45

FACTORS INFLUENCING

THE ADHERENCE OF PHARMACOLOGICAL TREATMENT IN HYPERTENSIVE PATIENTS FROM LUZ Y VIDA ASSOCIATION IN TULCÁN 2019

FACTORES QUE INFLUYEN EN LA ADHERENCIA AL TRATAMIENTO FARMACOLÓGICO EN PACIENTES HIPERTENSOS DE LA ASOCIACIÓN LUZ Y VIDA DE TULCÁN 2019

Sara Ximena Guerrón Enriquez[1]
E-mail: ut.saraxge69@uniandes.edu.ec
ORCID: https://orcid.org/0000-0002-0087-802X
Dayana Gabriela Herrera Chingal[1]
E-mail: et.dayanaghc91@uniandes.edu.ec
ORCID: https://orcid.org/0000-0002-1146-2193
Clara Elisa Pozo Hernández[1]
E-mail: ut.clarapozo@uniandes.edu.ec
ORCID: https://orcid.org/0000-0002-9204-7783
Olga Mireya Alonzo Peak[1]
E-mail: ut.clarapozo@uniandes.edu.ec
ORCID: https://orcid.org/0000-0002-8535-884X
[1] Universidad Regional Autónoma de Los Andes. Ecuador.

ABSTRACT

Arterial Hypertension is both an important Public Health problem and a highly prevalent chronic pathology. It is ranked as the third cause of morbidity and mortality, considering one of them the lack of adherence to treatment and the influence of factors on it. The present research was carried out at the Health Center No.1 of the city of Tulcán, and its objective was to determine the factors that influence the adherence of pharmacological treatment in hypertensive patients of Luz y Vida association. A descriptive, qualitative, quantitative and field study was carried out, using the survey technique, which was applied to 50 older adults since the sample was small enough for the population to be entirely analyzed. Results show that 34% comply with the treatment while 66% do not. So educational-based interventions were designed, such as training, home visits, thus achieving that most of these people can adhere to drug treatment with a hypo-sodium diet, plus a regimen of exercises, to reduce and avoid cardiovascular complications.

Keywords: Hypertension, morbidity, mortality.

RESUMEN

La hipertensión arterial es un importante problema de salud pública y una patología crónica de alta prevalencia. Se ubica como la tercera causa de morbimortalidad, considerando una de ellas la falta de adherencia al tratamiento y la influencia de los factores en el mismo. La presente investigación se realizó en el Centro de Salud No 1 de la ciudad de Tulcán, y su objetivo fue determinar los factores que influyen en la adherencia al tratamiento farmacológico en pacientes hipertensos de la asociación Luz y Vida. Se realizó un estudio descriptivo, cualitativo, cuantitativo y de campo, utilizando la técnica de encuesta, la cual se aplicó a 50 adultos mayores ya que la muestra era lo suficientemente pequeña para que la población fuera analizada en su totalidad. Los resultados muestran que el 34% cumple con el tratamiento mientras que el 66% no. Por eso se diseñaron intervenciones con base educativa, como entrenamientos, visitas domiciliarias, logrando así que la mayoría de estas personas puedan adherirse al tratamiento farmacológico con una dieta hipo-sodio, más un régimen de ejercicios, para reducir y evitar las complicaciones cardiovasculares.

Palabras clave: Hipertensión, Morbilidad, Mortalidad.

UNIVERSIDAD Y SOCIEDAD | Have Scientific of the University of Cienfuegos | ISSN: 2218-3620   Volume 13 | S2 | October, 2021

377

INTRODUCTION

Arterial Hypertension is a chronic disease characterized by a continuous increase in blood pressure measurements above the limits. It is the main risk factor for cardiovascular diseases. This disease is preventable or can be postponed through a group of preventive interventions, among which we may mention the reduction of salt intake, a diet based on fruits and vegetables, physical exercise, and healthy body weight control.

The Pan-American Health Organization promotes policies and projects to encourage the prevention of Arterial Hypertension from Public Health, through policies to reduce salt consumption, promote healthy eating, physical activity, and prevent obesity. It supports projects that facilitate access to essential drugs for the treatment of hypertension and stimulates the training of human resources in the health field (Avalos et al., 2017).

National Development Plan for a Lifetime 2017-2021, in Ecuador will advance in its guarantee of the right to health thanks to the promotion of healthy lifestyle habits, aimed at preventing diseases. It is proposed that Ecuador reduce its levels of a sedentary lifestyle, improve nutrition patterns and increase physical activity in all groups, regardless of age. This will help reduce stress levels and the number of deaths due to cardiovascular diseases, diabetes, overweight, obesity, among others. (Sandoval et al., 2014).

Compliance with pharmacological treatment in hypertensive older adults is of great importance because their medication is the fundamental basis in the development of their disease. That is why Health Center No.1 provides adequate care to various people, taking as a priority the hypertensive elderly who belong to Luz y Vida association. These individuals need to receive their full treatment since it has been evidenced that those who attend this establishment are under control or due to withdrawal of their drugs, they do not comply with full pharmacological treatment, allowing dangerous consequences such as aneurysms and cerebrovascular accidents.

The Ministry of Economic and Social Inclusion bases public policy for the elderly population on a rights approach that considers aging as an option for active citizenship and positive aging, for a dignified and healthy life (Martín Alfonso et al., 2015).

Therefore, to achieve effective treatment, correctly adhered patients must avoid consequences such as intracranial hemorrhages by taking their strict medication, since maximum adherence will be achieved, to prevent complications in their daily life, taking into account the education towards the user or patient.

Arterial Hypertension is the main risk factor for suffering and dying as a consequence of a cardiovascular event prematurely, and it is the second cause of disability in the world. It is also the main cause of ischemic heart disease and stroke.

In the latest statistical report from the World Health Organization, one in three older adults suffers from Arterial Hypertension, more than 1,000 million individuals, so the lack of adherence to drug treatment varies between 15% and 93%, with an average percentage calculated at 50%. Therefore, this institution has initiated an initiative to reduce cardiovascular risk through the control of hypertension, to support the Ministries of Health to improve the control of this pathology and reduce premature deaths associated with cardiovascular diseases. This initiative includes as essential elements the establishment of standardized treatment algorithms, the improvement of access to a set of basic medicines, the distribution of tasks in the health team, and the registration of patients and performance monitoring.

Between 20% and 35% of the adult population of Latin America and the Caribbean have hypertension. The number of people with hypertension is increasing in recent years and many are unaware of their condition. According to a study in four South American countries (Argentina, Chile, Colombia, and Brazil), only 57.1% of the adult population estimated to have high blood pressure knows that they have hypertension, which contributes to the low level of population control: only 18.8% of hypertensive adults in these four countries have controlled blood pressure (Larraburu & Hernández, 2017).

In Latin America, the country with the highest prevalence of hypertension is Ecuador and the leading cause of death is cardiovascular disease, 46% of the Ecuadorian population has arterial hypertension and only 15% of that population has adequate control of their blood pressure figures. Cardiovascular diseases are responsible for a third of deaths worldwide and they are eminently predictable, thus to produce a significant reduction, population-level strategies are required such as lifestyle modifications, which should include: healthy diet, physical activity, smoking diminution, as well as intermediate manifestations of the lifestyle such as hypertension, diabetes, and hyperlipidemia (Ortega Cerda et al., 2018), (Alvarado García & Salazar Maya, 2014).

In Ecuador, the prevalence of Arterial Hypertension measured by the National Nutrition Survey (Ensanut) in the elderly population was 7.5% in women and 11.2% in men

and in the Health, Well-being and Aging survey (SABE II), showed a prevalence of hypertension of more than 44.4%. According to the National Institute of Statistics and Censuses (INEC) in 2015, 1,254 deaths were registered due to primary essential hypertension (Bellido et al., 2003), (Contreras Orozco, 2010).

It is essential to identify the factors that influence the adherence of drug treatment in hypertensive patients of the Luz y Vida Tulcán association to avoid long-term complications and achieve optimal control of blood pressure, based on two fundamental conditions, non-pharmacological treatment related to the modification of lifestyle (regular physical activity, adequate diet and avoiding overweight), and the pharmacological one, to maintain as a basic objective the reduction of the complications derived from hypertension to the maximum. Therefore, these two conditions have important consequences in the health, economic and social fields. That is why it is essential to identify the factors that are negatively affecting the possibilities of hypertensive people to adequately assume the indicated therapeutic regimens to help reduce those consequences(Erick González-Caballero, 2021), (Chico et al., 2021).

Arterial Hypertension is currently a major public health problem worldwide, affecting approximately one billion people. In addition, it is a highly prevalent chronic disease, which can be controlled by leading a healthy lifestyle with medication and, if it is not controlled, it can drastically decrease the quality of life of hypertensive patients, since it is directly related to the development of cardiovascular complications (cerebrovascular event, acute myocardial infarction, and heart failure, among others), which is the leading cause of death worldwide; therefore, HT is considered by the World Health Organization (WHO) as the factor of active risk that causes the most deaths in the world (Varela, 2010), (Gómez et al., 2019), (Arias et al., 2021).

It has been shown that many factors may be related to adherence, including the patient's perception of their disease, the patient's relationship with healthcare professionals, influences from healthcare systems, and complex drug regimens. Out of these, the most important personal factors that contribute to poor adherence to treatment are, undoubtedly, low socioeconomic status, illiteracy, unemployment, ignorance about their disease, low expectations about the efficacy of treatment, not attending medical check-ups, and not making lifestyle changes (López, 2008), (Salazar Cáceres et al., 2016).

Failure to comply with pharmacological treatment in hypertensive older adults of Luz y Vida association is the main cause of not obtaining all the benefits that drugs can provide to patients, it is at the origin of medical and psychosocial complications of the disease. It reduces the quality of life of patients, increases the probability of the appearance of drug resistance, and wastes healthcare resources.

Carrying out this type of study in these people is novel and relevant since they maintain unhealthy lifestyles, which on several occasions is due to ignorance of the relatives who are in charge of their diet. They make their sick relatives consume unhealthy foods, and it is usually also associated with physical inactivity, the consumption of alcohol, and other toxic substances that affect this pathology. By applying these educational strategies aimed at improving the lifestyles and eating habits of hypertensive patients, it will be possible to improve the participation of patients and their families to reduce the risks that cause Arterial Hypertension(Cordero et al., 2019),(Cruz et al., 2019; Palacios et al., 2021), (Al-Subhi et al., 2020).

With the design and subsequent implementation of educational strategies, training, and home visits to talk about the factors that influence adherence to antihypertensive drug treatment, the prevention of new diseases that may appear over time is projected, thus achieving one of the most important aspects of Public Health, the promotion and prevention of health (González et al., 2018),.

Considering the elements described above related to Arterial Hypertension, it is defined as a research problem: What are the factors that influence the correct adherence of drug treatment in hypertensive patients of Luz y Vida association in Tulcán 2019?

The general objective of the research is *to determine the factors that influence the adherence to pharmacological treatment in hypertensive patients of Luz y Vida association in Tulcán 2019*. The following are set as specific objectives:

- Make a theoretical analysis on arterial hypertension, pharmacological adherence, and the role developed by the elderly.

- Diagnose the most frequent factors that influence non-adherence to pharmacological treatment in the elderly members of Luz y Vida association.

- Design educational strategies that help determine the factors that influence adherence to drug treatment in hypertensive patients from Luz y Vida association in Tulcán 2019.

- Validate the proposal through results.

DEVELOPMENT

Theoretical and empirical methods, techniques, and investigative instruments were used for the development of the research. The Inductive-Deductive method allowed us to reach a truthful conclusion of the objective, identifying the most frequent factors that adhere to the pharmacological treatment, in the elderly members of Luz y Vida Association.

Through the Analytical-Synthetic method, the information is organized chronologically to carry out a detailed study, and to explain, through education strategies, the importance of having good eating habits and at the same time fully complying with the pharmacological treatment.

The historical-logical method supported the identification of adherence to drug treatment in the elderly and health care for hypertensive people.

The Systemic method made possible a logical order, starting from the theoretical investigation, continuing with the presentation of the respective proposals, until the application of these and evaluation of the results.

Within the empirical methods, scientific observation and documentary analysis were used.

Scientific observation made it possible to observe older adults to identify which ones have Arterial Hypertension and at the same time the knowledge of the factors that adhere to their pharmacological treatment.

The documentary analysis facilitated the study of the object in the place where the problem occurs. It will be used in the study of older adults who belong to Luz y Vida association.

The survey was applied to Luz y Vida association's elderly members and their relatives, to observe the factors that adhere to the pharmacological treatment in the pathology of Arterial Hypertension, for which a previously prepared questionnaire was applied consisting of closed and open questions (Álvarez Reyes et al., 2011), (Suarez Lima et al., 2018).

The instrument used was the questionnaire, which allowed the application of the respective survey. Luz y Vida association elderly members and their relatives were asked to answer a series of closed questions, facilitating the obtaining of information and at the same time making them aware of the consequences of not complying with their pharmacological treatment (Martínez Querol et al., 2005), (Martínez Querol et al., 2005).

The population under study were 50 older adults who belong to Luz y Vida Association of the Health Center No.1,

so the formula does not need to be applied since its universe and its sample becomes the real population. Since the sample was so small, 100% of the population was analyzed. Eight questions were formulated for the development of the survey.

Question 1. Do you think the information provided in the educational talks about arterial hypertension is important? Figure 1 shows a representation of the responses.
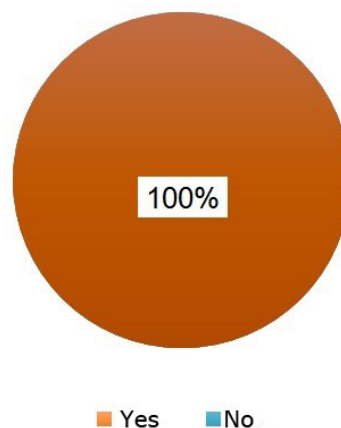

■ Yes   ■ No

Figure 1. Importance granted to educational talks on arterial hypertension.

Interpretation. To older adults, the knowledge that has been provided to them regarding arterial hypertension seemed very transcendental for them to learn what their disease is about and, at the same time, put into practice good healthy habits to be able to avoid complications.

Question 2. Do you know the importance of attending medical check-ups? Figure 2 shows a representation of the responses.
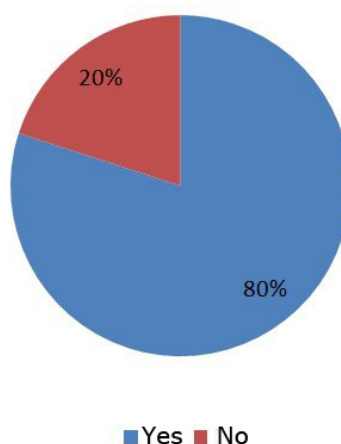

■ Yes   ■ No

Figure 2. Importance granted to medical checks.

Interpretation. The training proved to be successful because older adults already consciously attend a health post.

Question 3. Do you currently stop taking your medications when you are not feeling unwell? Figure 3 shows a representation of the responses.
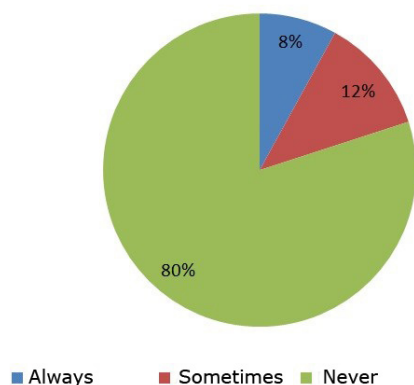

Figure 3. How often do you stop taking your medications when you are not feeling unwell.

Interpretation. According to the results, they no longer stop taking their medication, although they are feeling well, which is different from what they did before. So, a better rate has been reached in older adults with respect to compliance with their pharmacological treatment since it is very beneficial both for the health personnel (because they are achieving their goal) and the patients (because they improve their health condition).

Question 4. When you take your medicine at what time do you do it? Figure 4 shows a representation of the responses.
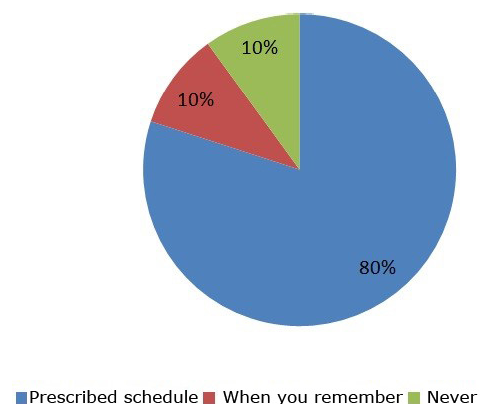

Figure 4. Time when you take the medicine.

Interpretation. A high index of commitment in the elderly for their recovery refers to the change in taking the medication, obeying and complying with the doctor's instructions, which did not happen at the beginning where a disorder in the taking of the medication was evidenced.

Question 5. After the educational talks about arterial hypertension, are you aware of the complications of not taking medication? Figure 5 shows a representation of the responses.
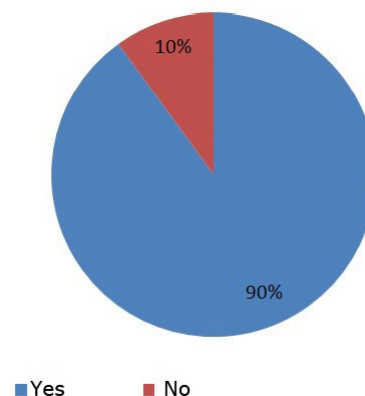

Figure 5. Knowledge about complications when not taking medication.

Interpretation. Thanks to the education provided through educational talks, delivery of brochures, and training, their knowledge has been strengthened as it is an effective and beneficial result.

Question 6. Has the information provided in the training on the pharmacological compliance of your elderly adult been useful to you? Figure 6 shows a representation of the responses.
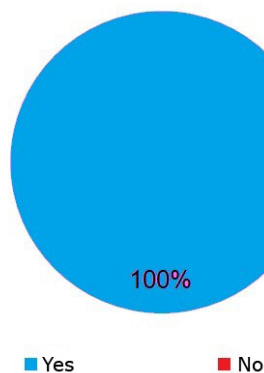

Figure 6. Usefulness of the information provided in the training on drug compliance.

Interpretation. The relatives of the older adults show that this information has been very useful to be able to make certain changes with their older adults and at the same

time help them get a healthy life by complying with their pharmacological treatment.

Question 7. Are you currently accompanying your elderly adult for medical check-ups? Figure 7 shows a representation of the responses.
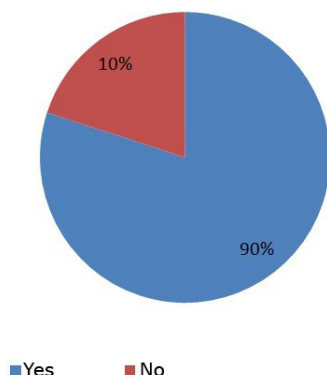

Figure 7. Family accompaniment in the medical check-ups of the elderly.

Interpretation. Family members accompany their older adults to their medical check-ups, thanks to the training provided on the problems that may occur in them, they have become aware that these people are very important in their life.

Question 8. Do you help the elderly to have good lifestyles? Figure 8 shows a representation of the responses.
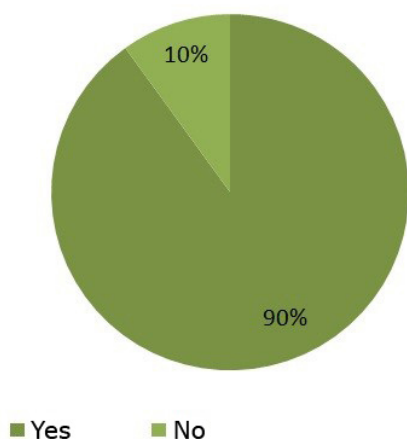

Figure 8. Family support for the elderly to have good lifestyles.

Interpretation. Their relatives care about the well-being of the elderly, so they provide them with a healthy diet, perform physical activity, and at the same time comply with

taking all their medicine since these are good lifestyles that will help them in the development of their old age.

The management of people with high blood pressure is very important from the personal point of view and the caregiver or person in charge. As well, the carelessness of the elderly in their health management and medications could lead to complications of their condition. Therefore, it is determined that it plays a very important role to let them know or remind them of what kind of disease they live with and above all, the need to team up with the people who are in charge of these older adults. Thus, all the strategies used to manage this disease are very successful.

CONCLUSIONS

Throughout this research, the theoretical foundation allowed us to know the complications that may occur in hypertensive older adults, and at the same time the importance of adhering to pharmacological treatment, achieving new knowledge through the support of the guidelines of the Ministry of Public Health.

The diagnosis of the current situation of hypertensive older adults from Luz y Vida Association was important to know about the factors that do not allow these people to adhere to the treatment of arterial hypertension, such as the abandonment of their relatives, the deterioration of their mental capacity, lack of communication between the elderly and family members, which was verified through a survey.

The application of different educational strategies allowed planning based on the needs and problems of the population under study, thus reducing the factors that influence medication, and at the same time increasing the levels of knowledge to improve the quality of life of these people, giving way to the solution of the problem.

With the validation of the results of the post-survey, it is possible to comply with the proposal, demonstrating that thanks to the provided educational talks, training, and the follow-up of home visits, older adults comply with pharmacological treatment, education being a way of promotion and prevention of hypertension in older adults.

REFERENCES

Al-Subhi, S. H., Rubio, P. A. R., Pérez, P. P., Mahdi, G. S. S., & Leyva-Vázquez, M. (2020). Novedosa herramienta de apoyo para tomar decisiones en diagnóstico, tratamiento y pronóstico de cardiópatas embarazadas. *Revista Cubana de Obstetricia y Ginecologia*, *46*(1), 1-16.

Alvarado García, A. M., & Salazar Maya, Á. M. (2014). Análisis del concepto de envejecimiento. *Gerokomos*, *25*(2), 57-62. https://scielo.isciii.es/pdf/geroko/v25n2/revision1.pdf

Álvarez Reyes, M., Morales Sotolongo, I., Morales Reyes, E., & Vega Colina, B. (2011). Estrategia educativa sobre hipertensión arterial para adultos mayores de un consultorio del Policlínico Previsora. *Humanidades Médicas, 11*(3), 433-452. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1727-81202011000300003

Arias, E. B. N., Nuñez, B. M. G., Fernández, L. N., & Pupo, J. M. R. (2021). CRISP-DM y K-means neutrosofía en el análisis de factores de riesgo de pérdida de audición en niños. *Revista Asociación Latinoamericana de Ciencias Neutrosóficas. ISSN 2574-1101*(16), 73-81. http://fs.unm.edu/NCML2/index.php/112/article/download/151/487

Avalos, A. J. P., Núñez, M. A. V., & Domínguez, E. S. R. (2017). Adherencia terapéutica en pacientes con hipertensión arterial. *Revista de Enfermedades no Transmisibles Finlay*, *7*(2), 81-88. https://www.medigraphic.com/pdfs/finlay/fi-2017/fi172c.pdf

Bellido, C. M., Fernández, E. L., López, J. A., Simón, P. H., & Padial, L. R. (2003). Etiología y fisiopatología de la hipertensión arterial esencial. *Monocardio*, *3*(5), 141-160. http://castellanacardio.es/wp-content/uploads/2010/11/hipertension-arterial-I.pdf#page=19

Chico, M. G. G., Bandera, N. H., Lazo, S. H., & Sailema, N. L. (2021). Assessment of the Relevance of Intercultural Medical Care. Neutrosophic sampling. *Neutrosophic Sets and Systems*, *44*, 420-426.

Contreras Orozco, A. (2010). Factores que influyen en la adherencia a tratamientos farmacológicos y no farmacológicos en los pacientes inscritos en el Programa de Control de la Hipertensión Arterial de la Unidad Básica de Atención de COOMEVA. Sincelejo (Colombia), 2006. *Revista Salud Uninorte*, *26*(2), 201-211. http://www.scielo.org.co/pdf/sun/v26n2/v26n2a04.pdf

Cordero, F. E. T., Torres, E. d. l. C., Valdés, R., & Benítez, N. G. (2019). Análisis neutrosófico para el diagnóstico de la hipertensión arterial a partir de un sistema experto basado en casos. *Neutrosophic Computing and Machine Learning (NCML): An International Book Series in Information Science and Engineering. Volume 10/2019*, 63. http://fs.unm.edu/NCML2/index.php/112/article/download/68/62

Cruz, M. F., Salinas, E. B., Plúas Salazar, R. M., Castro Castillo, G. J., Tovar Arcos, G. R., & Ricardo, J. E. (2019). Estudio situacional para determinar estrategias formativas en la atención a escolares con necesidades educativas especiales en la zona 5 del Ecuador [Article]. *Investigacion Operacional*, *40*(2), 255-266. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064389475&partnerID=40&md5=201b90e7d5b93cfe29d6e526ed1b82f8

Erick González-Caballero, M. L.-V., and Florentin Smarandache. (2021). On neutrosophic uninorms. *Neutrosophic Sets and Systems*, *45*, 320-339.

Gómez, Y. M. G., Guerra, D. M. R., Castellanos, L. A. Z., & Piña, R. G. (2019). Análisis del emprendimiento comunitario en las actividades físico-terapéuticas desde la Universidad. Empleo de escala lingüística neutrosófica. *Revista Asociación Latinoamericana de Ciencias Neutrosóficas. ISSN 2574-1101*, *8*(4), 43-52. http://fs.unm.edu/NCML2/index.php/112/article/download/62/56

González, B. Z., Sierra, V. P., Martinez, J. I. V., Cardenas, F. P., Narvaez, Y. V., Ramos, L. R., & Aranda, O. M. (2018). Riesgo de hipertensión arterial en población adulta en Matamoros, Tamaulipas, México/Risk of arterial hypertension in the adult population in Matamoros, Tamaulipas, México/Risco de hipertensão arterial na população adulta em Matamoros, Tamaulipas. *JOURNAL HEALTH NPEPS*, *3*(2), 368-379. https://periodicos.unemat.br/index.php/jhnpeps/article/viewFile/2971/2579

Larraburu, E. R., & Hernández, I. Y. P. (2017). Adherencia al tratamiento en hipertensos de difícil control en la atención primaria de salud. *Identidad Bolivariana*, *1*(2), 11-23. https://identidadbolivariana.itb.edu.ec/index.php/identidadbolivariana/article/download/26/101

López, E. D. (2008). Enfermedad renal crónica; definición y clasificación. *El residente*, *3*(3), 73-78. https://www.medigraphic.com/pdfs/residente/rr-2008/rr083b.pdf

Martín Alfonso, L., Bayarre Vea, H., Corugedo Rodríguez, M. d. C., Vento Iznaga, F., La Rosa Matos, Y., & Orbay Araña, M. d. l. C. (2015). Adherencia al tratamiento en hipertensos atendidos en áreas de salud de tres provincias cubanas. *Revista Cubana de Salud Pública*, *41*(1), 0-0. http://scielo.sld.cu/scielo.php?pid=S0864-34662015000100004&script=sci_arttext&tlng=pt

Martínez Querol, C., Pérez Martínez, V. T., Carballo Pérez, M., & Larrondo Viera, J. J. (2005). Polifarmacia en los adultos mayores. *Revista Cubana de Medicina General Integral*, *21*(1-2), 0-0. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21252005000100012

Ortega Cerda, J. J., Sánchez Herrera, D., Rodríguez Miranda, Ó. A., & Ortega Legaspi, J. M. (2018). Adherencia terapéutica: un problema de atención médica. *Acta Médica Grupo Ángeles*, *16*(3), 226-232. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1870-72032018000300226

Palacios, A. J. P., Ricardo, J. E., Piza, I. A. C., & Herrería, M. E. E. (2021). Phenomenological Hermeneutical Method and Neutrosophic Cognitive Maps in the Causal Analysis of Transgressions against the Homeless. *Neutrosophic Sets and Systems*, *44*, 147-156.

Salazar Cáceres, P. M., Rotta Rotta, A., & Otiniano Costa, F. (2016). Hipertensión en el adulto mayor. *Revista médica herediana*, *27*(1), 60-66. http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1018-130X2016000100010

Sandoval, D., Chacón, J., Muñoz, R., Henríquez, Ó., Koch, E., & Romero, T. (2014). Influencia de factores psicosociales en la adherencia al tratamiento farmacológico antihipertensivo: Resultados de una cohorte del Programa de Salud Cardiovascular de la Región Metropolitana, Chile. *Revista médica de Chile*, *142*(10), 1245-1252. https://scielo.conicyt.cl/scielo.php?pid=S0034-98872014001000003&script=sci_arttext

Suarez Lima, G. J., Palacios Loja, P. C., Posligua Fernández, J. A., Guadalupe Vargas, M. E., Espinoza Carrasco, F. A., & Ventura Soledispa, I. W. (2018). Diagnóstico del nivel de actividad física en adultos mayores hipertensos del hospital" León Becerra". *Revista Cubana de Investigaciones Biomédicas*, *37*(4), 1-9. http://scielo.sld.cu/scielo.php?pid=S0864-03002018000400007&script=sci_arttext&tlng=pt

Varela, M. T. (2010). El reto de evaluar la adherencia al tratamiento en la hipertensión arterial. *Pensamiento psicológico*, *7*(14). https://revistas.javerianacali.edu.co/index.php/pensamientopsicologico/article/download/137/407