

Quality of life in older adults and sports practice motives

Calidad de vida en adultos mayores y motivos de práctica deportiva

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ABSTRACT

Regular physical activity practice provides benefits and improves quality of life (QOL). The purpose of this study was to know the level of QOL of older adults who practice physical activity. The study was quantitative, descriptive and cross-cutting with accidental sampling, with 554 participants of which 37.2% (n=206) are men and 62.8% (n=348) women, with an average age of around 65 years (M=64.9; DT=10.3). To know the QOL of the sample members, the WHOQOL-BREF questionnaire was used, 26 items and four dimensions, with five-option Likert scale responses (1-5). Regarding statistics, Cronbach alpha, Pearson linear correlation, t-Student, ANOVA, Kolmogorov-Smirnov and Levene test were applied with SPSS 25.0 for Windows. Regarding the results, it should be noted that the environment dimension was the best valued followed closely by the psychological health dimension and the worst valued was social relationships. There were no significant differences in sex. In terms of age, when one gets older, psychological health and the environment decrease, while increasing social relationships. In conclusion, older adults with academic qualifications had better values in psychological health and in the environment.

KEYWORDS

Quality of life; elderly; physical activity; aging.

RESUMEN

La práctica regular de actividad física aporta beneficios y mejora la calidad de vida (CV). El propósito del estudio fue conocer el nivel de CV de los ancianos que practican actividad física. El estudio fue cuantitativo, descriptivo y transversal con muestreo accidental, con 554 participantes de los cuales el 37,2% (n=206) son hombres y el 62,8% (n=348) mujeres, con una edad media en torno a

los 65 años ($M=64,9$; $DT=10,3$). Para conocer la CV de los miembros de la muestra se utilizó el cuestionario WHOQOL-BREF, 26 ítems y cuatro dimensiones, con respuestas de escala Likert de cinco opciones (1-5). En cuanto a la estadística, se utilizó alfa de Cronbach, correlación lineal de Pearson, t-Student, ANOVA, Kolmogorov-Smirnov y test de Levene, con el programa SPSS 25.0 para Windows. En cuanto a los resultados, cabe señalar que la dimensión medioambiental fue la mejor valorada seguida de cerca por la dimensión salud psicológica y la peor valorada fueron las relaciones sociales. No existen diferencias significativas en cuanto al sexo. En cuanto a la edad, cuando se envejece, la salud psicológica y el medio ambiente disminuyen, al tiempo que aumentan las relaciones sociales. En conclusión, los adultos mayores con titulación académica tuvieron mejores valores en salud psicológica y en el medio ambiente.

PALABRAS CLAVE

Calidad de vida; adulto mayor; actividad física; envejecimiento.

1. INTRODUCTION

In Europe, the percentage of the elderly population (65 years or older) represents 17.5% (Sánchez & Hatton-Yeo, 2012). As for Spain, the percentage of this population is 17.6% (INE, 2011). Age is a social notion, established compared to other groups. In that comparison, the power of different life cycles is brought into play (White, 2011). Ageing population coupled with life expectancy are important achievements, although accompanied by significant challenges, political, economic, and social (Flores & Garay, 2019). It is necessary to differentiate between old age and aging, the first being a stage in the life of subjects with specific social roles, even if it is not a taxonomy accepted uniquely. Aging is considered a process that originates from the birth of the subject and has to do with turning years (Bruno & Acevedo Alemán, 2016). Although there is no consensual definition, when talking about lifestyle from a psychosocial perspective, we include aspects that highlight the individual choice of subjects versus cultural models (Hernández-Encuentra et al., 2009).

Lifestyle can be compared to several models of each elderly's behavior that may agree with the usual actions that respond to a situation in the life of that elderly and therefore allows us to understand what the nexus between lifestyle and good health is (Ibáñez-Pérez & Martínez-Moreno, 2019). The analysis of the concept of lifestyle and the factors that influence it has led to the

coexistence of two conceptual lines involving ways of acting. It argues that health depends on a general way of life determined by the interrelationship between living conditions and behavior patterns that in turn depend on socio-educational and personal characteristics (Guerrero Montoya & León Salazar, 2010).

The quality of life (QOL) is a concept that is becoming increasingly important in society at large. It is a very important reference in socio-health policies and basic in the field of care for elderlies (Rosa, 2013). The QOL is a multidimensional concept that involves both subjective and objective aspects. The author who separates the quality of life in these two aspects considers them because a person may feel healthy and not be healthy, or vice versa (Ardila, 2003). Quality of life is a construct that is widely used today. It has been studied by different professionals and -scopes-, hence the existence of multiple definitions of the term (Rubio Olivares et al., 2015). The quality of life is shaped by specific dimension conditioned by the needs of the subjects, the greater the satisfaction of individual needs the better the aging process (Cabero, 2019).

Dalter et al. (2012) indicate that there are healthy habits that could be very useful to improve the QOL in the elderly, such as: eating a balanced diet, maintain adequate hygiene habits, prevent accidents, enjoy free time, exercise the mind, play sports and make small changes in our daily habits that will achieve significant improvements in our QOL to feel good. For Osorio (2006), the changes of modernity affect, mainly the life of each individual and their relationships with their social, daily and family environment. Vivaldi & Barra (2012) say that the increase in life expectancy involves the challenge of adapting to the various changes characteristic of elderly and facing experiences of loss and threats to personal well-being (Mella et al., 2004; Molina & Meléndez, 2006). Such experiences include widowhood, retirement, changes of residence, less participation in society and increased vulnerability to unexpected events (Rioseco et al., 2008). The experiences that the individual acquires throughout his or her life can make the elderly feel fulfilled or at the other end hopeless and marginalized from the rest. While pejorative stereotypes of old age persist, they have been declining in recent years to favor a more positive conception of successful aging (Aguerre et al, 2008; James & Wink, 2006).

Successful aging means that the individual is able to integrate and function effectively both in his family and in society, overcoming cultural barriers that prevent him from developing his full potential and maintaining an adequate level of personal well-being. Not everyone lives old age in the same way; the performance and quality of life that are presented during this stage, are linked to the

omissions and actions that each one has done over the years (González-Celis & Gómez-Benito, 2013). Another concept in the QOL is well-being, which is related to a healthy lifestyle, well-being is not only about being happy, neither to enjoy good health or be successful, or not limited to having a physical or comfortable state. Anyway, we should always focus on any of these separate elements for a solution to people's well-being (Vivaldi & Barra, 2012). "The qualitative indicator of the QOL includes the physical and mental health state of lifestyle and lifestyles satisfaction with individual and family existence and the degree of self-valued well-being of their situation in life within the cultural context and values where they are developed in relation to their goals, aspirations, expectations and interests" (Rodríguez Casavielles et al., 2011).

Participation in leisure activities is an element of satisfaction with life and personal well-being at all ages, but especially after retirement (Lardiés_Bosque, 2011). Corroborated by the Activity Theory, which underpins adaptation to aging, indicating that well-being in old age is benefited through high levels of participation in social and leisure activities, as well as the change of roles when they must be abandoned (Adams et al., 2011). Physical Activity practice reduces blood pressure (Murguía, 2015), improves the level of high-density lipoprotein cholesterol and improves the control of hyperglycemia (Ruiz-Villaverde et al., 2006; Haskell et al., 2007). The improvement of physical fitness in strength -lower/upper body-, flexibility -upper/lower body-, agility and resistance, is verifiable (Herrera et al., 2017). Maintaining functional independence in elderly is of paramount importance (Jerome et al., 2006).

Review studies that link physical deterioration and age, determine that physical activity has a lasting effect throughout the life cycle to reduce, delay and prevent the process of losing fitness (Von Bonsdorff & Rantanen, 2011). Physical inactivity throughout life has been associated with decreased functionality (Manrique-Espinoza et al., 2014; Shaw & Agahi, 2014). There is scope to involve elderly in sports activities, even if they have not previously participated (Jenkin et al., 2016). Therefore, after all the comments above, our objectives are to know the QOL level of older adults who practice and attend physical activity programs, and to know the influence in QOL of the following variables: sex, education level, marital status and reason for practice.

2. MATERIALS AND METHODS

This research used a quantitative, descriptive, and transversal study design with accidental sampling (Kumar, 2015), as it was carried out at the places where those responsible agreed to participate in the study.

2.1. Participants

The inclusion criteria in the study were: (i) willing to participate voluntarily in the study, ii) being 60 years of age or older, (iii) regularly practicing some type of physical activity. The initial research sample was 593 participants, after applying criteria to minimize the biases of minimal effort and acquiescence, consisted of 554 participants of which 37.2% ($n=206$) were men and 62.8% ($n=348$) were women, with an age of 65 years ($M=64.9$; $DT=10.3$), all of which are resident in the Region of Murcia. As for the level of studies in the sample, 24.4% ($n=135$) indicated that they had no study, 41.5% ($n=230$) had primary studies, 23.8% ($n=132$) middle studies and 10.3% ($n=57$) higher. In relation to marital status, 43% ($n=238$) lived alone and 57.0% ($n=316$) lived accompanied. When asking about the reason for attending physical activity, 28.9% ($n=160$) opts for the sport, 45.3% ($n=251$) for health and 25.8% ($n=143$) for making friends and having fun.

2.2. Procedure

Once they had contacted those responsible for the facilities and/or programs, they were presented with the objectives of the investigation. With those who agreed to participate in the research, the day, place and time to pass the form was planned, always at the end of the session. The researcher, trained for this purpose for this study, explained to the participants the objectives of the research, their voluntary participation and the anonymization of the data. Those interested in participating received informed consent and the form - paper format - taking between 10-15 minutes to complete it.

2.3. Instrument

The form used to measure quality of life (QOL), is THE WHOQOL-BREF (26 items) and four dimensions: physical health (SF), psychological health (SP), social relations (RRSS) and environment (A), and two unqualified questions indicating QOL in general and health satisfaction. The SF dimension with values between 6-14, QOL, 15-25 moderate and 26-35 high. The SP dimension, values between 3-6 QOL low, 7-10 moderate and 11-15 high. In relation to the RRSS dimension, values between 8-18 QOL low, 19-28 moderate and 29-40 high. It responds with a Likert scale of five options, from 1(*very bad*) to 5 (*very good*). Not all items are scored directly, part of the scores must be recoded inversely. Instructions for recoding these items, such as calculating the score

for each dimension and standardizing scores to compare with other scales, see (WHOQOL-BREF, 1996).

2.4. Statistical analysis

For the descriptive statistical analysis of the sample, the number of cases present in each category and the corresponding percentage for qualitative variables were obtained; and for quantitative variables, the minimum, maximum, mean, and standard deviation (DT) values. The reliability of dimensions with the Cronbach's alpha coefficient and the correlations between variable using the Pearson linear correlation coefficient (r). In quantitative variables, for the comparison of means between two groups the t-Student test was performed and for more than two groups the ANOVA test, once the assumptions of normality have been tested with the Kolmogorov-Smirnov test and homogeneity of variances with Levene's test.

Statistical analysis was performed with the SPSS 25.0 program for Windows. The differences considered statistically significant are those whose $p < .05$.

3. RESULTS

Table 1 shows the description of the dimensions of the QOL scale, as well as the *Cronbach alpha* reliability index. The data demonstrate high scale reliability, as all its dimensions have Cronbach *alpha* values greater than .75. In dimensions SF, SP and A, the values indicate low QOL, and in the RRSS dimension the results are moderate.

Table 1. Description and reliability of the dimensions of the WHOQOL-BREF scale.

	Min.-Max.	Medium (DT ¹)	Alfa Cronbach
Physical Health	7.43 - 18.29	13.15 (1.9)	.798
Psychological Health	8.67 - 18.67	14.13 (1.92)	.774
Social RR	4 - 20	9.94 (3.18)	.821
Environment	8.5 - 19.5	14.14 (2.34)	.759

¹ DT: standard deviation

Comparing the QOL and its dimensions, no significant differences were found in relation to sex. However, in doing so with age it was found that by increasing the age the SP decreases ($r=-.262$, $p < .001$) as well as A ($r=-.066$, $p=.118$), in addition, by increasing the age increases RRSS ($r=-.297$, $p < .001$). As for the family situation -single, married, separated, divorced, as a couple, widower- they were recast into two possibilities alone or accompanied, Table 2. Comparing it with the QOL scale, significant differences in dimensions, SP, RRSS and A. (Ossorio, 2006) were found, highlighting that, in relation to longevity, women live longer than men, while statistically more men are born around the world.

Table 2. Description of the dimensions of WHOQOL-BREF scale according to family situation.

	Family situation		Test <i>t</i> -Student	
	Average (DT)		<i>t</i> (42)	<i>p</i> -value
	Solo	Accompanied		
Physical Health	13.01 (1.99)	13.26 (1.83)	-1.548	.122
Psychological Health	13.88 (2.03)	14.31 (1.81)	-2.683	.008
Social RR	10.9 (3.3)	9.22 (2.9)	6.353	< .001
Environment	13.89 (2.39)	14.33 (2.29)	-2.18	.03

In relation to the level of studies that the participants had, Table 3, significant differences were found in relation to the SF and SP dimensions, between those participants who had no study and the rest of the participants with studies, -Primary/Media/Superior. Regarding the RRSS dimension, significant differences were found between participants who were out of studies and with primary studies and those with those with academic qualifications, but no significant differences were found with those with higher studies. In relation to QOL in its dimension A, significant differences were found between participants who had Primary and Higher Studies ($p < .001$), in addition to those with Primary studies in relation to those of higher studies ($p < .001$).

Table 3. Descriptive and comparative scale WHOQOL-BREF according to studies.

	Studies, <i>media (DT)</i>				Anova	
	None	Primary	Media	Upper	<i>F(3;554)</i>	<i>value</i>
Physical Health	12.47 (1.84) a	13.16(1.95) b	13.57(1.75) b	13.8(1.7) b	10.754	< .001
Psychological Health	13.49 (1.87) a	14.17(1.89) b	14.55(1.84) b	14.5(1.9) b	8.285	< .001
Social RR	10.67 (3.59) a	10.08(2.91) a	9.15 (3.13) b	9.46(2.9) ab	5.886	.001
Environment	13.43 (2.45) a	14.05(2.19) ab	14.61(2.34) bc	15.1(2.1) c	9.638	< .001

As for the comparison of the QOL scale, as well as its dimensions with the reason why it attends physical activity, Table 4. There are significant differences in all dimensions of the scale between those study participants who practice because they like sport and/or do it for health, in relation to those who practice for fun/friends.

Table 4. Descriptive and comparative scale WHOQOL-BREF according to practical reason.

	Reason, <i>mean (DT)</i>			Anova	
	Like sport	Bless you	Fun/friends	<i>F(3;554)</i>	<i>value</i>
Physical Health	13.32 (1.94) a	13.3 (1.86) a	12.76 (1.84) b	4.422	.012
Psychological Health	14.25 (1.99) a	14.31 (1.95) a	13.74 (1.66) b	4.465	.012
Social RR	9.87 (3.38) a	9.53 (2.99) a	10.6 (3.15) b	5.144	.006
Environment	14.27 (2.41) a	14.45 (2.39) a	13.59 (2) b	6.45	.002

As for the Pearson linear correlation coefficient values between the dimensions of the QOL scale, Table 5. The SF dimension correlated statistically significantly with the other three dimensions, positively with SP ($p < .01$) and A ($p < .01$) and negatively with RRSS ($p < .01$). The SP dimension was done significantly and positively with RRSS ($p < .01$) and negatively with A ($p < .01$). The RRSS dimension was significantly and negatively correlated with A ($p < .01$).

Table 5. Descriptive and reliability of the dimensions of the WHOQOL-BREF scale.

	Physical	Psychological	Social RR	Environment
Physical Health	1			
Psychological Health	.538**	1		
Social RR	-.417**	-.555**	1	
Environment	.534**	.557**	-.487**	1

4. DISCUSSION

In this work we have known the level of QOL of the elderly who practice and attend physical activity programs, in relation to different variables: sex, level of studies, family situation (marital status) and reason for practice. The exercise ratio not only reduces health problems, but also produces positive effects on chronic disease control and well-being (Kelley & Evans, 2017). Previous studies have shown that older women practice more physical activity than older men, both throughout the Spanish territory (Martínez del Castillo et al., 2009), and in smaller territorial areas (Jiménez-Beatty et al., 2003, 2006), these women improve their health and quality of life, avoiding sedentarism in an aging society such as Spanish. If we talk about the QOL scale, the score that got the best rating corresponded to the environmental dimension, where they highlight the importance of socializing and interacting with their peers, seeing it as a fundamental element for the improvement of the QOL. Not coinciding with Burastero Moreira (2019) and Espinoza et al. (2011), where it reached the lowest score, although not far from the other scores, as well as (Cardona-Arias et al., 2015), although their study was with adult subjects, we also do not coincide with (Castro et al., 2014), who point out that physical health is the one with the lowest average in its score, with psychological health standing out above the others. The lowest scores correspond to the RRS and SF dimensions, coinciding with (Solís et al., 2016; García & Perla, 2016), as well as with Celeiro & Galizzi (2019) in dimension A, with a low rating. In relation to QOL and gender, women indicate the highest score in dimension A, coinciding with (Gallardo-Peralta et al., 2018). In addition, when it comes to the SF dimension, the results are more positive for men, whose overall assessment in this dimension is higher than in women.

Coinciding with previous studies (Gallardo-Peralta et al., 2018; Castillo-Carniglia et al., 2012). No significant differences were found coinciding with (Sanz Guajardo et al., 2004; Martín et al., 2013; Flores et al., 2013; Sáiz Vázquez & Santamaría Vázquez, 2015; Pedrero-Pérez, & Díaz-Olalla, 2015). Although there are studies that defend a better quality of life among men (Saraç et al., 2007), we believe that, conditioned by a different cultural context, their study was conducted in Turkey. Elderly tend to perceive their QOL more harmful as age increases or is limited according to their educational level (Dueñas et al., 2009). By correlating the QOL scale and age we coincide with (De Sousa Pinto et al., 2010) in terms of dimension SP and A, which correlated negatively. As for the variable family situation - single, married, separated, divorced, as a couple, widowed, significant differences were found between those who live alone and those who do so accompanied. We coincide with (Viana Campos et al., 2014; Kumar et al., 2014; Segarra Escandon, 2017), not

coinciding with Solís et al (2016). In relation QOL and studies (Del Popolo, 2001) indicates that the level of studies that have influence on quality of life. The study found significant differences between those with Primary studies with those with academic qualifications and higher, coinciding with (Raggi et al., 2016; White Pebble et al., 2016), where they demonstrated the correlation of the subjects' studies with QOL. Although we do not agree with (Saiz & Santamaría, 2015). In relation to the QOL and the motivations for sports in elderly, are those related to physical health, social relations and self-competition (Jiménez-Beatty et al., 2007). The data from the study show, in greater numbers, that the sample subjects engage in physical activity for health reasons coinciding with (Martín et al., 2013). As for the limitations of non-probabilistic sampling, the results cannot be generalized, so we continue in this line of work to obtain a larger, randomized sample with a wide geographic scope.

5. CONCLUSIONS

In this study dimension A is the best valued followed closely to the SP dimension. There are no significant differences in sex, although when relating QOL and age, it is found that as age increases SP and A decreases, however, RRSS increases. There are significant differences between those who live alone and those who do so accompanied in relation to SP, RRSS and A dimensions. There are statistically significant differences between subjects who have no study and participants with studies -primary/academic qualifications-. The practical reason has significant differences between those who practice because they like sport and/or do it for health, in relation to those who practice for fun/friends. As for the dimensions of the QOL scale, it correlates the SF dimension statistically and positively with SP and A and negatively with RRSS. The SP dimension positively with RRSS and negatively with A. The RRSS dimension correlated significantly and negatively with A. The functionality of the dimensions corresponds to normality in the different variables carried out in this study.

6. FUTURE PERSPECTIVES

The possibility of assessing studies with older adults, a group of people who have had very little research and study done to date, allows us to be optimistic about the progression of this knowledge. At the same time, the mixture of questionnaires that measure different parameters and can be correlated with each other, allows reaching many different conclusions that facilitate interpretations and give rise to positive conclusions that allow us to continue advancing.

7. REFERENCES

1. Adams, K. B., Leibbrandt, S. & Moon, H. (2011). A critical review of the literature on social and leisure activity and wellbeing in later life. *Ageing & Society*, 31, 4, 683–712.
2. Aguerre, C., Bouffard, L., & Curcio, C. L. (2008). Envejecimiento exitoso: Teorías, investigaciones y aplicaciones clínicas. *Revista de la Asociación Colombiana de Gerontología y Geriatria*, 22(2), 1146-1162.
3. Ardila, R. (2003). Calidad de vida: una definición integradora. *Revista Latinoamericana de psicología*, 35(2), 161-164.
4. Bruno, F., & Acevedo Alemán, J. (2016). Vejez y sociedad en México: Las visiones construidas desde las Ciencias Sociales. *Fórum Sociológico*, 29, 7-20.
5. Burastero Moreira, B. (2019). *Calidad de vida y condición física en adultos mayores del Club Atletico Olimpia*. Trabajo Fin de Grado. Instituto Universitario Asociación Cristiana de Jóvenes.
6. Cabero, L. A. (2019). Calidad de vida en el transcurso de la vida: una mirada gerontológica. *Revista Electrónica de Trabajo Social*, 20, 53–57.
7. Cardona-Arias, J. A., Ospina-Franco, L. C., & Eljadue-Alzamora, A. P. (2015). Discriminant, convergent/divergent validity, reliability and internal consistency of WHOQOL-BREF and MOSSF-36 in healthy adults from Colombian municipality. *Revista Facultad Nacional de Salud Pública*, 33(1), 50-57.
8. Castillo-Carniglia, Á., Albala, C., Dangour, A. D., & Uauy, R. (2012). Factors associated with life satisfaction in a cohort of older people in Santiago, Chile. *Gaceta Sanitaria*, 26(5), 414-420.
9. Castro, P. C., Driusso, P. & Oishi, J. (2014). Convergent validity between SF-36 and WHOQOL-BREF in older adults. *Public review*, 48, 63-67.
10. Celeiro, T. M., & Galizzi, M. P. (2019). *Calidad de vida en adultos mayores entre 70 a 85 años institucionalizados y no institucionalizados de la ciudad de Nogoyá*. Trabajo final para acceder al título de Licenciatura en Psicología. Universidad Católica Argentina.
11. Dalter, E., Guerrero, L. G., Gómez, J., del Burgo Simarro, F. J. M., Santiago, J., Larrén, J. T., ... & Zurdo, C. (2002). *Guía de hábitos saludables para mayores*. Inde.
12. De Sousa Pinto, J. M., Arenillas, J. C., Noguerras, A. M., González, J. R., & Gómez, F. G. (2010). La calidad de vida de pacientes asmáticos evaluada por el WHOQOL-BREF y el SGRQ. *Fisioterapia*, 32(3), 116-122.

13. Del Popolo, F. (2001). *Características sociodemográficas y socioeconómicas de las personas de edad en América Latina*. Proyecto Regional de Población CELADE-FNUAP (Fondo de Población de las Naciones Unidas). Centro Latinoamericano y Caribeño de Demografía (CELADE) - División de Población
14. Dueñas, D., Bayarre, H., Triana, E., & Rodríguez, V. (2009). Quality of life perceived in elderlies from Matanzas province. *Revista Cubana de Medicina General Integral*, 25(2), 1-15.
15. Espinoza, I., Osorio, P., Torrejón, M. J., Lucas-Carrasco, R., & Bunout, D. (2011). Validación del cuestionario de calidad de vida (WHOQOL-BREF) en adultos mayores chilenos. *Revista médica de Chile*, 139(5), 579-586.
16. Flores Martínez, R. M., & Garay Villegas, S. (2019). Calidad de vida y vejez masculina en México. *Perspectivas Revista de Ciencias Sociales*, 4(8), 380-392.
17. Flores Villavicencio, M. E., Troyo Sanroman, R., Cruz Avila, M., Gonzalez Perez, G., & Munoz de la Torre, A. (2013). Evaluation of quality of life through whoquol-bref in seniors living in multifamily buildings in Guadalajara, Jalisco. *Revista Argentina de Clínica Psicológica*, 22(2), 179-192.
18. Gallardo-Peralta, L., Jorquera, I. C., Morán, M. P., & Quiroz, B. U. (2018). Diferencias de género en salud y calidad de vida en personas mayores del norte de Chile. *Polis. Revista Latinoamericana*, 49, 1-21.
19. García, P., & Perla, J. (2016). *Calidad de vida del adulto mayor de la casa "Polifuncional Palmas Reales" Los Olivos Lima 2016*. Tesis de Grado. Universidad de San Martín de Porres, Perú.
20. González-Celis, A. L., & Gómez-Benito, J. (2013). Quality of life in the elderly: Psychometric properties of the WHOQOL-OLD module in Mexico. *Health*, 5(12), 110.
21. Guerrero Montoya, L. R., & León Salazar, A. R. (2010). Estilo de vida y salud. *Educere*, 14(48), 13-19.
22. Haskell, W. L., Lee, I. M., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., ... & Bauman, A. (2007). Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation*, 116(9), 1081.
23. Hernández-Encuentra, E., Pousada, M., & Gómez-Zúñiga, B. (2009). ICT and older people: Beyond usability. *Educational Gerontology*, 35(3), 226-245.

24. Herrera-Mor, E., Pablos-Monzó, A., Chiva-Bartoll, O., & Pablos-Abella, C. (2017). Efectos de la actividad física sobre la salud percibida y condición física de los adultos mayores. *Journal of Sport and Health Research*, 9(1), 27-40.
25. Ibáñez-Pérez, R. & Martínez-Moreno, A. (2019). *Body image in subjects who practice physical activity in centers of elderly*. In E. Soriano, C. Sleeter, M. Antonia Casanova, R. M. Zapata, & V. C. Cala (Eds.), *The Value of Education and Health for a Global, Transcultural World*, vol 60. European Proceedings of Social and Behavioural Sciences (pp. 677-685). Future Academy.
26. INE: Instituto Nacional de Estadística. (2011). Año Europeo del Envejecimiento Activo y la Solidaridad Intergeneracional. *Diario oficial de la Unión Europea*, 10, 11-12.
27. James, J. B., & Wink, P. (2006). The third age: A rationale for research. *Annual review of gerontology and geriatrics*, 26(1), 19-32.
28. Jenkin, C. R., Eime, R. M., Westerbeek, H., O'Sullivan, G. & Van Uffelen, J. G. Z. (2016). Are they 'worth their weight in gold'? Sport for older adults: benefits and barriers of their participation for sporting organisations. *International Journal of Sport Policy and Politics*, 8(4), 663-680.
29. Jerome, G. J., Glass, T. A., Mielke, M., Xue, Q. L., Andersen, R. E., & Fried, L. P. (2006). Physical activity participation by presence and type of functional deficits in older women: The Women's Health and Aging Studies. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 61(11), 1171-1176.
30. Jiménez-Beatty, J. E., Graupera Sanz, J. L. & Martínez del Castillo, J. (2003). Hábitos y demandas deportivas de las mujeres mayores en el municipio de Madrid. *Serie ICD de Investigación en Ciencias del Deporte*, 35, 223-253.
31. Jiménez-Beatty, J. E., Graupera, J. L., Martínez del Castillo, J., Martin, M. & Campos, A. (2007). Motivational factors and physician advice for physical activity in older urban adults. *Journal of aging and physical activity*, 15(3), 241-256.
32. Jiménez-Beatty, J. E., Martínez del Castillo, J., & Graupera, J. L. (2006). *Las administraciones públicas de la Provincia de Guadalajara y la integración social de las personas mayores a través de los servicios sociales de actividad físico-deportiva*. Alcalá de Henares: Universidad de Alcalá-Ibercaja.
33. Kelley, J., & Evans, M. D. (2017). Societal inequality and individual subjective well-being: Results from 68 societies and over 200,000 individuals, 1981–2008. *Social science research*, 62, 1-23.

34. Kumar, G., Majumdar, A. & Pavithra, G. (2014). Quality of life (QOL) and its associated factors using WHOQOL-BREF among elderly in urban Puducherry, India. *Journal of clinical and diagnostic research*, 8(1), 54-57.
35. Kumar, R. (2015). *Research Methodology: A Step-by-Step Guide for Beginners (2.a ed.)*. Thousand Oaks, California: SAGE.
36. Lardiés-Bosque, R. (2011). *Ocio, tiempo libre y calidad de vida en la población mayor*. En F. Rojo-Pérez y G. Fernández-Mayoralas: *Calidad de Vida y Envejecimiento. La visión de los mayores sobre sus condiciones de vida* (394). Madrid: Fundación BBVA.
37. Manrique-Espinoza, B., Moreno-Tamayo, K., Téllez-Rojo Solís, M. M., De la Cruz-Góngora, V. V., Gutiérrez-Robledo, L. M., & Salinas-Rodríguez, A. (2014). Short-term effect of physical activity and obesity on disability in a sample of rural elderly in Mexico. *Salud Pública de México*, 56(1), 4-10.
38. Martín, M., Moscoso, D., & Pedrajas, N. (2013). Diferencias de género en las motivaciones para practicar actividades físico-deportivas en la vejez. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte/International Journal of Medicine and Science of Physical Activity and Sport*, 13(49), 121-129.
39. Martínez del Castillo, J., González Rivera, M. D., Jiménez-Beatty Navarro, J. E., Graupera Sanz, J. L., Martín Rodríguez, M., Campos Izquierdo, A., & Del Hierro Pinés, D. (2009). Los hábitos de actividad física de las mujeres mayores en España. *RICYDE. Revista Internacional de Ciencias del Deporte*, 14(5), 81-93.
40. Mella, R., González, L., D'Appolonio, J., Maldonado, I., Fuenzalida, A., & Díaz, A. (2004). Factores asociados al bienestar subjetivo en el adulto mayor. *Psykhe (Santiago)*, 13(1), 79-89.
41. Molina Sena, C. J. & Meléndez Moral, J. C. (2006). Bienestar psicológico en envejecientes de la República Dominicana. *Revista Iberoamericana de Gerontología y Geriatria, Geriatrika*, 22(3), 97-105.
42. Murguía Sáinz, P. (2015). *Programa de actividad física para influir en la calidad de vida de la tercera edad*. Trabajo de Fin de Grado. Universidad del País Vasco, España.
43. Osorio, P. L. (2006). Longevidad: más allá de la biología: Aspectos Socioculturales. *Papeles del CEIC*, 22, 1-28.
44. Pedrero-Pérez, E. J., & Díaz-Olalla, J. M. (2015). COOP/WONCA: Reliability and validity of the test administered by telephone. *Atención Primaria*, 48(1), 25-32.

45. Raggi, A., Corso, B., Minicuci, N., Quintas, R., Sattin, D., From Torres, L. & Leonardi, M. (2016). Determinants of Quality of Life in Ageing Populations: Results from a Cross-Sectional Study in Finland, Poland and Spain. *Plos one*, *11*, 7, e0159293.
46. Rioseco, R., Quezada, M., Ducci, M. E., & Torres, M. (2008). Cambio en las redes sociales de adultos mayores beneficiarios de programas de vivienda social en Chile. *Revista Panamericana de Salud Pública*, *23*, 147-153.
47. Rodríguez Casavielles, R., Bellido Aguilera, O. L., González Calzadilla, C., Solares Sierra, E., Rojas Verdecia, I., & Lorenzo Martín, R. (2011). Sustainable improvement of the quality of life of the population based on the community-wide work. *Revista Cubana de Salud Pública*, *37*(3), 219-229.
48. Rosa, S. M. (2013). *Actividad física y salud*. Ediciones Díaz de Santos.
49. Rubio Olivares, D. Y., Rivera Martínez, L., Borges Oquendo, L., & González Crespo, F. V. (2015). Calidad de vida en el adulto mayor. *Varona: Revista Científico-Methodológica*, *61*, 1-7.
50. Ruiz-Villaverde, G., Sánchez-Cano, D., & Villaverde-Gutiérrez, C. (2006). Comparison of the Score and Framingham-DORICA models to estimate the cardiovascular risk in a cohort of hypertensive patients from southern Spain. *Medicina Clinica*, *127*(8), 314-315.
51. Sáiz Vázquez, O., & Santamaría Vázquez, M. (2015). La influencia de las variables sociodemográficas en la calidad de vida analizadas con el Whoqol-Bref. *Revista Gallega de Terapia Ocupacional (TOG)*, *12*(21), 1-15.
52. Sánchez, M., & Hatton-Yeo, A. (2012). Active ageing and intergenerational solidarity in Europe: a conceptual reappraisal from a critical perspective. *Journal of Intergenerational Relationships*, *10*(3), 276-293.
53. Sanz Guajardo, S., López Gómez, J. M., Jofré, R., Fort, J., Valderrábano, F., Moreno, F., & Vázquez, I. (2004). Diferencias en la calidad de vida relacionada con la salud entre hombres y mujeres en tratamiento en hemodiálisis. *Nefrología*, *24*(2), 167-178.
54. Saraç, F., Parıldar, S., Duman, E., Saygılı, F., Tüzün, M., & Yılmaz, C. (2007). Quality of life for obese women and men in Turkey. *Preventing chronic disease*, *4*(3), A50.
55. Segarra Escandon, M. V. (2017). *Calidad de vida y funcionalidad familiar en el adulto mayor de la parroquia Guaraynag, Azuay. 2015-2016*. Tesis Previa a la Obtención de Título de Especialista en Medicina Familiar y Comunitaria. Universidad de Cuenca, Ecuador.

56. Shaw, B. A., & Agahi, N. (2014). Smoking and physical inactivity patterns during midlife as predictors of all-cause mortality and disability: a 39-year prospective study. *European journal of ageing, 11*, 195-204.
57. Solís, H. M., Sigvas, R. E. P., López, M. C., Honorio, B. M., Tucno, M. M. R., & Neira, W. F. (2016). Calidad de vida de personas en un club de adultos mayores en Lima Norte. *Revista de Ciencia y Arte de Enfermería, 1*(1), 29-33.
58. Viana Campos, A. C., Ferreira e Ferreira, E., Duarte Vargas, A. M., & Albala, C. (2014). Aging, Gender and Quality of Life (AGEQOL) study: factors associated with good quality of life in older Brazilian community-dwelling adults. *Health and quality of life outcomes, 12*, 1-11.
59. Vivaldi, F., & Barra, E. (2012). Bienestar psicológico, apoyo social percibido y percepción de salud en adultos mayores. *Terapia psicológica, 30*(2), 23-29.
60. Von Bonsdorff, M. B., & Rantanen, T. (2011). Progression of functional limitations in relation to physical activity: a life course approach. *European Review of Aging and Physical Activity, 8*, 23-30.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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