https://repository.uaeh.edu.mx/revistas/index.php./MJMR/issue/archive

Mexican Journal of Medical Research ICSA

Biannual Publication, Vol. 8, No. 15 (2020) 16-22

ISSN: 2007-5235

Depression in old age and its impact on public health in Mexico

Depresión en la vejez y su impacto en la salud pública en México

Carolina Hernández-Serrano [a]

Abstract:

Depression is a major public health problem since it is a disease that affects a significant percentage of the world´s population. This disease motivates that the understanding of emotions gets influenced by several risk factors due to its characteristics. It is defined as a frequent mental disorder characterized by the presence of sadness, loss of interest, feelings of guilt or low self-esteem, sleep disorders, and lack of appetite. Depression in people over 65 years old has a high prevalence and produces a negative impact on life quality, it is represented in different ways because its etiology can only be explained by resorting biological and psychosocial mechanisms that coexist in the individual. The prognosis is generally poor, because this disorder in older adults presents greater relapses and higher mortality than in people of other ages. Several studies have shown that the most appropriate treatment for depression is one that combines resilient behavioral psychotherapy. The objective of the present review is to analyze the magnitude and social impact of depression, as well as to explore models that allow a better understanding of the strategies needed for its attention and thereby raise the level of knowledge about this condition through a deeper study of the topic, as understanding the problem better will allow early diagnosis and timely treatment.

Keywords:

Depression, Elderly, Public Health

Resumen:

La depresión constituye un problema importante de salud pública ya que es una enfermedad que afecta a un alto porcentaje de la población mundial; este padecimiento motiva que el entendimiento de las emociones sea un aspecto influenciado por diversos factores de riesgo por el tipo de características a las que pertenece; es definida como un trastorno mental frecuente que se caracteriza por la presencia de tristeza, perdida de interés, sentimientos de culpa, baja autoestima, trastornos del sueño y falta de apetito. La depresión en personas mayores de 65 años tiene una prevalencia alta y produce un impacto negativo en la calidad de vida, representándose de distintas formas debido a que su etiología solo puede explicarse recurriendo a diversos mecanismos de orden biológico y psicosocial que coexisten en el individuo. El pronóstico es en general deficiente, pues este trastorno en la vejez presenta mayores recaídas y mayor mortalidad que en las personas de otras edades. Algunos estudios han demostrado que el tratamiento más adecuado para la depresión es aquel que combina intervención primaria con psicoterapia conductual. El objetivo de la presente revisión es analizar la magnitud y el impacto social de la depresión, así como explorar modelos que permitan comprender mejor las estrategias necesarias para su atención y con ello se pueda elevar el nivel de conocimiento sobre este padecimiento a través de la profundización del tema, dado que una mayor comprensión del problema permitirá un diagnóstico temprano y un tratamiento oportuno.

Palabras Clave*:*

Depresión, Adulto Mayor, Salud Pública

INTRODUCTION

Human aging is universal and inevitable and is related to the state of health due to the epidemiological transition of diseases, with an increase in chronic, non-communicable diseases.[1]

Depression (DP) contributes significantly to the overall burden of the disease. It is one of the main causes of disability and it is estimated that it affects 350 million people in the world, with prevalences ranging between 3.3 and 21.4%.[1] Some of the causes of this condition are related to family abandonment, economic issues and social infrastructure, the ignorance of the adequate management of depression in older adults, the lack of effective community intervention, among other variables. Due to progressive aging of the population, it is essential to detect how it manifests and develops in the elderly, as its of particular interest in this vulnerable group due to its frequency, comorbidity, and the deterioration of their life quality.[2] Currently, Mexico is considered a country of young people,

[a] Carolina Hernández Serrano, University Ateneo in Humanities and Health Sciences, Departamento de Gerontología, Email: caro.510@hotmail.com

Received: 1/03/2019, Accepted: 30/08/2019, Published: 05/01/2020

however it is experiencing a process of aging that will bring, in a medium and long term, consequences in aspects such as health, economy, social relations, and values. It will need the intervention of society as a whole and of the state particularly. The organizations and countries that focus on the study of the characteristics of longevity, try not only to study longevity, but to get there in optimal physical, mental and social conditions, that allow functionality for a satisfactory aging.[3]

The effect on the health system is described by studies that have shown that people with DP are associated with a higher rate of utilization and costs as well as a high degree of disability. An important lesson that has been learned in recent decades is that considering a group of older adults homogenous is a big mistake in psychological and medical practices, since each person must have a special and different intervention adapted to specific needs where organized and intelligent attention from the society can face this situation and limit its impact in a minimal way.[4]

The well-being in the elderly is associated to the living conditions offered by their surroundings. They need the satisfaction of their growing psychological, socioeconomic, biological and functional needs; factors that have an unbreakable interrelation in the pathological process.[3]

EPIDEMIOLOGICAL CHARACTERISTICS OF DEPRESSION IN MEXICO

International studies have found that in most countries, between 40% and 55% of people had some symptom or depressive disorder with a relapse within the last year. The World Health Organization (WHO) points out that in the year 2020, DP will be the second cause of disability in the world, only after cardiovascular diseases. The consequence of the increase in life expectancy results from the policies in health services where Mexico is experiencing a process of demographic transition, defined by the aging of its population.[5]

Mexico is the eleventh most populated country in the world; however, it is important to highlight that this demography is conditioned by biological and social factors where both coexist and influence each other.[6] According to a study that took place in four Mexican cities, where "Composite International Diagnostic Interview Schedule" (CIDI) was used, it was determined that one out of eight people (12.8%) suffer from depressive disorders, and that a considerable number of people presented it within the last year (6.1%) where sex, age and educational level were associated with the prevalence of DP. In the country, it is the main cause of loss of adjusted life years due to disability for women and the ninth cause for men.[7]

People who are over 65 years old have a prevalence of DP that is above 20% and is more common among the unemployed, widowers and single people. In this population, mental disorders are one of the five main causes of disability.[8]

The increase in the population with a higher number of older adults is a reality. In 25 years from now, the population over 60 years old living in Latin America and the Caribbean will go from 40 million to more than 97 million. Then it will be necessary to create strategies to deal with the mental disorders of this age group.[9] See figure 1.

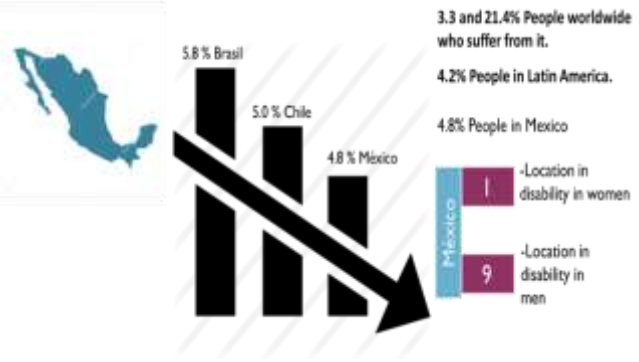

Figure 1. Impact of depression. Prevalence
Source: Own elaboration with information from the United Nations Population Fund (UNFPA)[8]

Mexico and other countries are dedicated to study part of the characteristics of longevity, because the proposed goal is to get people to live longer, that is, in healthy physical, mental and social conditions, allowing functionality according to the statutes of a satisfactory aging.[9]

FACTORS OF DEPRESSION IN ELDERLY

DP is the result of the interaction of social, biological or hereditary factors that are linked to the individual characteristics of each person. The comparison of prevalence rates in different places helps in the adequate identification of risk factors as well as factors that can influence the early detection and timely attention of possible cases in the health services.[10]

The diagnosis of DP is made by following the criteria of DSM-5, which include physical symptoms such as change in the body weight or loss of appetite; however, these criteria change when they are applied to older adults because this condition can hide behind certain diseases so it is not easy to categorize it into a single diagnosis.

Data from the National Psychiatric Epidemiology Survey (ENEP) shows a significant increase in the population that has been in constant interaction with violent events having variations depending on gender.[11] That is why when evaluating the health status in geriatric patients is complex, since it involves measuring the result of various variables.

Genetic factor

The DP syndrome is part of the group of genetically named complex diseases. Considering that the genetic component of these diseases does not follow the classical inheritance pattern, developing susceptibility to develop the disease. There must be an approximation of the factors resulting from the observation of the family and the prevalence of the disorder among its members; however, family studies do not control the environmental factor. The search for the gene-environment relationship opens a new door in the knowledge of the etiology of DP, in which the genetic characteristics of an individual and

their progressive interaction with the environment will be defined as the center of the study. This relationship is determined by the genetic sensitivity of the environmental factors to which an individual is exposed in the vital age.[12]

Certain genotypes can cause a greater likelihood of suffering the disorder compared to others facing a certain exposure to an environmental risk factor. That way, individuals are differentiated, showing that genetically vulnerable people are at a higher risk of having the disease, compared to being exposed to certain environmental factor.

Chemical factor

Multiple diseases that are related to depression are triggered, so the medication as well as the chemical substances created by the same organism can cause changes in the system, where depression occurs due to side effects. It is a reality that there is a chemical function within neurotransmitters, this highlights that the appearance of depression at a later age may be influenced by social and environmental factors, while the appearance of this at an early age may be linked to genetic and chemical factors.[13]

Avitaminosis

Another important chemical factor that influences the body of the elderly is the lack of vitamins; Vitamins have a broad role in health, and are not only related to bone metabolism, but also in relation to the cardiovascular system, neurological development, immunomodulation, and regulation of cell growth. An example of this in aging are the changes in the metabolism with vitamin D and the mineral effect in general, this being an important chemical process in older adults. [14]

Supplementation with vitamin D contributes to attenuate secondary hyperparathyroidism, obtaining a stable mental state that would not influence to be a depressive factor in the individual.[15]

Social factor

The social factor is an important factor that is related to the lack of knowledge; that is, population usually defines and expresses their needs in terms of everyday problems that result in the presence of stress or sadness. At the moment, social factors have become visible like the greater index of unemployment, the social insecurity, marginalization and a rupture of the social network.[16]

Studies related to social support, emphasize the importance of a structural point of view in which, the idea of "social network" and the concepts with which it is related to have a contextual perspective, focused on the environment of the support sources, and a vision focused on the type of resources in a didactic way by social relations.[16]

Cultural factor

Cultural differences influence how symptoms are experienced and how they are described by patients; but it also influences the decisions about the treatment, the relationship between doctor and patient; and also, the probability of suicide which is the most important risk associated with this disease. Culture is of vital importance in almost all the development of the disease. This factor strengthen, protects, modifies and corrects. The degree to which habits are acquired or transformed and the existence of this factor within the family is linked to economic and social variables.[17]

COMORBIDITY OF DEPRESSION WITH OTHER DISEASES

This association, known by the name of comorbidity, occurs in highly predictable defined patterns. In the elderly, it is possible to find the presence of comorbidity in general psychological or medical issues, creating a worse prognosis for diseases. It is worth noting that, despite having a high percentage of comorbidity and its implications, this condition may go unnoticed, since health professionals usually resort to differentially organic explanations of the present symptomatology.[18]

Diabetes

It is estimated that the prevalence of depression is doubled in older adults who suffer from diabetes, compared to healthy older adults, in addition to 10% of depression cases in diabetic patients who are not diagnosed. But the diagnostic task is not easy, since there is a confusion between the symptoms of depression and those symptoms typical of poor management of diabetes, such as fatigue and sleep disturbances. [18]

It is important to mention that a study that included people with diabetes in Mexico described a high rate of comorbidity with DP (39%), with a higher prevalence in women, divorced persons and those with higher glucose levels. Patients with diabetes who suffer from depressive symptoms express a lower adherence to treatment than those without depressive symptoms or who have them at a lower intensity where the variable of social support acts as an important factor in this association.[19]

Cerebrovascular diseases

One of the reasons that patients with a cerebrovascular disease develop DP is the length of hospitalization or simply the functional limitations related to a chronic disease. It is considered that the experience of a brief period of DP during a coronary crisis is common and it can be considered as a normal reaction to the experience of illness. [20]

It is estimated that the prevalence of DP in the elderly is higher in people with a chronic disease, in those whose mood has been linked to physical illness and functional problems related to this stage of development. Some symptoms of DP may be more cardiotoxic than others. For example, anhedonia and somatic symptoms such as sleep difficulties would be more associated with mortality.[21]

Another important point to consider in the development of the relationship and prognosis of patients with a cerebrovascular

event is that patients at higher risk of dying would be those with a DP resistant to treatment.[22]

The comorbidity of DP and cerebrovascular events are associated with a higher risk of mortality than those with cerebrovascular disease alone. Presenting both conditions leads older adults to develop a chronic course of psychopathology combined with greater decline and resistance to treatment than patients who only have one condition. To consider DP as a risk factor for older adults who have suffered a cerebrovascular event leads us to believe that interventions aimed at this factor would reduce their morbidity and mortality rates.[23]

Cancer

The diagnosis of cancer is linked to a health warning with repercussions in the spheres of life of the elderly sick person and their relatives. This disease brutally impacts the psychic and physical balance of the person, showing an unknown world where new situations create physical pain and a high degree of stress. The fact of being hospitalized together with periods of hospitalization until being "isolated" makes the defense mechanisms to be able to tackle the situation. Studies assure that between 25-50% of people with cancer have psychological alterations resulting from the disease process. Cancer and its treatment create emotional discomfort and clinically important physical affections in people treated for this disease. Preventive interventions of DP in oncology have been investigated by systematic reviews. In general, the interventions to prevent DP have obtained good results, which would recommend its application. In some studies, the observed gains were maintained in the medium and long-term follow-up, with relevant importance in longer interventions.[24]

Alzheimer disease

Some studies show that up to a third of Alzheimer's cases, the dementia that occurs in people with impairment, can be prevented with the elimination of some risk factors. During old age, DP is associated with biological, psychosocial and prognostic factors. DP and Alzheimer's disease share medical comorbidities, risk factors and suggest that the appearance of one of them is commonly linked to the other, since the presence of both pathologies increases the risk of mortality.[25]

There is a condition in which the development of DP in old age exhibits a significant cognitive decline, where the presence of these symptoms could be an early sign of a neurodegenerative disease. Cognitive deficits are created in functions that are related to learning like the attention and memory, and visuospatial skills.[25] The probability that DP and Alzheimer's disease advance will depend on early evaluation and timely intervention.

COST-EFFECTIVENESS OF TREATMENTS FOR DEPRESSION

Epidemiology is in a process of continuous change, some epidemiological methods have been developed with special importance for studies of morbidity by different chronic diseases as well as the inspection of their origin or factors that help their development, but the most recognized advance has been created from the interest on the problems about aging.[5]

The increase in the life expectancy of the population creates the probability that there will be two health-disease situations in the older adult. The first one is that despite the increase in life expectancy, life does not go far beyond the decrease of morbidity because instead of developing an improvement, health conditions could decline, with one disease replacing the other. The second one describes that the life quality in this sector will be improved by modifying risk factors that are associated with one or more diseases. While the former grew, pensions and assistance systems defined aging and maintained the livelihood of older people, but at the same time classified them as weak, socially dependent and as objects of discrimination.[26]

The WHO selected disability-adjusted life years (DALYs) as those cost-effectiveness measures of interventions for different health problems, including mental disorders such as DP.[5]

Several studies define that older adults with anxiety disorders or DP develop a higher rate of the use of health care services, with a higher cost of care. However, the majority of people of older age do not go to treatment, which leads to an increase in disability and to an economic and social impact.[26]

Mental disorders create important impediments to self-care and to the adherence and response to treatments of other diseases. Unlike other conditions, such as heart disease or diabetes, the indirect costs generally associated are the same or exceed the direct costs of treatment.[5]

The social costs that are attached to mental illness are also high. Mental health conditions are associated with substance use and poverty. Suffering from a mental illness implies loss of productivity and the cost of a long-term treatment, this helps to maintain a situation of low resources; at the same time, living in poverty contributes to the appearance of mental illness, generating a vicious circle.[26]

In the case of the older adult population, a report with a sample collected from Mexico City compared the use of health services associated with the presence or absence of DP in the last six months and described that people with DP and without recent comorbidity than a greater expense than those who did not have DP. Taking this type of evidence into consideration, the available resources can be directed optimally.[19]

Of particular relevance are those depressive symptoms of DSM-5 that constitute a risk factor for the development of functional dependence in the elderly living in the city, this supposes additional expenses to the social circle with which it is related, which is why it is necessary to raise the awareness of health care professionals regarding the attention of this population group and the development of projects that integrate them into society. Mental health treatments reduce the need for hospitalizations and emergency care, improving the health indicators of people with heart disease, chronic pain and other serious illnesses.[26]

The knowledge of the cost-effectiveness of interventions for a condition allows us to see the appropriate treatments to manage, taking into account the resources to meet the demand and need in health. Although a better investment in clinical research is necessary for the development, adaptation and evaluation of treatments for the national population, evidence of their effectiveness has been obtained.[26]

PUBLIC POLICIES IN OLD AGE

Currently, the definition of public policy depends on government actions that aim at solving problems or meeting objectives of general interest effectively and efficiently.[27]

DP at this stage is a public health problem of great magnitude and one of the most common psychiatric problems. It is recognized that mental health is included in the public health agenda and achieving important advances such as the integration of pharmacological and psychotherapeutic treatment of the main mental disorders in the Universal Catalog of Health Services (CAUSES) of Social Security.[28]

In 1982, the topic of old age and aging began to appear on the international agenda. At that time, the first World Assembly on Aging was held in Vienna, creating the first international instrument that contains a basis on aging policies and programs. The change in policies within the country has been influenced by other countries that work daily for a better treatment of this sector, together with the global assembly on aging, the regional strategy for the implementation of the Madrid's action plan on aging signed by Mexico in Santiago de Chile in 2003 and the declaration of Brasilia in 2007.[29]

The increase in the number of people in the post-employment age, attached to retirement, together with the decrease in the active labor force, needs a new social security system. Sometimes poor older adults have no choice but to live with their families living from their retirement or from incentives received from different government programs.[30] With the above, the aging population is a constant pressure for the health system, the labor market and public pensions. The information available is an approximation to this proposal. The mechanisms that allow the generalized application of screening instruments with a functional approach remain to be established. Investment in the creation of geriatric units will also be necessary, where the individual care plans for their application at the primary level are established. But at first, it is necessary to adapt the efficiency of existing units, changing their infrastructure, training staff and creating new services at the three levels of attention. Public policies must adhere to prevention, promotion, treatment and rehabilitation actions. The importance that these actions are carried out in a coordinated manner with the public sectors is so they can get a better use of resources. Following the previous line, it is necessary to take into consideration the biopsychosocial dimensions of the disease, the cultural elements and those specific requirements by gender, to adapt an effective response to the needs of the population.[30]

Frequently, the results recorded in the first level of care are better than those achieved in more specialized levels, because primary care is more appropriate to treat older adults. The greater work of public health increases by recognizing the distribution of the determinants of health in old age conditioned to the disease and the functional status of this sector, which allows the correct positioning of the institutions' plans, in the distribution of medical resources and preventive services.[27]These policies have the objective of shaping, activating this vulnerable stage, from an individual vision as well as for society, as people in active aging contribute to having a lower burden in the national budget. The rights' approach in this group needs a change in the construction of public policies for old age and promotes the elderly as legal persons with responsibilities. It is crucial to continue seeking to ensure that mental illnesses are considered chronic diseases with the right to treatment and thus having universal access to the attention of these conditions. A policy strives to integrate the change occurred where the promotion creates a more extensive change.[31] The belief that small changes for this vulnerable sector impacts for a better life quality will mark a major change in the elderly. Success is found in the union of services, with multidisciplinary collaboration, with the combination of resources meeting the needs and preferences of each patient.

IMPORTANCE OF ACTIONS IN THE HEALTH OF OLDER ADULTS

Currently, health care has had a vision aimed at restructuring the damage and the timely identification of risk factors is underestimated, even though this impact strategy has shown greater benefits in the population by reducing morbidity due to chronic diseases of the older adult as well as a lower economic and social expenditure. In Mexico, the aging process becomes more evident as of the 1990s, when the percentage of older adults represented 6.14% of the total population with close to 5 million people.[32] Different studies indicate that morbidity and mortality create a difficult situation; besides, chronic-degenerative diseases are quickly located within the first places.[33]

While it is true that in Mexico there is sufficient evidence on the dimensions and costs of the DP and also about the possible actions to prevent and treat it, it is necessary to take the efforts further. The burden of this condition can only be reduced if a continuous process of evaluation of programs and public policies is carried out. In other words, aging requires policies that transform the way in which old age is lived and the way in which the life cycle is transmitted.[33]

The importance of proposing alternative means that help the elderly can achieve an improvement in their life quality, presenting lower costs for those services from public and private institutions. Strategies about aging are not exclusively aimed at older adults; it refers to all age groups, since they are all aging day by day.[34]

The challenge in Mexico is to apply comprehensive action measures with the possibility of applying cultural intervention

in the social sphere as well as a well-defined education aimed at youth, this with the purpose of preventing those risks that accompany the age produced by bad habits. From a general perspective, this process is seen as an alternative to inclusion in society, from insertion in spaces where there was no necessary opening of attention, spaces from which older adults are mostly excluded.[30]

Currently, active aging has been installed as the necessary solution to the challenge of aging as it emphasizes the benefits of a life with openness for an excellent aging process using healthy techniques with the objective of creating citizens who live longer and healthier in this period. This strategy radically defines old age. It constitutes a prolonged phase of activity and independence, which helps to eradicate the characteristics that are normally associated with it. This change is supported by a range of knowledge productions, where it explains that the aging process you can stay healthy with an active life. On the other hand, the WHO strategy promotes a longer and healthier life through physical, mental and social activities, as well as improvements in lifestyle.[34]

Actions for active aging combine geriatrics, gerontology, epidemiology, and demography and, on the basis of these different categories of knowledge, express the need for health policies. An innovative model of medical-social-geriatric care will enable the impact of actions to efficiently achieve a stable and lasting change. The empowerment of this vulnerable group during the epidemiological transition highlights the protagonism of the elderly in the development of Mexico together with human rights and as a source of strategies aimed at strengthening the independence of older adults. Considering the increase in people's life expectancy, the preventive, diagnostic, treatment, and rehabilitation health programs should be strengthened for the comprehensive care of this population group.[34]

CONCLUSIONS

The improvement of the life quality in the elderly should not be the only goal of current science; this means that the actual challenge in not only in living longer, but in giving more life to the last years of life. For this, it would be necessary to carry out research, to establish sanitary policies that guarantee more health in this population group as well as the development of self-care workshops and programs aimed at older people where they are informed and they are provided with tools so that they take care of themselves.

For this, it is also required to progressively change the stereotypes that in our current cultural context weigh on old age and the elderly. Without a positive attitude on the part of society and the elderly themselves as a whole, it will be difficult to achieve changes. Transformation is also inherited through the increasingly active, healthy and long-lived lives that older people live in, together with a large number of activities and often redefining good old age as an active old age. It is our responsibility to keep the epidemiological characterization updated, to have in our country a greater number of older adults who enjoy an optimal life as long as possible ensuring that these plans and programs have the corresponding budgets to carry them out.

REFERENCES

1. Kessler RC, Angermeyer M, Anthony JC, De Graaf R, Demyttenaere K, Gasquet I, et al. Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative. World Psychiatry. 2007; 6(3): 168 - 176.

2. Organización Mundial de la Salud. Recomendaciones con fundamento científico para el tratamiento de la depresión. [Document on the Internet].2017. [Updated February 21, 2019; cited 22 Feb 19]. Available from: https://www.who.int/mental_health/mhgap/evidence/depression/q3/es/

3. Romero L, Martín E, Navarro JL, Luengo C. El paciente anciano: demografía, epidemiología y utilización de recursos. Sociedad Española de Geriatría y Gerontología, editor. Tratado de Geriatría para residentes. Madrid: Internacional Marketing & Comunication; 2006: 33 – 46.

4. Ormel J, Petukhova M, Chatterji S, Aguilar-Gaxiola S, Alonso J, Angermeyer MC, et al. Disability and treatment of specific mental and physical disorders across the world. Br. J. Psychiatry. 2008; 192(5): 368 - 75.

5. Berenzon S, Lara MA, Robles R, Medina-Mora ME. Depresión: estado del conocimiento y la necesidad de políticas públicas y planes de acción en México. Salud Pública Mex. 2013; 55(1): 74 - 80.

6. Valdez SS. Instituto Nacional de las Personas Adultas Mayores. Perfil demográfico, epidemiológico y social de la población adulta mayor en el país, una propuesta de política pública. [Document on the Internet].2015. [Updated February 20, 2019; cited 21 Feb 19]. Available from: http://www.inapam.gob.mx/work/models/INAPAM/Resource/1174/1/images/perfildemografico.pdf

7. Medina-Mora Icaza ME, Borges-Guimaraes G, Lara C, Ramos-Lira L, Zambrano J, Fleiz-Bautista C. Prevalencia de sucesos violentos y de trastorno por estrés postraumático en la población mexicana. Salud Pública Mex. 2005; 47(1): 8 - 22.

8. Fondo de Población de Naciones Unidas (UNFPA). Envejecimiento en el Siglo XXI: Una celebración y un desafío. [Document on the Internet].2005. [Updated February 20, 2019; cited 22 Feb 19]. Available from: https://www.unfpa.org/sites/default/files/pub-pdf/Ageing%20Report%20Executive%20Summary%20SPANISH%20Final_0.pdf

9. Burns RA, Butterworth P, Windsor TD, Luszcz MA, Ross L, Anstey KJ. Deriving prevalence estimates of depressive symptoms throughout middle and old age in those living in the community. Int. Psychogeriatr. 2012 ; 24(3) : 503 - 511.

10. Bromet E, Andrade LH, Hwang I, Sampson NA, Alonso J, De Girolamo G, et al. Cross–National Epidemiology of DSM–IV Major Depressive Episode. BMC. Med. 2011; 9(1): 12 - 18.

11. Roig Hechavarría C, Ávila Férnandez E, Mac Donal Bron D, Ávila Fernández B. La atención al Adulto mayor: un reto para la medicina contemporánea. Rev. Cub. Med. Gen. Integr. 2015; 31(3): 1 – 9.

12. Mitjans, M, Arias B. La genética de la depresión: ¿Qué información aportan las nuevas aproximaciones metodológicas? Act. Esp. Psiquiatr. 2012; 40(2): 70 - 83.

13. González Núñez M, Gil Gregorio P, Carrasco Cabeza I. Depresión. Un enfoque gerontológico. Nuevos enfoques de la gerontología para los comienzos del siglo XXI. La casa del libro. 2010.

14. Hogan DB. Revisiting the O complex: urinary incontinence, delirium and polipharmacy in elderly patients. Can. Med. Assoc. J. 1997; 157(8): 1071 - 1077.

15. Ruíz de Chávez-Ramírez D, Zegbe J, Sánchez-Morales FM, Castañeda-Iñiguez MS. Depresión en adultos mayores atendidos en instituciones públicas de salud en Zacatecas. Rev. Educ. Drllo. 2014; 29: 73 – 78.

16. Aponte Daza VC. Calidad de vida en la tercera edad. Ajayu 2015; 13(2): 152 - 182.

17. Vos T, Abajobir AA, Abate KH, Abbafiti C, Abbas K, Abd-Allah F, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet 2017; 390: 1211 - 1259.

18. Bastidas-Bilbao H. Enfermedades médicas y depresión en el adulto mayor: características comunes y relación etiológica. Rev. Psic. Lima. 2014; 32(2): 191 – 218.

19. Wagner FA, González–Forteza C, Sánchez–García S, García–Peña C, Gallo JJ. Enfocando la depresión como problema de salud pública en México. Salud Ment. 2012; 35(1): 3 – 11.

20. Lemos M, Agudelo Vélez DM. Consideraciones sobre la depresión como factor de riesgo en pacientes cardiovasculares. Magazine. CES Psic. 2015 ; 8(1): 192 – 206.

21. Rafanelli C, Sirri L, Grandi S, Fava GA. Is Depression the Wrong Treatment Target for Improving Outcome in Coronary Artery Disease? Psychother Psychosom. 2013; 82: 285 – 291.

22. Lichtman JH, Froelicher ES, Blumenthal JA, Carney RM, Doering LV, Frasure-Smith N, et al. Depression as a Risk Factor for Poor Prognosis Among Patients with Acute Coronary Syndrome: Systematic Review and Recommendations: a scientific statement from the American Heart Association. Circulation. 2014; 129(12): 1350 – 1369.

23. Watkins LL, Koch GG, Sherwood A, Blumenthal JA, Davidson JR, O'Connor C, et al. Association of anxiety and depression with all-cause mortality in individuals with coronary heart disease. J. Am. Heart Assoc. 2013; 2(2): e000068.

24. Faller H, Schuler M, Richard M, Heckl U, Weis J, Küffner R. Effects of Psycho-Oncologic Interventions on Emotional Distress and Quality of Life in Adult Patients with Cancer: Systematic Review and Meta-Analysis. J. Clin. Oncol. 2013; 31: 782-93.

25. Alzheimer's Association. Alzheimer's disease facts and figures. [Document on the Internet]. 2017. [Updated February 22, 2019; cited 22 Feb 19]. Available from: https://www.alz.org/alzheimer-demencia/datos-y-cifras.

26. Errázuriz P, Valdés C, Vöhringer PA, Calvo E. Mental health financing in Chile: a pending debt. Rev. Méd. Chile. 2015; 143(9): 1179 – 1186.

27. Razo-González AM. La política pública de vejez en México: de la asistencia pública al enfoque de derechos. Rev. CONAMED. 2014; 19(2): 78 – 85.

28. Serra Taylor JA, Irizarry-Robles CY. Factores protectores de la depresión en una muestra de adultos mayores en Puerto Rico: autoeficacia, escolaridad y otras variables sociodemográficas. Act. Colom. Psicol. 2015; 18(1): 125 – 134.

29. Organización Mundial de la Salud. Plan de Acción Internacional sobre el Envejecimiento: informe sobre su ejecución Madrid. [Document on the Internet]. Ä4. [Updated February 20, 2019; cited 22 Feb 19]. Available from: apps.who.int/gb/archive/pdf_files/EB115/B115_29-sp.pdf

30. Sociedad Española de Geriatría y Gerontología. Análisis de las necesidades y recursos en la atención de personas mayores en España. [Document on the Internet]. 2000. [Updated February 18, 2019; cited 22 Feb 19]. Available from: https://docplayer.es/42683578-Sociedad-espanola-de-geriatria-y-gerontologia.html.

31. Martínez J, Rojas E, Cabrera M, Santillán M. El Consenso de Montevideo y la agenda de investigación sobre población y desarrollo. 1ª. Ed. Río de Janeiro: Brasil: ALAP Editor; 2016.

32. Instituto Nacional de Estadística, Geografía e Informática. La tercera edad en México. XI Censo General de Población y Vivienda 1990. 2a. Ed. México: D.F.: INEGI, 1993.

33. Alcántara-Vázquez MC, Amancio-Chassin O, González-Chávez A, Hernández-González M, Carrillo-Villa H. Mortalidad en pacientes geriátricos del Hospital General de México. Salud Pública Mex. 1993; 35: 368 – 375.

34. Kalache A, Kickbusch I. A global strategy for healthy ageing. World Health 1997; 50(4): 4 – 5.