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Educational level, quality of life and cognitive and functional capacity in older adults

Nivel educativo, calidad de vida y capacidad cognitiva y funcional en adultos mayores

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Abstract

The objective of this research was to verify the relationship between educational level, quality of life, functional capacity and cognitive abilities in a group of people over 60 years of age. Quantitative methodology was used, with a non-experimental, cross-sectional, correlational design. A sample of 120 older people was selected through non-probabilistic sampling and divided into: people with complete or incomplete primary education, people with complete or incomplete secondary education, and people with complete or incomplete higher education. The data collection instruments were the MoCA test to evaluate cognitive functions, the ViDA questionnaire to evaluate functional capacity, and the WHOQoL to collect data on quality of life. It was confirmed through the Chi-square test that there is a relationship between the level of education and functional capacity, cognitive capacity and the physical dimension of quality of life. Using the Mann-Whitney U test, it was found that there are significant differences regarding cognitive ability in all groups. Thus, emphasis was placed on formal education as a necessary instance for healthy aging, which must be accompanied by informal education strategies.

Keywords: Old age, quality of life, education, functional status, cognition

Resumen

El objetivo de la presente investigación fue constatar la relación existente entre el nivel educativo, calidad de vida, capacidad funcional y capacidades cognitivas en un grupo de personas mayores de 60 años. Se utilizó la metodología cuantitativa, con diseño no experimental, transversal, correlacional. Se seleccionó una muestra de 120 personas mayores, mediante muestreo no probabilístico y divididos en: personas con primaria completa o incompleta, personas con estudios secundarios completos o incompletos y personas con estudios de nivel superior completos o incompletos. Los instrumentos de recolección de datos fueron el test MoCA para evaluar funciones cognitivas, el cuestionario ViDA para evaluar la capacidad funcional, y el WHOQoL para recoger datos sobre la calidad de vida. Se constató mediante la prueba de Chi-cuadrado que existe una relación entre el nivel de estudios y la capacidad funcional, la capacidad cognitiva y la dimensión física de la calidad de vida. Mediante la prueba U de Mann-Whitney se encontró que existen diferencias significativas respecto a la capacidad cognitiva en todos los grupos. Así, se hizo hincapié en la educación formal como una instancia necesaria para el envejecimiento saludable, que debe ser acompañada por estrategias de educación informal.

Palabras clave: Anciano, calidad de vida, educación, estado funcional, cognición

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Introduction

It is well known that education plays a crucial role in the comprehensive development of individuals. Schools provide an environment conducive to strengthening skills and abilities in social, physical, cognitive, and emotional areas. This is why it is proposed that the education received in the early stages will influence the rest of a person's life (Santi, 2019).

Education, particularly formal education, is considered to provide individuals with access to a better future. Formal education, in this case, refers to education that follows conventional methods, is consciously and systematically developed in educational institutions designed for this purpose, and is recognized by government bodies as such (Jiménez, 2020).

Given this information, it is of interest to understand and determine what a better future means. This research aimed to explore the effects of formal education on the healthy aging of older adults. Specifically, it sought to determine whether formal education influences the way individuals age. Three key variables were considered in this life stage: functional capacity, cognitive function, and quality of life.

It is worth noting that evidence of the relationship between education level and cognitive function has been extensive and consistent. Multiple studies have found that the higher the education level of an individual, the better their cognitive functioning in later adulthood.

As an example of this relationship, the research by Vite and Calderón (2018) found in a sample of older adults that education level is a predictor of cognitive functioning in old age. Additionally, the study by León Samaniego and León Tumbaco (2018) found that having a basic education level is a risk factor for cognitive decline. In this same vein, research has shown that education level plays a significant role in determining certain cognitive functions, such as sustained and selective attention, as well as abstract reasoning, regardless of the complexity of tasks individuals have performed throughout their lives. This information suggests that cognitive skills acquired during schooling could be maintained throughout life and not be significantly affected (Feldberg et al., 2020).

The relationship between education level and cognitive functioning is explained by the theory of cognitive reserve. This theory posits that individuals differ in the way they process information. These differences may allow some people to cope with nervous system alterations, such as those that occur in aging, without showing significant cognitive difficulties. These skills for processing information more flexibly are acquired through various activities that do not necessarily relate to intellectual activity (Villa, 2017), with one of the main activities being participation in formal education.

The relationship between education level and quality of life, on the other hand, is less clear. Studies conducted with older adults have found that higher education levels are associated with better perceived health and higher health-related quality of life (López et al., 2019). Evidence has also shown that education level contributes to the physical and psychological dimensions of quality of life (Cardona et al., 2016). However, other studies have found no statistically significant relationship

between education level and quality of life in older adults (González and Araujo, 2010; Mesa et al., 2020; Tenorio et al., 2021).

These differences in the findings from various studies may stem from difficulties in defining this construct. Quality of life is a complex concept, with both objective and subjective aspects, each of which has multiple dimensions. However, subjective quality of life has taken center stage due to its ability to predict an individual's overall quality of life. It can be defined as an emotional appraisal and cognitive evaluation of a person's current living conditions, taking into account different domains, such as social, psychological, physical, or environmental factors (Marquez, 2022). There is not necessarily a linear relationship between subjective quality of life and the objective conditions in which a person lives; thus, it is possible that education level does not directly impact this variable.

Finally, the relationship between education level and functional capacity has more consistent evidence, although it is also more limited. It has been reported that there is a relationship between education level and the functional capacity of older adults, as measured by the Barthel Index (Satorres, 2013) and the Katz Index (Cortés et al., 2016). Both scales assess basic activities of daily living, such as dressing, personal hygiene, or eating independently. These are basic self-care activities that must be performed to ensure survival.

On the other hand, Luna and Vargas (2018) found that having 8 or more years of schooling was a protective factor against functional decline in instrumental activities of daily living, assessed using the Pfeffer Functional Scale. These activities are more complex and serve as a means to achieve other goals. For example, this category includes tasks such as managing money, a skill involved in various daily tasks, or using different forms of transportation to facilitate the completion of numerous activities.

Methodology

The methodology used was quantitative, as the variables were quantified, for which psychometric measurement instruments were used. The design was non-experimental because no voluntary manipulation of variables was performed; moreover, it was cross-sectional as data were collected at a single moment in time. The research level was correlational since the relationship between educational level, cognitive functioning, functional capacity, and quality of life in older adults was explored (Hernández and Mendoza, 2018).

2.1. Sample

The sample was collected using the voluntary participant sampling method, meaning visits were made to centers that provided activities for older adults. An invitation was extended to all attendees, and those who agreed to participate became part of the sample. Inclusion criteria were that participants be over 60 years old, not diagnosed with psychiatric illness, and not have visual or motor defects that would prevent them from completing the cognitive evaluation activities.

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The sample consisted of 120 individuals, with ages ranging from a minimum of 60 years to a maximum of 88 years, and an average age of 70.49 years (SD = 7.52). Of the total number of interviewees, 65.6% were women, and 34.4% were men.

2.2. Data Collection Instruments

The following instruments were used for data collection:

- Ad Hoc Questionnaire: Used to collect sociodemographic information such as age, gender, and level of education.
- MoCA Test (Montreal Cognitive Assessment): A brief 30-item test that helps assess mild cognitive dysfunction. It was published in 2005 by a group from McGill University. It includes the evaluation of: Orientation, Memory, Visuospatial Ability, Language Skills, Abstraction, Animal Naming, Attention, and Clock Drawing Test (Nasrredine, 2017).

The test has been validated in Argentina by two teams. González Palau et al. (2018) aimed to determine the validity of the instrument in differentiating healthy individuals from those with mild cognitive impairment. They used a sample of 115 control subjects and 154 subjects with impairment and concluded that the cutoff score of 26 (proposed by the creator of the technique) is adequate to differentiate the two groups. They reported that the instrument has good sensitivity (0.727) and specificity (0.748) (González Palau et al., 2018). In a second validation study with 399 older adults (divided into healthy, cognitively impaired, and demented groups), they found the instrument had good stability using the test-retest technique and appropriate internal consistency ($\alpha = 0.886$) using Cronbach's Alpha (Serrano et al., 2020).

- WHOQOL Test: With 26 items answered on a Likert scale, it provides a profile of the quality of life as perceived by the individual, identifying four dimensions: physical, psychological, social, and environmental. Espinoza et al. (2011) conducted reliability (using Cronbach's Alpha) and validity (using confirmatory factor analysis) tests with a sample of 1520 older adults, obtaining acceptable results in both techniques. Based on the scores obtained from this population, scales were developed to classify the scores in each dimension as low, medium, and high.
- ViDA Questionnaire (Daily Life of Older Adults): Used to assess the functional status of individuals through 10 questions related to instrumental activities of daily life. Each item is answered independently on a scale ranging from complete autonomy in performing the task to the inability to perform it. This technique was validated in Buenos Aires (Argentina) with a sample of older adults, showing good internal consistency evaluated with Cronbach's Alpha ($\alpha = 0.91$). To assess validity, the results of the questionnaire were compared with the scores of the Lawton Brody Scale, finding a high correlation of 0.91 ($p < 0.05$) (Soler-König et al., 2016).

2.3. Procedure

Participants who agreed to participate were contacted by phone, and a meeting was arranged at their home. The instrument was administered individually in all cases. Efforts were made to ensure no other individuals were present and that distractions (such as turning off televisions or radios) were minimized. Before starting the interview, the participant was informed about the activities that would take place, the purpose of the study, the voluntary nature of their participation, and the confidentiality of the data concerning their identity. They were then asked to read and sign an informed consent form explaining the aforementioned points.

2.4. Data Analysis

Data analysis was conducted using the IBM SPSS 21 statistical package. Descriptive calculations of frequency analysis and contingency tables were performed to describe the variables under study. To meet the main research objective, the chi-square test was used to verify the relationship between variables, and the Mann-Whitney U test was used to compare groups. Finally, for statistically significant comparisons, Cohen's D was used to calculate the effect size.

Results

3.1. Descriptive Statistics

The first variable analyzed was the education level. Three groups were formed: the first group consisted of individuals with complete or lower primary education. This group included 44 individuals, representing 36.7% of the sample. The second group included individuals with incomplete or complete secondary education, totaling 38 individuals, representing 31.7%. Finally, individuals with higher education, either complete or incomplete, formed the third group, which also had 38 individuals.

Cognitive functioning, assessed using the MoCA test, predominantly showed low scores. 60% of the evaluated individuals scored below the cut-off point proposed by the technique to determine normal cognitive functioning. When analyzing these results using a contingency table, it was observed that the majority of individuals who scored below the cut-off point belonged to the primary education group. On the other hand, most individuals with normal cognitive functioning belonged to the higher education group. Additionally, using the chi-square test, it was confirmed that there is a dependency between the variables (p=0.000) (*Table 1*).

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Table 2

Contingency Table: Education Level and Quality of Life Dimensions.

			MoCA Score		Pearson Chi-Square	Asymptotic Significance (Bilateral)
			<26	≥26		
Education Level	Primary	Count	38	6	25,602	,000
		% of total	31,7%	5,0%		
	Secondary	Count	22	16		
		% of total	18,3%	13,3%		
	Higher	Count	12	26		
		% of total	10,0%	21,7%		

The questionnaire used to measure quality of life yielded individual scores for each domain of quality of life. Regarding the physical domain, it was found that 16.7% of the sample had a low score, 51.7% had a medium score, and 31.7% had a high score. As in the previous case, the highest percentage of individuals with low scores belonged to the primary education group, and the largest percentage of individuals with high physical quality of life scores belonged to the higher education group. The chi-square test confirms the relationship between both variables (p=0.000) (*Table 2*).

In the psychological dimension, it was found that 15.8% of the participants had low scores, 56.7% had medium scores, and 27.5% had high scores. Similar percentages were found in the social dimension, where 16% had a low score, 58% had a high score, and the remaining 26% had high scores. In the environmental dimension, it was observed that the majority of the sample, 61.7%, had high scores, followed by 32.5% with medium scores, and finally, only 5.8% had low scores. The chi-square test indicated that there were no statistically significant relationships between the scores of these three dimensions and the participants' education level.

Table 2

Contingencia Escolaridad y Dimensiones de la Calidad de Vida.

			Physical Dimension			Pearson Chi-Square	Asymptotic Significance (Bilateral)
			Low	Medium	High		
Education Level	Primary	Count	10	30	4	20,272	,000
		% of total	8,3%	25,0%	3,3%		
	Secondary	Count	6	19	13		
		% of total	5,0%	15,8%	10,8%		
	Higher	Count	4	13	21		
		% of total	3,3%	10,8%	17,5%		
			Psychological Dimension				
			Low	Medium	High		
Education Level	Primary	Count	8	27	9	2,723	,605
		% of total	6,7%	22,5%	7,5%		
	Secondary	Count	7	19	12		
		% of total	5,8%	15,8%	10,0%		
	Higher	Count	4	22	12		
		% of total	3,3%	18,3%	10,0%		
			Psychological Dimension				
			Low	Medium	High		
Education Level	Primary	Count	7	30	6	6,750[a]	,150
		% of total	5,9%	25,2%	5,0%		
	Secondary	Count	7	17	14		
		% of total	5,9%	14,3%	11,8%		
	Higher	Count	5	22	11		
		% of total	4,2%	18,5%	9,2%		
			Psychological Dimension				
			Low	Medium	High		
Education Level	Primary	Count	3	13	28	5,973	,201
		% of total	2,5%	10,8%	23,3%		
	Secondary	Count	3	17	18		
		% of total	2,5%	14,2%	15,0%		
	Higher	Count	1	9	28		
		% of total	0,8%	7,5%	23,3%		

Functional capacity, assessed using the ViDA questionnaire, could be classified according to the person's level of independence or dependence. It was found that 14.3% of the sample exhibited mild dependence, while 85.7% exhibited total independence. No cases of moderate, severe, or total dependence were recorded. Using the chi-square test, it was confirmed that there is a relationship of dependence between functional capacity and education level (p=0.001). In *Table 3*, it was observed that the highest percentage of independent individuals belonged to the group with higher

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education, while the largest number of individuals with mild dependence belonged to the group with primary education.

Table 3

Contingency Table: Education Level and ViDA Questionnaire Score

			ViDA Score		Pearson Chi-Square	Asymptotic Significance (Bilateral)
			Independence	Mild Dependency		
Education Level	Primary	Count	13	31	13,945	,001
		% of total	10,8%	25,8%		
	Secondary	Count	3	35		
		% of total	2,5%	29,2%		
	Higher	Count	1	37		
		% of total	0,8%	30,8%		

3.2. Group Comparisons

In order to pinpoint which groups showed these differences, comparisons were made between the three groups formed based on education level. The variables to be compared were those that showed a dependency relationship with education level in the chi-square test.

First, the MoCA test score, physical quality of life, and ViDA questionnaire score were compared between the group of older adults with primary education and the group of older adults with secondary education. Significant differences were found in the MoCA test scores (p=0.000), with a large effect size, calculated using Cohen's d (d=0.97), and in the ViDA questionnaire scores (p=0.010), with a medium effect size (d=0.64). In both cases, the group with higher scores was the one with secondary education.

A comparison was made between individuals with secondary and higher education. In this case, no significant difference was found regarding physical quality of life (p=0.067) or functional capacity (p=0.392). However, a significant difference was found in the MoCA test score (p=0.028), with a small effect size (d=0.45), with the higher education group presenting better scores.

Finally, the group with primary education was compared with the group with higher education. In this case, significant differences were found in the physical quality of life variable (p=0.000), with a large effect size (d=0.92), in the ViDA questionnaire scores (p=0.001), also with a large effect size (d=0.95), and in the MoCA test scores (p=0.000), again with a large effect size (d=1.41). In all cases, the differences favored the group with higher education.

Conclusions

The results found in this research supported the importance of education in certain aspects of the healthy aging process of older adults. This was primarily reinforced by the relationship between educational level and the cognitive and functional abilities of older people.

This research confirmed that there is a dependency relationship between the cognitive ability of older adults and their level of education. Significant differences were found between the group with primary education and the group with secondary education, and between the latter and the group with higher education. This result aligned with previous studies that proposed educational level as a protective factor against cognitive decline (León Samaniego and León Tumbaco, 2018; Vite and Calderón, 2018).

Moreover, these results supported the cognitive reserve theory. Older adults who had completed more years of study had more resources to solve tasks in the neurocognitive assessment test. The skills acquired during their education affected their cognitive abilities in later adulthood. Additionally, a relationship was also found between functional ability and educational level. Functional ability is a key variable for healthy aging. The fact that older adults can maintain their independence during this stage of life has been one of the most important global goals. The World Health Organization (2015) emphasized this aspect in its concept of healthy aging.

This study found that there is a relationship between instrumental activities of daily living and the educational level of older adults, confirming previous research findings (Luna and Varga, 2018). However, it is necessary to highlight that, while there is a difference between older adults with primary education and the other groups, no differences were found between the secondary and higher education groups. This is significant, as it could imply that the development of the skills necessary for independent functioning in daily life may occur during primary education.

This point was emphasized not with the intention of prioritizing one level of education over another, but to reconsider the objectives and structure of the education system. As observed in the results of this study, the aging process begins to be structured and defined from early stages of life. It is necessary for preparation for this stage to be part of the comprehensive education of individuals. Just as formal education prepares children and adolescents for the responsibilities and tasks of adulthood, it is necessary to start highlighting the importance of developing the capacities and skills needed to navigate old age healthily.

On the other hand, self-perceived quality of life is also a key variable in older adulthood. In the concept of healthy aging by the World Health Organization, the importance of maintaining functional ability to be and do what the person desires is emphasized (World Health Organization, 2015). This concept is closely related to subjective or self-perceived quality of life, because each individual's values and personal goals determine the assessment and evaluation of different life domains. Self-perceived quality of life does not refer to living conditions, but to the extent to which these conditions align with the needs, interests, values, and goals of each person.

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It should be noted that, of the four dimensions of quality of life, only the physical dimension showed a relationship with educational level. In this case, the group with higher education showed significant differences compared to the other groups, but no differences were found between the primary and secondary education groups. These results are consistent with those obtained by Cardona et al. (2016), who also found a statistically significant relationship between educational level and the physical dimension of quality of life in a sample of older adults.

The relationship between both variables has been explained from two different perspectives. First, it has been suggested that access to a higher level of education leads to greater knowledge that facilitates access to healthcare services. The second, better-supported proposal highlights the link between the educational level of older adults and their socioeconomic status (López et al., 2019).

Older adults who were able to access secondary and higher education generally had a more advantageous economic position. Additionally, access to such education also implied access to better-paying jobs with healthcare coverage, which may explain the better perception of physical quality of life.

This relationship between socioeconomic status and educational level is a reality that should not be ignored and leads to the need to interpret the relationship between educational level and other variables with caution. It is necessary to consider social determinants in their intersectionality, understanding that variables such as gender, ethnicity, age, and socioeconomic position intersect in complex power networks. This research acknowledges the fact that not considering these variables as a limitation. Similarly, the inability to perform parametric statistics due to the abnormal distribution of variables should be noted. Future research should address these limitations to build more robust evidence.

Finally, it is important to emphasize that, while the remaining dimensions of quality of life are not related to formal educational level, they can be enhanced through informal educational spaces. The perception of the social environment and psychological functioning can be improved by participating in various non-formal education spaces for older adults. There is evidence supporting that participation in educational projects, social interaction, emotional regulation, and/or physical activity is related to improved quality of life in older adults (Mesa et al., 2020).

While formal education is a valuable resource for healthy aging, the quality of life of older adults will be shaped by present experiences. Non-formal education offers older adults new participation spaces to redefine their present, which will affect how they value and assess their reality. Therefore, at this age, it is essential to create new participation spaces and strengthen those already existing to improve the subjective perception older adults have of their aging process.

References

Cardona, J., Giraldo, E., y Maya, M. A. (2016). Factores asociados con la calidad de vida relacionada con la salud en adultos mayores de un municipio colombiano, 2013. *Médicas UIS*, *29*(1), 17-27. https://doi.org/10.18273/revmed.v29n1-2016002

Cortés, C., Cardona, D., Segura, Á., y Garzón, M. (2016). Factores físicos y mentales asociados con la capacidad funcional del adulto mayor, Antioquia, Colombia, 2012. *Revista de Salud Pública*, *18*(2), 167-178. https://doi.org/10.15446/rsap.v18n2.49237

Espinoza, I., Osorio, P., Torrejón, M., Lucas, R., y Bunout, D. (2011). Validación del cuestionario de calidad de vida (WHOQOL-BREF) en adultos mayores chilenos. *Revista médica de Chile*, *139*(5), 579-586. https://doi.org/10.4067/S0034-98872011000500003

Feldberg, C., Stefani, D., Tartaglini, M., Hermida, P., Moya, L., Somale, M., y Allegri, R. (2020). La influencia de la educación y la complejidad laboral en el desempeño cognitivo de adultos mayores con deterioro cognitivo leve. *Ciencias Psicológicas*, *14*(1). https://doi.org/22235/cp.v14i1.2194

González Celis, A. y Araujo, A. (2010). Estrategias de afrontamiento ante la muerte y calidad de vida en adultos mayores mexicanos. *Revista Kairós Gerontologia*, *13*(1), 167-190. https://pesquisa.bvsalud.org/portal/resource/pt/lil-638344

González Palau, F., Berrios, W., García, M., Ojea, M., Fernández, M., García, M., Fernández, M., Cámpora, N., Matusevich, L., y Golimstok, Á. (2018). Validez de la prueba de Evaluación Cognitiva de Montreal (MoCA) como una herramienta de screening para detectar Deterioro Cognitivo Leve en población de Buenos Aires, Argentina. *VERTEX*, *39*(140), 252-260. https://revistavertex.com.ar/ojs/index.php/vertex/article/view/300

Hernández, R. y Mendoza, C. (2018). *Metodología de la Investigación: Las rutas cuantitativa, cualitativa y mixta*. Mc Graw Hill.

Jiménez, P. (2020). La educación como derecho social, humano y fundamental: Principios y perspectivas de la educación moderna. *Revista de Investigações Constitucionais*, *6*(3), 669-686. https://doi.org/10.5380/rinc.v6i3.58017

León Samaniego, G. y León Tumbaco, E. (2018). Factores asociados al deterioro cognitivo en adultos mayores de la parroquia El Salto – Babahoyo (Ecuador). *Cumbres*, *4*(1), 75-87. https://dialnet.unirioja.es/servlet/articulo?codigo=6550770

López, M., Quesada, J., y López Catalán, Ó. (2019). Calidad de vida relacionada con la salud y determinantes sociodemográficos en adultos de Cuenca, Ecuador. *Revista Economía y Política*, (29), 67-86. https://dialnet.unirioja.es/servlet/articulo?codigo=6766830

e-ISSN: 2631 - 2786
rcientifica@uisrael.edu.ec

Luna, Y. y Vargas, H. (2018). Factores asociados con el deterioro cognoscitivo y funcional sospechoso de demencia en el adulto mayor en Lima Metropolitana y Callao. *Revista de Neuro-Psiquiatría*, *81*(1), 9-19. https://doi.org/10.20453/rnp.v81i1.3269

Marquez, A. (2022). Sobre la definición de la calidad de vida subjetiva. *PsicoPedagógica*, *13*(17), 173-189. https://www.cicuyo.org/ojs/index.php/Psicoped/article/view/141

Mesa, D., Valdés, B., Espinosa, Y., Verona, A., y García, I. (2020). Estrategia de intervención para mejorar la calidad de vida del adulto mayor. *Revista Cubana de Medicina General Integral*, *36*(4). http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21252020000400010

Nasrredine, Z. (2017). Montreal Cognitive Assessment Versión 8.1. *MoCA Test*. https://www.mocatest.org/paper/

Organización Mundial de la Salud. (2015). Informe Mundial sobre el envejecimiento y la salud. *WHO*. https://www.who.int/es/publications/i/item/9789241565042

Santi, F. (2019). Educación: La importancia del desarrollo infantil y la educación inicial en un país en el cual no son obligatorios. *Revista Ciencia Unemi*, *12*(30), 143-159. https://dialnet.unirioja.es/servlet/articulo?codigo=7067116

Satorres, E. (2013). *Bienestar psicológico en la vejez y su relación con la capacidad funcional y la satisfacción vital* [Tesis doctoral, Universitat de València]. Repositorio Institucional. https://dialnet.unirioja.es/servlet/tesis?codigo=78491

Serrano, C., Sorbara, M., Minond, A., Finlay, J., Arizaga, R., Iturry, M., Martinez, P., Heinemann, G., Gagliardi, C., Serra, A., Magliano, F., Yacovino, D., Rojas, M., Ruiz, A., y Graviotto, H. (2020). Validation of the Argentine version of the Montreal Cognitive Assessment Test (MOCA): A screening tool for Mild Cognitive Impairment and Mild Dementia in Elderly. *Dementia & Neuropsychologia*, *14*(2), 145-152. https://doi.org/10.1590/1980-57642020dn14-020007

Tenorio, J., Romero, Z., Roncal, V., y Cuba, M. (2021). Calidad de vida de adultos mayores de la Seguridad Social peruana durante la pandemia por COVID-19. *Revista del Cuerpo Médico Hospital Nacional Almanzor Aguinaga Asenjo*, *14*, 42-48. https://doi.org/10.35434/rcmhnaaa.2021.14sup1.1165

Villa, M. (2017). Envejecimiento cognitivo vs. Deterioro cognitivo leve. En M. Á. Villa-Rodríguez, M. E. Navarro Calvillo y T. de J. Villaseñor Cabrera, *Neuropsicología Clínica Hospitalaria* (pp. 263-282). Manual Moderno. https://www.ncbi.nlm.nih.gov/nlmcatalog/101698435

Vite, J. y Orozco, G. (2018). Funcionamiento Cognitivo, Actividades de la Vida Diaria y Variables Demográficas en Adultos Mayores Mexicanos. *Revista Neuropsicología, Neuropsiquiatría y Neurociencias*, *18*(3), 65-84. http://revistaneurociencias.com/index.php/RNNN/article/view/112