the increase in the life expectancy it is necessary to reinforce the preventive health and to modify the social agreement with pensioners to increase the productivity stage.

Table 13: Distribution of Quality of life according to condition of chronic diseases

	With chronic diseases	Without chronic diseases	Total
<i>Quality of life</i>			
Very low	50.70	49.30	100.00
Low	57.40	42.60	100.00
Half	65.71	34.29	100.00
High	69.09	30.91	100.00
Very high	71.34	28.66	100.00

Source: Own elaboration based on ESEDEM, 2008.

CONCLUSIONS

This investigation allowed to know the characteristics sociodemográficas, economic and of the health of the biggest adult persons of the State of Mexico. In the first instance, the calculation of the index of quality of life allows to have a general idea of the situation through that this group lives etario and considering the variables used in the analysis of main components it turns out that good housing conditions are related in an important way at high quality of life levels, the same happens at brought frequent levels of happiness and the right to get medical attention for some health Institution.

To study the relation that exists between the index of quality of life and the supplementary variables makes possible to establish a high relation between the quality of life and the marital status, the educational level and the condition of rightfulness. The biggest adult widowers present disadvantages compared to those who live in couple, therefore it is possible

to affirm that, in effect, to age in company of other persons can help to propitiate better living conditions and that also this can happen in major measurement if the persons share affective bonds. As for the schooling level, it is possible to affirm that a prepared person académicamente presents major opportunities to be inserted on the formal and best stipendiary labor market, for what the scope of satisfying its needs is very superior to that of those persons who do not have academic instruction. In general, close to half of the population who was analyzed he lacks studies and hence the similar percentage has qualified in low well-being levels.

The term quality of life is multidimensional and generally it collaborates to economic factors. This investigation reaffirms that really certain association grade exists between the access to a pension and the level of quality of life; almost the totality of adults major who receive this labor law classified under quality of life levels high place and very highly. It is important to highlight the relation that exists between the educational levels and the access to a pension, since an elderly at high schooling levels has more possibilities of gaining access to this right.

There exist certain differences between the opportunities that an elderly man has, in general, major educational advantages, major possibility of a formal work and with it the right to agree to a pension and to be provided with medical coverage. The variable age also has relation at the well-being level, so as a person ages its capacities not only physical also they diminish; in case of the women at major age of course its spouse will have died and it affects its quality of life.

The investigation also concludes that there does not exist a high degree of impact of the suffering of chronic illnesses or problems to realize any activity of the daily life on the quality of life of the biggest adult; not for it there stops being alarming the increase accelerated in the incidence and predominance of the chronic illnesses that will imply an increasing demand of services of medical attention, which in turn provoke expenses and they could in a future destabilize moreover the economy of the families and of the country. In this point it is necessary to highlight the limited coverage that has the Popular Insurance since till now only he attends to some sufferings.

The results of the investigation help to identify also that the quality of life of the elderly people who receive some type of social support on the part of the government is low and very low. This way one raises doubts about the purpose of the governmental programs, because although lacking them would involve a major number of elderly at unfavorable standards

of living, they are distant from increasing very much its quality of life. In the State of Mexico at present there develop programs of attention to this vulnerable group, such as the delivery of food baskets to persons from 60 to 69 years, food baskets for major than 70 years and the integration of this population is impelled also to the productive life across training courses in order to improve its economy; economic supports exist also at federal, such level the case of the program is 70 and more that it consists of the delivery for 500 monthly pesos and that it is paid every two months; nevertheless, the reached target of these programs is only to diminish the extreme poverty in this population group.

It is necessary to point out that the law of the Biggest Adult of the State of Mexico in its first article recounts following "The present Law performs public order, social interest and general observance in the State of Mexico and takes as an object to guarantee the exercise of the rights of the elderly people, as well as to establish the bases and dispositions for its fulfillment, to effect of improving its quality of life" (Law of the Biggest Adult of the State of Mexico, 2008), nevertheless, under these circumstances, the governmental supports turn out to be insufficient to guarantee a suitable standard of living and, considering the population projections on the subject of aging, it is valid to suppose that this type of programs is not guaranteed, for what the poverty in this stage of the life would aggravate. Before such a situation and to settle its needs for subsistence, a tall number of elderly stays immersed on the labor market, but invariably after its physical capacities diminish they happen to the dependence state and its care relapses principally into the familiar networks, themselves that at present they are of less size due to the descent in the fecundity valuation; then, the families will have to take responsibility not only of the care of the children, but also of the elderly people and that these are of less size it implies that there are less brothers with whom sharing the care and the responsibility. In addition to this, migratory phenomena and situations of poverty doubt the aptitude of the family to load with the responsibility of the protection of the elderly people.

With the information and the analysis of the information a serious worry is reflected on the subject of health, economic, educational and political by what there is highlighted the need to tackle the demographic aging with planeación and with sights towards the correct attention of demands and needs that this population group already demands. Namely it is necessary to give major importance in the creation of politics focused in the prevention of the health and the well-being for the population even in not advan-

ced ages, reinforcing the social and economic long term structure, since it is not necessary to forget that the conditions associated with the aging that need attention multiply in the course of time and go accompanied by an increasing dependence condition. Under this situation and the awaited one it is urgent to advance on the subject of social security, as well as to impel the investigation in the areas related to the aging and guaranteeing on the other hand to the even not aged population a worthy work that propitiates the sufficient economic resources accumulation and with it a suitable life level when it goes over at the age of labor retirement.

This article is part of the products derived from the titled research project “Integral Diagnosis of the Current situation of the Demographic Aging in the State of Mexico” that took the Survey of Demographic Aging as an analysis instrument in the State of Mexico. This investigation was realized in the Research center and Advanced Studies of the Population of the Autonomous University of the State of Mexico. The authors are grateful to Dr. Alfonso Mejía Modesto and to Mtro. Hugo Montes de Oca Vargas the attention that they had in reading this article.

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