PREVALENCE AND FACTORS ASSOCIATED WITH DEPRESSIVE SYMPTOMATOLOGY IN OLDER ADULTS OF THE "MICAELA BASTIDAS" HEALTH CENTER, LIMA-PERU

PREVALENCIA Y FACTORES ASOCIADOS A SINTOMATOLOGÍA DEPRESIVA EN ADULTOS MAYORES DEL CENTRO DE SALUD "MICAELA BASTIDAS" LIMA-PERÚ

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ABSTRACT

Objective: To evaluate the factors associated with depression in older adults in a marginal urban area of Peru. **Methods:** It is a cross-sectional analytical study in adults over 60 years of age in a marginal urban area of Lima. The dependent variable was evaluated using the 15-items geriatric depression scale, considering presence of depression with a score ≥ 6. The factors associated with depression were calculated using raw and adjusted prevalence ratios with 95% confidence intervals (95% CI) using poisson regressions with robust variance. **Results:** Of the 142 older adults (age: 70.4 ± 8.14 years), the prevalence of the presence of depression was 55.6% (women: 39.6% and men: 53.4%). The education (RPa: 1.40, 95% CI: 1.04 - 1.88) and not currently working status (RPa: 1.50, 95% CI: 1.09 - 2.05) were associated factors that increased the prevalence of depression. **Conclusion:** The prevalence of depression in older adults in a marginal urban area of Peru was high. Older adults who did not complete their schooling and did not work were more likely to develop depression.

Key words: Depression; Frail elderly; Aged; Primary prevention (source: MeSH NLM).

RESUMEN

Objetivo: Evaluar los factores asociados a la sintomatología depresiva en adultos mayores residentes del centro de salud asistentes al centro de salud "Micaela Bastidas" de Lima-Perú. **Métodos:** Estudio transversal analítico en adultos mayores de 60 años residentes de una zona urbano marginal de Lima. Se evaluó la variable dependiente usando la escala de depresión geriátrica de 15 ítems, se consideró la presencia de sintomatología depresiva con un puntaje ≥ 6. Los factores asociados a la sintomatología depresiva, se calcularon usando razones de prevalencia crudas y ajustadas con intervalos de confianza al 95% (IC 95%) mediante regresiones de poisson con varianza robusta. **Resultados:** De los 142 adultos mayores (edad 70,4 ± 8,14 años), la prevalencia de la presencia de sintomatología depresiva fue 55,6% (mujeres: 39,6% y hombres; 53,4%). El no tener escolaridad (RPa: 1,40; IC 95%: 1,04 – 1,88) y no estar trabajando (RPa: 1,50; IC 95%: 1,09 – 2,05) fueron factores asociados que aumentaban la prevalencia de sintomatología depresiva. **Conclusión:** La prevalencia de presencia de sintomatología depresiva en adultos mayores de una zona urbano marginal de Perú fue alta. Los adultos mayores que no completaron su escolaridad y no trabajaban presentaron más probabilidades de presentar sintomatología depresiva.

Palabras clave: Depresión; Anciano; Servicios preventivos de salud (fuente: DeCS BIREME).

INTRODUCTION

Depression is one of the most important neuropsychiatric disorders in elderly, and one of the causes of disability that diminishes physical, cognitive and social functionality, thus, it affects quality of life and wellbeing[1].

By the year 2017, the World Health Organization (WHO) estimated a prevalence of depression of 7% in elderly over 60[2]. Nevertheless, studies have reported variable figures regarding elderly with depression which differs according to the context in terms of assistance in patients in hospitalization: 32.8% in Chengdu, China[3]; 44% in East Anglia, United Kingdom[4]; 47% in Belo Horizonte, Brazil[5]. In outpatients: 22% in Bikaner, India[6]; 29.9% in Izmir, Turkey[7]. In primary care centers: 39.6% in Ethekwini, South Africa[8]; 45.3% in Kavre, Nepal[9]; 47.2% in Beirut, Lebanon[10]. In elderly from the community: 27.8% in Sri Lanka, Singapore[11]; 29.5% in Antioquia, Colombia[12]; 36% in Bangalore, India[13]; 52.6% in Vitoria da Conquista, Brazil[14].

Concerning factors associated with geriatric depression, we have reported in literature with most frequency the fact of being a woman[8,15,16], lack of schooling[15,17], cognitive impairment[16,17], living single[8,15], suffer from health problems[18,19], previous hospitalizations[19], lack of social support[19,20], low socioeconomic status[16], not working[21], etc.

There are scales that serve as screening instruments to evaluate depressive symptomatology in geriatric population, including, Scale Geriatric Depression (GDS) created by Yesavage et al, in year 1983. It originally consists of 30 questions with dichotomous answers (yes or no)[22]. This scale is frequently used in epidemiological studies of depression in elderly. In our research of Peruvian studies published about this topic that had used GDS, in his short version of 15 questions, we have mostly reported high numbers of depression. 51.6% (with a score of five or more) in an AA.HH. (short for Asentamiento Humano. Human Settlement in English) from La Molina district, Lima[23]; 8.4% (with a score of six or more) in the community from San Martín de Porres district, Lima[24]. Also, 48.2% (with a score of six or more) in the community from Breña district, Lima[25] and 69.4% in the community from Masma Chicce, Junín[26]; 64.9% in a national hospital from Ica, Ica[27]. In these two last studies, there is not a description about the cut-off point of GDS-15.

There are few published research about depression in elderly from marginal urban communities, taking into account their poverty situation and poor access to mental health services. This may complicate planning preventive strategies that improve early detection of depressive symptoms and maintain functionality of this age group.

For this reason, the objective of this study is to determine factors associated with depressive symptomatology in elderly living in a marginal urban area, the "AA.HH. Micaela Bastidas I" located in Ate Vitarte district in Lima, Peru.

METHODS

Design and place of study

We carried out an observational, analytic and cross-sectional study in elderly age 60 or over from AA.HH. Micaela Bastidas I in Lima, from April 2014 to July 2014.

The "AA.HH. Micaela Bastidas I" is a marginal urban area, founded on year 1985, located in Ate Vitarte district in Eastern Lima. Its inhabitants have low socioeconomic status. This town counts with a primary care center Micaela Bastidas level I-3 from MicroRed Ate II of Health Ministry.

Population and Sample

The participants were 200 60-year-old elderly in year 2014 who attended to Micaela Bastidas health center. We conducted a survey to every elderly. Among the eligibility criteria, we included elderly who were attended at "Micaela Bastidas" health center during study period and who had accepted participating through a signed informed consent. We did not include those elderly with some kind of cognitive impairment who were previously diagnosed by a doctor; information provided by health center as we can observe in Figure 1. 146 elderly responded, after a quality control we deleted four questionnaires that were incomplete. Final sample was of 142 participants, obtaining an answer from 71% of total of elderly.

Procedures

The authors of the study were in charge of data collection through interviews with every elderly. We requested permission to health center "Micaela Bastidas" to interview those elderly who went to the establishment for a medical appointment. In addition, each interviewer visited three times a week the homes of "AA.HH. Micaela Bastidas" based on a street and block plan of the area. In every home, we asked if there was an elderly over 60 living inside. Participation in the study was voluntary; we informed previously about the objectives of the study and informed consent to the participants.

Variables

Dependent variable of interest was depressive symptomatology in elderly. For this purpose, we

applied Yesavage et al. GDS-15 scale. We have approved and applied this scale widely with worldwide multiple population of elderly[22]. In this study, we applied the version translated to Spanish of Questionnaire GDS-15. It contains 15 questions in total. Each question is worth a point. Answers are dichotomous: yes or no. Of 15 points, a score over or equal to six points suggests presence of depressive symptoms[28].

In terms of independent variables, we selected them from similar studies: sex; age (in tertiles); marital status was categorized into those with partner (those who were married or cohabiting partners) and without partner (single, widowers or divorced). Also, level of education into without schooling (without studies or incomplete primary) and with schooling (complete primary, secondary or higher education); origin (Lima or other cities in Peru); health problem told by the participant (yes or no); and belonging to an elderly club (yes or no).

Data analysis

We exported Database in Microsoft Excel 2010 to STATA software version 13. In the descriptive analysis, we used absolute and relative frequencies. For evaluating factors associated with depressive symptoms, we made use of poisson regressions with robust variance and we calculated prevalence ratios (PR) and its confidence interval to 95%, considering statistical significance as $p < 0.05$. For adjusted models. We included variables: sex, age, level of education, marital status, origin, health problems and elderly club.

Ethical aspects

In this investigation, we followed ethical principles of Helsinki Declaration. Participation in the study was always voluntary. We maintained data confidentiality and participants were not exposed to any other type of risk for their contribution. We exposed previously a written and oral informed consent to participants. At the end, we handed the results to health center Micaela Bastidas.

RESULTS

In total, 142 elderly accepted to participate in the study: 67.6% were women, average age and standard deviation was 70.4±8.14. 43.7% were married. Most of the participant (85.9%) came from other cities, 69.0% expressed having a health problem and 71.8% did not belong to any elderly club. Regarding GDS-15 score, 44.4% obtained from 0 to 5 points (without depressive symptoms); 43.7%, from 6 to 10 points (risk of depressive symptomatology); and 12.0%, from 11 to 15 points (established depressive symptomatology) (Table 1).
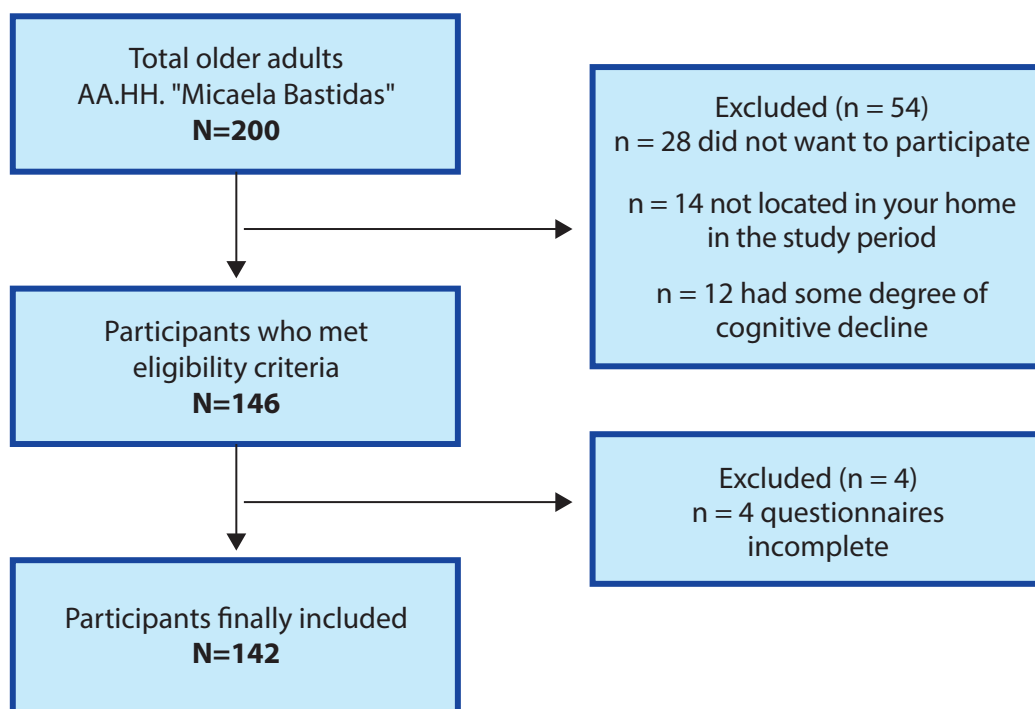
Figure 1. Diagram of inclusion of study participants.

Table 1. Sociodemographic data and GDS-15 scale in study population (n=142)

Variables	N (%)
Sex	
Female	96 (67,6)
Male	46 (32,4)
Marital status	
Married	62 (43,7)
Partner	10 (7,0)
Divorced	13 (9,2)
Single	2 (1,4)
Widower/Widow	55 (38,7)
Level of education	
Illiterate	28 (19,7)
Incomplete Primary	38 (26,8)
Complete Primary	28 (19,7)
Incomplete Secondary	14 (9,9)
Complete Secondary	29 (20,4)
Higher Education	5 (3,5)
Origin	
Lima	20 (14,1)
Province	122 (85,9)
Health problems	
No	44 (31,0)
Yes	98 (69,0)
Belongs to an elderly club	
No	102 (71,8)
Yes	40 (28,2)
Job situation	
Not working	74 (52,1)
Working	68 (47,9)
GDS-15 score	
Normal	63 (44,4)
Risk of depressive symptomatology	62 (43,7)
Established depressive symptomatology	17 (12,0)

Regarding factors associated with having depressive symptoms (GDS-15 with a score of ≥6 points), we found in adjusted analysis the following variables: lack of schooling (RP=1.40; CI95%:1.04 - 1.88) and not working (RP: 1.50; CI95%:1.09 - 2.05). We did not discover significant association with sex, age, partner, origin, health problems and belonging to an elderly club (Table 2).

Table 2. Factors associated to depression in elderly

Variables	Risk of depressive symptomatology			
	Without depressive symptomatology N (%) 63 (44.4%)	With depressive symptomatology N (%) 79 (55.6%)	Raw RP[c] (IC95%)	Adjusted RP[a] (IC95%)
Sex				
Female	38 (39.6)	58 (60.4)	Ref	Ref
Male	25 (54.3)	21 (45.7)	0.76 (0.53 - 1.08)	0.87 (0.63 - 1.21)
Age				
60 and 68 years old	34 (47.9)	37 (52.1)	Ref	Ref
69 and 90 years old	29 (40.8)	42 (59.2)	1.14 (0.84 - 1.53)	0.99 (0.73 - 1.33)
Marital status*				
With partner	36 (50.0)	36 (50.0)	Ref	Ref
Without partner	27 (38.6)	43 (61.4)	1.23 (0.91 - 1.65)	1.23 (0.92 - 1.64)
Level of education				
Schooled	42 (55.3)	34 (44.7)	Ref	Ref
Unschooled	21 (31.8)	45 (68.2)	1.52 (1.13 - 2.06)	1.40 (1.04 - 1.88)
Origin				
Lima	12 (60.0)	8 (40.0)	Ref	Ref
Province	51 (41.8)	71 (58.2)	1.46 (0.84 - 2.54)	1.35 (0.85 - 2.16)
Health problems				
Does not present	24 (54,5)	20 (45,5)	Ref	Ref
Does present	39 (39.8)	59 (60.2)	1.32 (0.92 - 1.90)	1.18 (0.82 - 1.69)
Belongs to an elderly club				
Yes	17 (42.5)	23 (57.5)	Ref	Ref
No	46 (45.1)	56 (54.9)	0.95 (0.69 - 1.32)	1.10 (0.79 - 1.52)
Job situation				
Does work	39 (57.4)	29 (42.6)	Ref	Ref
Does not work	24 (32.4)	50 (67.6)	1.58 (1.15 - 2.18)	1.50 (1.09 - 2.05)

*marital status with partner (married or cohabiting partners) and without partner (single, widower/widow or divorced).
†Level of education: schooled (complete primary, secondary and higher education) and unschooled (without schooling or incomplete primary).

DISCUSSION

Percentages of depression

Of the total (142 elderly), 55.6% had higher prevalence of depressive symptomatology according to GDS-15. High figure compared with other studies that applied the same instrument and cut-off point (score greater than or equal to 6): 48.1% in Patras and Tripoli, Greece[29]; 45.4% in Chihuahua, Mexico[30]. In addition, 43% in Asunción, Paraguay[31]; 31.1% in Jequié, Brazil[32]; 29.5% in Antioquia, Colombia[12]; 27.8% in Sri Lanka, Singapore[11]; 19.7% in Guadalajara, Spain[18].

In Peru, studies published have reported in 2010 in AA.HH. "Viña Alta" located in La Molina district, in Lima; in 112 elderly, that 51.6% had depression with a score of five or more[24]. In 2013, a study in 369 elderly from Breña district, Lima reported that 48.2% had depression with a score of six or more[23]. In 2012, a study carried out in 72 people from a community of Masma Chicce (Junín) stated that 69.4% presented depression[25]. It does not describe the score used in GDS-15[26]. These percentages are slightly elevated if we compare them with our study. People probably had fewer chances to be attended by medical specialists (psychiatry,

internal medicinal, geriatric, etc.), along with lack of consciousness of this geriatric syndrome in elderly and their relatives. The aforementioned would explain the limited use of mental health services in elderly from marginal urban areas, due to lack of mobility, transport, distance, travel time and expenses. Since it is usual that they live in the city outskirts.

Associated factors

Partner

Although we discovered the third part of elderly without partner (single, widow/widower, divorced) had risk of depressive symptomatology, we did not find statistical significance. The fact of not having a partner was a factor significantly associated in elderly from Pakistan[33], India[34] and Colombia[35]. This may be due to somatic and emotional changes that experiment elderly without a partner and with a greater tendency to present depressive episodes in ageing. Lack of statistical significance in our study maybe due to limitation in sample size of study population. We recommend carrying out more studies that evaluate this topic.

Schooling

We discovered that the fact of no having completed their schooling was associated with risk of depressive symptomatology. This result was similar to those from previous studies in elderly from South Africa[8], Colombia[12], Brazil[17], Nepal[20], and Mexico[20]. Level of education can influence in elderly's quality of life, since it is part of learning experiences and cognitive reserve, so that a person with a higher level of education could be an adjuvant to face stressful situations avoiding that they disrupt his/her emotional state, thus diminishing risk of depression[36]. In addition, we should implement strategies designed to improve level of education in elderly from marginal urban areas.

Working

In our study, elderly who did not work had higher prevalence of depression. Other studies performed in Pakistan[21] and India[37] shared this finding. Study population in our research was poor. It is probable that elderly who did not have working life live a tenser and more stressful economic situation in their homes, being more likely to suffer from depression.

Limitations

Among limitations in this study, we can mention the small sample size. It is possible that in data collection period, we did not include every single elderly, since an actual record of the total of elderly from study place did not exist. Study population was limited to only one marginal urban area from Lima city. That is why we cannot extrapolate results to other cities of Peru. Our results allow giving a perspective of what could be happening in contexts like marginal urban communities. Using GDS-15 questionnaire as screening does not allow giving an accurate diagnosis of depression. Nevertheless, it is a short compressible instrument, and we have already used it in similar studies in Peru.

CONCLUSION

In short, we discovered five elderly out of ten had prevalence of depressive symptoms. Prevalence of depression was high in those elderly who did not complete their schooling and those who did not work. The findings of the study aim to reflect and to carry out more studies about mental health in elderly who live in marginal urban areas. Besides, regarding health workers, the findings aim to highlight the importance of diagnosing and treating depression in elderly who seek relief for their symptoms. Likewise, planning of strategies that enhance geriatric attention in primary care centers.

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BIBLIOGRAPHIC REFERENCES

1. Copeland JR, Beekman AT, Braam AW, Dewey ME, Delespaul P, Fuhrer R, et al. Depression among older people in Europe: the EURODEP studies. World Psychiatry. 2004;3(1):45. Disponible en: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1414664/pdf/wpa010045.pdf

2. Organizacion Mundial de Salud. La salud mental y los adultos mayores. Ginebra:OMS; 2017. Disponible en: http://www.who.int/es/news-room/fact-sheets/detail/la-salud-mental-y-los-adultos-mayores

3. Zou C, Chen S, Shen J, Zheng X, Wang L, Guan L, et al. Prevalence and associated factors of depressive symptoms among elderly inpatients of a Chinese tertiary hospital.Clin Interv Aging. 2018; 13: 1755–1762. DOI: 10.2147/CIA.S170346

4. Cullum S, Tucker S, Todd C, Brayne C. Screening for depression in older medical inpatients. Int J Geriatr Psychiatry. 2006;21(5):469-76. DOI: 10.1002/gps.1497

5. Serra MA, do Nascimento IMT, de Lima Guimarães G, da Silva SM, Goveia VR, Mendoza IY. Prevalencia de síntomas depresivos en ancianos hospitalizados: un estudio comparativo. Rev enferm UERJ. 2019; 27: e36091. DOI: http://scielo.sld.cu/pdf/mgi/v33n4/a01_296.pdf

6. Prakash O, Gupta LN, Singh VB, Nagarajarao G. Applicability of 15-item Geriatric Depression Scale to detect depression in elderly medical outpatients. Asian J Psychiatr. 2009;2(2):63-5. DOI: 10.1016/j.ajp.2009.04.005

7. Durmaz B, Soysal P, Ellidokuz H, Turan Isik A. Validity and reliability of geriatric depression scale-15 (short form) in Turkish older adults. North Clin Istanb. 2018; 5(3): 216–220. DOI: 10.14744/nci.2017.85047

8. Padayachey U, Ramlall S, Chipps J. Depression in older adults: prevalence and risk factors in a primary health care sample. South African Family Practice. 2017;59(2):61-6. DOI: 10.1080/20786190.2016.1272250

9. Risal A, Giri E, Shrestha O, Manandhar S, Kunwar D, Amatya R, et al. Nepali Version of Geriatric Depression Scale-15 - A Reliability and Validation Study. J Nepal Health Res Counc. 2020;17(4):506-511. DOI: 10.33314/jnhrc.v17i4.1984

10. Chaaya M, Sibai AM, Roueiheb ZE, Chemaitelly H, Chahine LM, Al-Amin H,et al. Validation of the Arabic version of the short Geriatric Depression Scale (GDS-15). Int Psychogeriatr. 2008;20(3):571-81. DOI: 10.1017/S1041610208006741

11. Malhotra R, Chan A, Østbye T. Prevalence and correlates of clinically significant depressive symptoms among elderly people in Sri Lanka: findings from a national survey. International Psychogeriatrics. 2010;22(2):227-36. DOI: 10.1017/S1041610209990871

12. Segura-Cardona A, Cardona-Arango D, Segura-Cardona Á, Garzón-Duque M. Riesgo de depresión y factores asociados en adultos mayores. Antioquia, Colombia. 2012. Revista de Salud Pública. 2015;17:184-94. DOI: 10.15446/rsap.v17n2.41295

13. Sanjay T, Jahnavi R, Gangaboraiah B, Lakshmi P, Jayanthi S. Prevalence and factors influencing depression among elderly living in the urban poor locality of Bengaluru city. International Journal of Health & Allied Sciences. 2014;3(2):105. DOI: 10.4103/2278-344X.132695.

14. Matias AGC, Fonsêca MdA, Gomes MdLdF, Matos MAA. Indicators of depression in elderly and different screening methods. Einstein (São Paulo). 2016;14(1):6-11. DOI: 10.1590/S1679-45082016AO3447.

15. Martina M, Ara MA, Gutiérrez C, Nolberto V, Piscoya J, editors. Depresión y factores asociados en la población peruana adulta mayor según la ENDES 2014-2015. Anales de la Facultad de Medicina; 2017: UNMSM. Facultad de Medicina. DOI: 10.15381/anales.v78i4.14259.

16. Gibson R, Neita S, Abel W, James K, Eldemire-Shearer D. Sociodemographic factors associated with depressive symptoms among elderly persons from two communities in Kingston, Jamaica. West Indian Medical Journal. 2013;62(7):615-9. DOI: 10.7727/wimj.2012.273

17. Borges LJ, Benedetti TRB, Xavier AJ, d'Orsi E. Associated factors of depressive symptoms in the elderly: EpiFloripa study. Revista de saude publica. 2013;47(4):701-10. DOI: 10.1590/S0034-8910.2013047003844.

18. Urbina Torija JR, Flores Mayor JM, García Salazar MP, Torres Buisán L, Torrubias Fernández RM. Síntomas depresivos en personas mayores: Prevalencia y factores asociados. Gaceta Sanitaria. 2007;21(1):37-42. DOI: http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S0213-91112007000100008.

19. Santiago LM, Mattos IE. Depressive symptoms in institutionalized older adults. Revista de saude publica. 2014;48:216-24. DOI: 10.1590/S0034-8910.2014048004965

20. Timalsina R, Sherpa P, Dhakal D. Factors associated with depression among elderly living in old age homes in Kathmandu Valley. Journal of institute of medicine. 2014;37(1). DOI: 10.3126/jpan.v4i1.16742

21. Taqui AM, Itrat A, Qidwai W, Qadri Z. Depression in the elderly: does family system play a role? A cross-sectional study. BMC Psychiatry. 2007: 25;7:57. DOI: 10.1186/1471-244X-7-57.

22. Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, et al. Development and validation of a geriatric depression screening scale: a preliminary report. Journal of psychiatric research. 1983;17(1):37-49. DOI: 10.1016/0022-3956(82)90033-4

23. Juárez J, León A, Linares VA. Evaluación del grado de depresión de adultos mayores de 60 años del AA. HH "Viña alta"–La Molina, Lima-Perú. Horizonte Médico. 2012;12(2):28-31. Disponible en: http://www.horizontemedico.usmp.edu.pe/index.php/horizontemed/article/view/101

24. Silva-Fhon JR, Del Río-Suarez AD, Motta-Herrera SN, Coelho Fabricio-Wehbe SC, Partezani-Rodrigues RA. Violencia intrafamiliar en el adulto mayor que vive en el distrito de Breña, Perú. Rev. Fac. Med. 2015;63(3):367-375. Disponible en: http://www.scielo.org.co/scielo.php?script=sci_abstract&pid=S0120-00112015000300004

25. Varela-Pinedo L, Chávez-Jimeno H, Tello-Rodríguez T, Ortiz-Saavedra P, Gálvez-Cano M, Casas-Vasquez P, et al. Perfil clínico, funcional y sociofamiliar del adulto mayor de la comunidad en un distrito de Lima, Perú. Revista Peruana de Medicina Experimental y Salud Pública. 2015;32(4):709-16. Disponible en: http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1726-46342015000400012

26. Contreras AL, Mayo GVA, Romaní DA, Silvana Tejada G, Yeh M, Ortiz PJ, et al. Malnutrición del adulto mayor y factores asociados en el distrito de Masma Chicche, Junín, Perú. Revista Medica Herediana. 2013;24(3):186-91. Disponible en: http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1018-130X2013000300002

27. Consuelo De La Cruz-Mitac CY, Quispe-Ilanzo MP, Oyola-García AE, Portugal-Medrano MA, Lizarzaburu-Córdova EE, Rodríguez-Chacaltana FW. Depresión en adultos mayores con enfermedades crónicas en un hospital general del Perú. Rev cuerpo méd HNAAA. 2017;10(4):205-211. DOI: 10.35434/rcmhnaaa.2017.104.18.

28. Orcos RO, Fort MS, Khajoui AK, Aparicio SV, Del Valle RDD. Validación de la versión española de 5 y 15 ítems de la Escala de Depresión Geriátrica en personas mayores en Atención Primaria. Revista clinica española. 2007; 207(11): 559-562. DOI: 10.1016/S0014-2565(07)73477-X

29. Argyropoulos K, Bartsokas C, Argyropoulou A, Gourzis P, Jelastopulu E. Depressive symptoms in late life in urban and semi-urban areas of South-West Greece: An undetected disorder?. Indian J Psychiatry. 2015; 57(3): 295–300.

30. Flores-Padilla L, Ramírez-Martínez FR, Trejo-Franco J. Depresión en adultos mayores (AM) con pobreza extrema pertenecientes a un Programa Social en Ciudad Juárez, Chihuahua, México. Gac Med Mex. 2016;152:439-43. DOI: 10.4103/0019-5545.166617

31. Piñánez García MC, Re Domínguez ML. Perfil clínico, epidemiológico y valoración geriátrica funcional en el barrio San Miguel de Asunción, Paraguay. Rev Virtual Soc Parag Med Int. 2015;.2 (2): 63-69. Disponible en: https://dialnet.unirioja.es/servlet/articulo?codigo=5678110

32. Dos Santos Ribeiro V, Souza Rosa R, Cruz Sanches GJ, Santos Ribeiro IJ, Augusto Cassotti C. Calidad de vida y depresión en idosos en el contexto domiciliar. Enferm Actual Costa Rica. 2018; 4(34):1-14. Disponible en: https://revistas.ucr.ac.cr/index.php/enfermeria/article/view/30983

33. Javed S. Role of Sociocultural Factors in Depression among Elderly of Twin Cities (Rawalpindi and Islamabad) of Pakistan. Curr Gerontol Geriatr Res. 2014; 2014: 230737. DOI: 10.1155/2014/230737

34. Akhtar H, Khan AM, Vaidhyanathan KV, Chhabra P, Kannan AT. Socio-demographic Predictors of Depression among the Elderly Patients Attending Out Patient Departments of a Tertiary Hospital in North India. Int J Prev Med. 2013;4(8):971-5. Disponible en: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3775177/

35. Borda Pérez M, Anaya Torres MP, Pertuz Rebolledo MM, Romero de León L, Suárez García A, Suárez García A. Depresión en adultos mayores de cuatro hogares geriátricos de Barranquilla (Colombia): prevalencia y factores de riesgo. Salud, Barranquilla. 2013 ; 29(1): 64-73. Disponible en: http://rcientificas.uninorte.edu.co/index.php/salud/article/viewArticle/3397

36. Giacoman C, Funes D, Guzmán L, Ramos TM. Depresión y escolaridad en adultos mayores. Diálogos sobre educación. 2015; 2(2):1-11. Disponible en:http://dialogossobreeducacion.cucsh.udg.mx/index.php/DSE/article/view/380

37. Thirthahalli C, Suryanarayana SP, Sukumar GM, Bharath S, Rao GN, Murthy NS. Proportion and factors associated with depressive symptoms among elderly in an urban slum in Bangalore. J Urban Health. 2014;91(6):1065-75. DOI: 10.1007/s11524-014-9903-6.