Fragility syndrome in elderly people

Síndrome da fragilidade em idosos

Síndrome de fragilidad en adultos mayores

Cynthia Lissette Paredes Núñez
https://orcid.org/0000-0002-5825-4703
Nursing degree researcher - Technical
University of Ambato (UTA), Ecuador.
cparedes4295@uta.edu.ec (correspondence)

Grace Pamela López Pérez
https://orcid.org/0000-0002-0558-5429
Professor at Technical University of Ambato, Ecuador.
Master's Degree in Direction and Management of
Nursing Units.
gp.lopez@uta.edu.ec

ABSTRACT

Introduction: Frailty syndrome is a condition associated with growing old with high incidence in elderly people. Objective: To identify fragility syndrome in elderly people in the nursing home ''Sagrado Corazón de Jesús''. **Methods**: Descriptive, comparative, correlational and cross-sectional study. The total study population was 60 patients, the Fragility Tilburg Indicator (TFI) was used to measure total fragility, as well as each domain of fragility, including: physical fragility with 8 items, cognitive fragility with 4 items, and social fragility with 3 items. **Results**: Physical fragility has a mean of 2 points a maximum of 8 points with a mean of 6.8 points and a σ=1.55. Psychological fragility shows a minimum of 0 points a maximum of 4 points with a mean of 3.25 points and a σ=0.79. Social fragility shows a minimum of 0 points a maximum of 1 point with a mean of 0.9 points with a σ=3.0 points. **Conclusions**: Fragility is a complicated syndrome, which requires a special treatment because it is a frequent disorder in the elderly, so it is essential to perform a quick examination through the application of scales, in order to know the lifestyle, risk factors, and motor and mental skills that the elderly person has, so as to be able to interpret the management required by the patient.

Keywords: Fragility Syndrome; elderly people; Lifestyle.

RESUMO

Introdução: A síndrome da fragilidade é uma condição associada ao envelhecimento com alta incidência em idosos. **Objetivo**: Identificar a síndrome de fragilidade em idosos da casa de repouso "Sagrado Corazón de Jesús". **Métodos**: Estudo descritivo, transversal e correlacional. A população total do estudo foi de 60 pacientes, sendo aplicado o instrumento Frailty Tilburg Indicator (TFI) cuja utilidade permite mensurar a fragilidade total, bem como cada domínio da fragilidade, dentre os quais: fragilidade física com 8 itens, fragilidade cognitiva com 4 itens, e fragilidade social com 3 itens. **Resultados**: A fragilidade física tem média de 2 pontos, máximo de 8 pontos com média de 6,8 pontos e σ=1,55. A fragilidade psicológica apresenta mínimo de 0 pontos e máximo de 4 pontos com média de 3,25 pontos e σ=0,79. A fragilidade social apresenta mínimo de 0 pontos, máximo de 1 ponto com média de 0,9 pontos com σ=3,0 pontos. **Conclusões**: A fragilidade é uma síndrome complexa, que requer uma abordagem especial por se tratar de uma patologia frequente no idoso, para a qual é fundamental realizar um rastreio rápido através da aplicação de escalas, conhecer o estilo de vida, os fatores de risco e as habilidades motoras e mentais que o idoso possui para poder interpretar o manejo que o paciente requer.

Palabras clave: Síndrome da Fragilidade; Idosos; Estilo de vida.

RESUMEN

Introducción: El síndrome de fragilidad es una condición asociada al envejecimiento con alta incidencia en adultos mayores. **Objetivo:** Identificar el síndrome de fragilidad en adultos mayores del hogar de ancianos ´´Sagrado Corazón de Jesús''. **Métodos:** Estudio descriptivo, transversal y correlacional. La población total de estudio fueron 60 pacientes, el instrumento aplicado Frailty Tilburg Indicator (TFI) cuya utilidad permite medir la fragilidad total, así como cada domino de la fragilidad, dentro de los cuales se encuentra: la fragilidad física con 8 ítems, fragilidad cognitiva con 4 ítems, y fragilidad social con 3 ítems. **Resultados:** La fragilidad física tiene una media de 2 puntos un máximo de 8 puntos con una media de 6,8 puntos y una σ=1,55. La fragilidad psicológica muestra un mínimo de 0 puntos un máximo de 4 puntos con una media de 3,25 puntos y una σ=0,79. La fragilidad social muestra un mínimo de 0 puntos un máximo de 1 punto con una media de 0,9 puntos con una σ=3,0 puntos. **Conclusiones:** La fragilidad es un síndrome complejo, que requiere un especial abordaje en virtud de que es un trastorno frecuente en el adulto mayor, por lo cual resulta fundamental realizar un cribado rápido mediante la aplicación de escalas, para conocer el estilo de vida, los factores de riesgo, y las destrezas motoras y mentales que posee el adulto mayor para de esta manera poder interpretar el manejo que requiere el paciente.

Palavras-chave: Síndrome de Fragilidad; Adultos mayores; Estilo de vida.

INTRODUCTION

Fragility syndrome is a clinical condition associated with pathological aging and biological susceptibility with a higher frequency in older adults, including recurrent falls and injuries that are associated with a longer hospital stay and a certain degree of disability, hence its management by the nursing professional is aimed at improving the lifestyle of this age group (Del Val A. 2021).

The syndrome in question is defined by a progressive decline in the physical and mental functional capacity of the human being, in addition to the multiple comorbidities that tend to present this type of patients, polypharmacy, and the poor physiological performance related to aging (Chuquipoma, Ll. 2019).

The nursing professional actively participates in the life course of the human being, their functions acquire greater impact when the beneficiary group is the elderly, who usually require specific care to ensure their clinical and emotional stability, therefore, the knowledge in the nursing professional should be strengthened in the management of the elderly, This not only involves a theoretical-practical approach but also an empathy agreement between the patient and the caregiver, since one of the problems of high social impact in the elderly is neglect and depression, factors that affect cognitive and functional deterioration, therefore the professional accompaniment must ensure the continued biopsychosocial well-being of the elderly (Acosta & Lama Valdivia, 2021).

Geriatric syndromes are problems that cannot be easily classified within chronic diseases, Herrera D (2020) mentions that they affect almost exclusively people over 65 years of age, having a high prevalence in the different levels of care and are characterized by causing functional, psychological and/or social disability. These syndromes tend that the elderly usually present: weight loss, fatigue, weakness, low activity, limited mobility, loss of balance and difficulty in walking, up to a possible cognitive impairment.

According to Acosta A (2021) the pathophysiology is quite broad and involves several systems such as; neuroendocrine, immune and musculoskeletal, in this way there is a progressive metabolic deterioration, reducing the functional capacity of the organism which makes it difficult to perform activities of daily living, on top of this increases considerably the risk of falls, hospital stay, in this context, there is a progressive organic failure given by the natural history of some chronic diseases, thus for example: diabetes mellitus type 2, hypertension, obesity, COPD, arthritis, among others.

According to the World Health Organization (WHO), the prevalence of frailty syndrome in older adults ranges from 3 to 6% in the 65-70 age group and 16% in the over 80 age group. In Europe, the overall prevalence of the frailty syndrome is located among those over 65 years of age, ranging from 8.4% to 16.9% (Moya E. 2022).

Latin America and the Caribbean is no exception, the prevalence of frailty syndrome is 19.6%. The scenario becomes bleak when considering the economic and social backwardness in Latin America translated into poverty, increased social and economic inequalities and limited access to health care, in addition to the fact that there is poor information about the care that the older adult should have (Estrada O. 2018).

In Ecuador, population aging is alarming, the older adult becomes a vulnerable group with important health problems and significant changes in quality of life. According to the National Institute of Statistics and Census (INEC), in Ecuador 7% of the population are older adults, therefore, it is estimated that geriatric pathology and specifically the fragility syndrome reaches worrying figures (Becerra E. 2021).

The objective of this research is to identify the fragility syndrome in older adults of the nursing home ''Sagrado Corazón de Jesús'', based on the research line Nursing Care of the Adult and the Elderly of the Faculty of Health Sciences of the Technical University of Ambato.

METHODS

This is a transversal, descriptive and correlational descriptive study. The population consisted of elderly people from the "Sagrado Corazón de Jesús" home for the elderly in the city of Ambato, province Tungurahua, Ecuador. The sampling was non-probabilistic. The total sample was of 60 older adults, of which 51 participants were considered, who fulfilled the following conditions:

Inclusion requirements:

- Patients over 65 years of age who belong to the nursing home.
- Patients with preserved cognitive function, cognitive awareness.
- Patients who sign the informed consent form corresponding to the present research.

Exclusion requirements:

- Patients under 65 years of age belonging to the nursing home.

- Patients with cognitive impairment, unconscious.

- Patients with hearing and visual disabilities.

Data collection and measuring variables.

To obtain information corresponding to the fragility syndrome in the elderly, the Frailty Tilburg Indicator (TFI) instrument was used to measure total fragility, as well as each domain of fragility, including: physical fragility with 8 items, cognitive fragility with 4 items, and social fragility with 3 items. To obtain the total score of fragility in the patient surveyed, a summation of the questions asked is required. The evaluation range of the score obtained goes from 0 to 15, and from this it is inferred that the person is frail if he/she has a score greater than or equal to 5. Complementing what has already been mentioned, the instrument (TFI) measures the three types of frailty, and its application is simple, therefore, it is considered a tool with good psychometric properties (Jędrzejczyk et al., 2022).

In this context, Cronbach's alpha was also employed, since it allowed to evaluate the magnitude of the items of the (TFI), in other words it is a coefficient used to measure the reliability of a measurement scale or test (Zamora-Sánchez et al., 2022). The Fragility Tilburg Indicator (TFI) instrument in the present investigation shows a Cronbach's Alpha of 0.90 for the total score, in addition to a factor analysis of Kaiser Meyer-Olkin (KMO) Test for Sampling Adequacy = 0.843 and a p value < 0.005, therefore it is considered as a relevant, relevant, clear and useful scale to determine fragility in the age group of study (Ríos Barbosa et al., 2022).

Sociodemographic Characteristics

Certain variables were questioned, such as: sex, age, marital status, country, level of education, and monthly economic resources.

Health Characteristics

Consultation was made with respect to perception of health status and lifestyle, history of chronic diseases, as well as history of traffic accidents as a risk factor involving some degree of disability.

Data analysis

A statistics analysis was carried out using the SPSS 25 system, so that the variables age, as well as the domains of fragility, both physical, psychological and social, referring to the Fragility Tilburg Indicator (TFI), obtained a numerical value and it was possible to establish the standard deviation; The Frailty Tilburg Indicator (TFI) obtained a numerical value and the standard deviation could be established, by the way, it is a measure of data dispersion, so that the greater the dispersion, the greater the standard deviation, if there is no variation in the data, that is, if all were equal, the standard deviation would be equal to 0, it is characterized as a very useful tool in descriptive statistics. Also, as a statistical test, the variance was established, which is defined as the mean of the squares of the deviations from the mean, facilitating the understanding of the notion of data dispersion (Van der Ploeg & Gobbens, 2022).

In addition to the above, other statistical significance tests were used, such as the value, which is a test of association between variables; when the value is less than 0.05, we understand that there is a correlation between the variables under study. Since this is a correlational investigation, Spearman's Rho could not be missing, which is characterized as a correlation value, it analyzes the data, measures the strength and direction of the association between two classified variables, it can take a value between +1 and -1, in which +1 means a perfect rank association, 0 there is no rank association and -1 means a perfect negative association between the ranks (Gobbens et al., 2021).

Ethical considerations

They were provided with written informed consent, and their acceptance involved four intrinsic ethical aspects of this document, such as: providing the necessary information, that the information is understood, that those patients who are voluntarily able to do so participate, and that they have the cognitive and functional competence to participate. In addition, the present research was adjusted to the principles of the Declaration of Helsinki, which regulates research in biomedicine; it is an instrument that protects the human being who participates in research, so that respect for the rights, safety and well-being of the participants are respected, especially in potentially vulnerable groups; this ethical line followed the present work with the objective that ethical principles such as: autonomy, justice, harmlessness and beneficence prevail (Guerrero Castañeda et al., 2019).

RESULTS

In Table 1, It is observed that the minimum age is 66 years, the maximum is 99 years the mean is 81 years and σ= 8.11. The TFI test for recognition of fragility in the elderly shows a minimum of 6 points, demonstrating that all study subjects are considered fragile, the maximum is 13 points a mean 11 points and σ=1.97. Physical fragility has a mean of 2 points a maximum of 8 points with a mean of 6.8 points and a σ=1.55. Psychological fragility shows a minimum of 0 points a maximum of 4 points with a mean of 3.25 points and a σ=0.79. Social fragility shows a minimum of 0 points a maximum of 1 point with a mean of 0.9 points with a σ=3.0 points.

Table 1 Descriptive statistics

	N	Mín	Max	Average	Dev. SD(σ)	Variance
Age	51	66,00	99,00	81,117	8,11085	65,786
Fragility Tilburg Indicator (TFI)	51	6,00	13,00	11,000	1,96977	3,880
Physical Fragility	51	2,00	8,00	6,8431	1,55400	2,415
Psychological Fragility	51	,00	4,00	3,2549	,79607	,634
Social Fragility	51	,00	1,00	,9020	,30033	,090

Note. Data analyzed in SPSS 25, from a group of 51 older adults.

We grouped age into ranges (66-75 years, 76-85 years, 85-95 years, over 95 years) in order to have a clearer view of the study group. Fragility Tilburg Indicator (TFI) was normalized with a value of Kolgomorov Smirnov (Sig. 0.00), for which Spearman's nonparametric correlation test was applied, with regard to the correlation with the variable age without range. Table 2 shows that 100% of the study subjects are Ecuadorian 100% (N=51), 100% (N=51) have monthly economic resources and 100% (N=51) have not been widowed in the past year.

Table 2 Frequencies of sociodemographic characteristics of the study sample, correlations with TFI

		N	%	Rho de Spearman	Sig. (p- valor)
Gender	Male	22	43,1		
	Female	29	56,9	,043	,765
	Total	51	100		
Age	66-75 years	14	27,5		
	76-85 years	19	37,3		
	86-95 years	17	33,3	,456**	,001
	95 + years	1	2		
	Total	51	100		
Civil status	Single	6	11,8		
	Divorced	21	41,2		
	Widow	24	47,1	,157	,272
	Total	51	100,0		
Country	Ecuador	51	100,0	--	--
Education	No education or primary education	12	23,5		
	College education	29	56,9		
	University	10	19,6	,150	,293
	Total	51	100,0		
Monthly financial resources	Yes	51	100,0	---	----
Healthy lifestyle	Healthy	3	5,9		
	No Healthy	15	29,4		
	Intermediate	33	64,7	-,188	,186
	Total	51	100,0		
Chronical disease	Yes	37	72,5		
	No	14	27,5	,028	,848
	Total	51	100,0		
Widowness	No	51	100,0	--	---
Own disease	Yes	32	62,7		
	No	19	37,3	-,062	,664
	Total	51	100,0		
Partner´s disease	Yes	2	3,9		
	No	49	96,1	,338*	,015
	Total	51	100,0		
Divorced	Yes	1	2,0		
	No	50	98,0	-,059	,680
	Total	51	100,0		
Traffic accidents	Yes	1	2,0		
	No	50	98,0	,064	,655
	Total	51	100,0		
Crime	Yes	2	3,9		
	No	49	96,1	,338*	,015
	Total	51	100,0		
Satisfaction with the virtual environment	Yes	43	84,3		
	No	8	15,7	,549**	,000
	Total	51	100,0		

Note. Data analyzed in SPSS 25, from a group of 51 older adults. Correlation is significant at the 0.01 level (bilateral). Correlation is significant at the 0.05 level (bilateral).

In Table 2, 43.1%(N=22) men and 56.9%(N=29), for age there is no evidence of a correlation with fragility in older adults TFI (p-value>0.05), the correlation is strong with a Spearman's Rho 0.765. The population has an age range from 66 to 75 years 27.5% (N=14), from 76 to 85 years 37.3% (N=19), from 86 to 95 years 33.3% (N=17) and more than 95 years 2% (N=1), in addition there is evidence of a correlation between age and fragility in older adults TFI (p-value<0.01), the correlation is moderate with a Spearman's Rho 0.456.

Marital status shows that 11.8% are single (N=6), 41.2% divorced (N=21) and 47.1% widowed (N=24), there is no correlation between marital status and fragility in older adults TFI (p-value>0.05), the correlation is weak with a Spearman's Rho 0.272. Regarding the level of education, 23.5% (N=12) have no or primary education, 56.9% (N=29) have primary education, and 19.6% (N=10) have university education; similarly, there is no evidence of correlation between the level of education and fragility in older adults TFI (p-value>0.05), the correlation is weak with a Spearman's Rho 0.293.

Table 2 also shows that 5.9% (N=3) do have a healthy lifestyle, 29.4% (N=15) do not have a healthy lifestyle and 64.7% (N=33) have an intermediate level of healthy lifestyle, while there is no correlation between healthy lifestyle and fragility in older adults TFI (p-value>0.05), the correlation is negative and weak with a Spearman's Rho -0.188. The 72.5% (N=37) if they have chronic disease and 27.5% (N=14) do not have chronic diseases, similarly there is no correlation between chronic diseases and fragility in older adults TFI (p-value>0.05), the correlation is very strong with a Spearman's Rho 0.848.

Regarding the presence of own illness 62.7% (N=32) mention that, if they have presented illness in the past year, 37.3% (N=19) have not presented own illness, in addition there is no correlation between own illness and fragility in older adults TFI (p-value>0.05), the correlation is strong negative with a Spearman's Rho 0.664. Regarding the spouse's illness in the past year, 3.9% (N=2) had their spouse become ill and 96.1% (N=49) had not become ill. Similarly, there was a statistically significant correlation between the presence of the spouse's illness in the past year and fragility in older adults TFI (p-value>0.05), the correlation is moderate with a Spearman's Rho 0.338.

Regarding divorce in the past year, 2% (N=1) have divorced and 98% (N=50) have not divorced, similarly there is no statistically significant correlation between divorce in the past year and fragility in older adults TFI (p-value>0.05), the correlation is very weak negative with a Spearman's Rho -0.059. On the presence of traffic accidents in the past year the study subjects show that 2% (N=1) have had accidents and 98% (N=50) have not had traffic accidents, similarly there is no statistically significant correlation between traffic accidents in the past year and fragility in older adults TFI (p-value>0.05), the correlation is very weak with a Spearman's Rho 0.064.

In Table 2, on the presence of crime in the past year, 3.9% (N=43) mention that if it has happened to them, and 96.1% (N=49) have not presented crime, at the same time it is evident that if there is a statistically significant correlation between whether they have been victims of crime in the past year and fragility in older adults TFI (p-value<0.05), the correlation is very weak with a Spearman's Rho 0.015. The satisfaction with the virtual environment shows that 84.3% (N= 43) have satisfaction with the virtual environment and 15.7% (N=8) have no satisfaction, in addition there is a statistically significant correlation between satisfaction with the virtual environment and fragility in older adults TFI (p-value<0.01), the correlation is moderate with a Spearman's Rho 0.549.

DISCUSSION

As increasing age is an evolutionary stage of the human being, with specific characteristics, where the organism has a different functioning and its health conditions are modified, it is necessary to know the reality of the local environment, as in the present study, in which we seek to identify if there is fragility in the elderly belonging to the Nursing Home, and from this perspective to weigh risk factors, psychological, physical and social fragility, in order to improve health care to this vulnerable group, and in this sense contribute to the improvement of the life style.

In the first instance age plays a preponderant role in the fragility syndrome, since the concept of aging, gives rise to a progressive decline in physiology at the level of the entire organic economy and not only that, it is also the result of intrinsic tissue damage as such, from this point of view the average age of the elderly in this study is 81.117 years, they have an average total fragility of 11, really disturbing data, and even data much higher than the study posed by Araya et al. (2018) by reporting a lower fragility (mean of 7.14) in correspondence to an age of 73.31 years, presenting less loss of one or several domains of functioning. Other results are those of Tanabe et al. (2022) in finding a mean of 59.5 fragility in older adults in relation to an age of 71 years, it is clear that this value takes into account a broader study population, therefore, the mean of fragility is high with a lower age than the one related to the current study.

Also according to Araya et al. (2012) reports that older adults with an average age of 72.7 years, a lower age range in relation to the current investigation have a high mean of fragility, which is consistent with the results of this study, however, Araya et al. (2018), show a mean of fragility corresponding to 93.6, interpreting it as a multidimensional fragility, that is, at the physical, psychological and social level. Results that call attention, since if there is affectation in the social domain it is evident that it is directly related to the little or scarce health care provided to that group of elderly adults, which increases the fragility

indicators.

Considering the domains that make up the Fragility Tilburg Indicator (TFI), and according to the results obtained, it was established that older adults with physical fragility showed an average of 2 points, those with psychological fragility an average of 3.25 points and social fragility an average of 0.9 points. However, the results obtained disagree in relation to the study by Araya et al. (2018) who report a mean of 4.029 for physical fragility, mean of 2.057 for psychological fragility and a mean of 1.086 for social fragility, differences that could be linked to the implementation of activities developed in favor of the well-being of the older adult, in addition to a multidisciplinary management according to the needs and demands represented by the care of the older adult.

In the same way, a study by Bonikowska et al. (2022), in patients with an average age of 70.25 years belonging to a primary health care center in Poland, determined an average of 3.68 in the physical domain, 2.09 in the psychological domain and 1.19 in the social domain, values higher than those obtained in the current research, possibly due to the presence of chronic non-communicable diseases such as: diabetes, treatments with oral antidiabetic drugs, overweight, first degree obesity, arterial hypertension and renal diseases.

Concerning the correlations, it is appreciated that fragility is not related to sex by obtaining a p= ,765, in such a way that it can occur in both male or female sex, while with age if significantly statistical association p= ,001 is observed, on the other hand, according to Araya (2018) who when analyzing fragility in the elderly based on their health conditions, reports that there is no correlation with sex or age, but there is a relationship of fragility with comorbidity or underlying pathology which differentiates it from the current study, due to the fact that pathologies with high pathophysiological impact are involved and attract dire consequences such as: diabetes mellitus and arterial hypertension.

In addition, no relationship was found between marital status and frailty (p= ,272), similar to the study by Bermeo (2020), which found no significant association (p=0.36). Having or not a partner does not represent a risk factor for fragility; however, it should be clarified that this will depend individually on the elderly, analyzing previous depressive events, or some other neuropsychological disorder, which was not considered in this study. In this study, however, there is no correlation between the spouse's illnesses and fragility (p= 0.15), although it is established that it could possibly cause physical and emotional strain on the couple, due to the fact of caring for and providing constant attention to the spouse in case of need, which is a strenuous activity. In a similar way, crime presents correlation with fragility (p.=0.015), a fact that could be associated with the health situation to which they are exposed, due to the poor quality of care, problems in detecting mental illnesses, and other factors such as overcrowding conditions, and prison systems that do not favor the administrative actions of service providers (Pinzón & Meza, 2018).

Finally, the current study evidenced correlation between satisfaction with the virtual environment with fragility (p=0.000), possibly because it has become a means for social interaction, as Chen (2020) exposes, social activity is reduced with the passing of time and it is more rewarding the quality than the quantity, it is important to consider this point by virtue of the fact that the very essence of the human being is the relationship with the environment, It is important to consider this point because the very essence of the human being is to feel part of a place, so social interaction plays a fundamental role, even more in elderly patients who do not have the physical or mental ability to perform complex activities, however, the accompaniment and family support is essential, since the frequent decline tends to be psychological, and is manifested with depressive symptoms or bipolar disorders.

CONCLUSIONS

The elderly of the "Sacred Heart of Jesus" are considered fragile at a general level, i.e., in physical, psychological and social fragility, indicating that there are losses in some domains of human functioning, increasing the risk of adverse outcomes. Consequently, a correlational analysis was necessary to search for factors associated with fragility in this population segment, finding that age ranges, chronic underlying pathologies, partner's illness, crime and satisfaction with the virtual environment are related. Data that can contribute to the establishment of intervention proposals that contribute to the prevention and reduction of the fragility syndrome in the elderly.

Fragility is a complex syndrome, which requires a special approach because it is a frequent disorder in the elderly, so it is essential to perform a quick screening through the application of scales, to know the lifestyle, risk factors, and motor and mental skills that the elderly have, in order to understand the management required by the patient, in other words, to know their needs and include potentialities and skills to know how to solve what involves the care of the elderly. The multidisciplinary intervention, focused on each function performed by health professionals, will allow not only to improve the morbidity and mortality statistics of the elderly, but also to provide community and family resources aimed at identifying situations that put at risk the life and physical and mental integrity of the elderly or, failing that, to educate about the special care that this population group requires.

REFERENCES

Acosta E, Lama J, García F, Cruz J. (2021). Síndrome de fragilidad en adultos mayores de una comunidad rural de los andes peruanos. Revista de la Facultad de Medicina Humana. 21(2): 309 - 15. http://www.scielo.org.pe/pdf/rfmh/v21n2/2308-0531-rfmh-21-02-309.pdf

Araya, A., Herrera, M., Iriarte, E., & Rioja, R. (2018). Evaluación de la funcionalidad y fragilidad de las personas mayores asistentes a centros de día. Revista Médica de Chile, 146(8), 864–871. https://doi.org/10.4067/S0034-98872018000800864

Araya, A., Iriarte, E., & Padilla, O. (2012). Reconocimiento de la fragilidad en personas mayores que viven en la comunidad: un desafío pendiente. BMC Public Health, 12(1). https://doi.org/10.1186/1471-2458-12-69

Becerra E, Patraca A. (2021). Prevalencia de síndrome de fragilidad en adultos mayores de 70 años en Primer Nivel de Atención. Revista CONAMED. 26(1): 42-7. Disponible en: https://www.medigraphic.com/pdfs/conamed/con-2021/con211e.pdf

Bermeo, E. (2020). Prevalencia del síndrome de fragilidad y su relación con enfermedades crónicas osteomusculares en adultos mayores del CRIE del IESS-Azogues. Noviembre 2019-Julio 2020 [Universidad Católica de Cuenca]. https://dspace.ucacue.edu.ec/bitstream/ucacue/8427/1/9BT2020-MTI065-Bermeo%20Bernal%20Erika%20Alexandra.pdf

Bonikowska, I., Szwamel, K., & Uchmanowicz, I. (2022). Adherence to Medication in Older Adults with Type 2 Diabetes Living in Lubuskie Voivodeship in Poland: Association with Frailty Syndrome. Journal of Clinical Medicine, 11(6), 1707. https://doi.org/10.3390/JCM11061707

Chen, R. (2020). Estrategias de afrontamiento del estrés en cuidadores de adultos mayores de casas hogar de la ciudad de Panamá. Conducta Científica, 3(2). http://revistas.ulatina.edu.pa/index.php/conductacientifica/article/view/146/153

Chuquipoma Ll., Llama J., De la Cruz J. (2019). Factores asociados al síndrome de fragilidad en adultos mayores que acuden a consulta externa de Geriatría del Hospital Nacional Hipólito Unanue, Lima – Perú. Acta Médica Peruana, 36(4): 67 – 273. http://www.scielo.org.pe/pdf/amp/v36n4/a04v36n4.pdf

Del Val A. (2021). El confinamiento por COVID-19 podría aumentar el riesgo de síndrome de fragilidad en adultos mayores. Revista del Cuerpo Médico Hospital Nacional Almanzor Aguina Asenjo, 14(1), 1192. https://doi.org/10.35434/rcmhnaaa.2021.14Sup1.1192

Estrada O, Salcedo A, Alba J. (2018). Síndrome de fragilidad en el Sistema Universitario del Adulto Mayor. 5(2): 92-7. Disponible en: https://www.medigraphic.com/pdfs/saljalisco/sj-2018/sj182d.pdf

Gobbens, R. J. J., van Assen, M. A. L. M., Augustijn, H., Goumans, M., & van der Ploeg, T. (2021). Prediction of Mortality by the Tilburg Frailty Indicator (TFI). Journal of the American Medical Directors Association, 22(3). https://doi.org/10.1016/j.jamda.2020.07.033

Guerrero Castañeda, R. F., de Oliva Menezes, T. M., Lenise do Prado, M., & Galindo Soto, J. A. (2019). Espiritualidad y religiosidad para la trascendencia del ser anciano. Rev Bras Enferm, 72(2).

Herrera D, Soriano A, Rodrigo P, Toro C. (2020) Prevalencia del síndrome de fragilidad y factores asociados en adultos mayores. Revista Cubana de Medicina General Integral. 36(2). http://www.revmgi.sld.cu/index.php/mgi/article/view/1098/338

Jędrzejczyk, M., Foryś, W., Czapla, M., & Uchmanowicz, I. (2022). Relationship between Multimorbidity and Disability in Elderly Patients with Coexisting Frailty Syndrome. International Journal of Environmental Research and Public Health, 19(6). https://doi.org/10.3390/ijerph19063461

Moya E, Herrera J. (2022). Perfil epidemiológico del síndrome de fragilidad en adultos mayores. Enfermería Investiga. 7(2): 34. https://revistas.uta.edu.ec/erevista/index.php/enfi/article/view/1611/1401

Pinzón, O., & Meza, S. (2018). Prestación de Servicios de Salud de las Personas Privadas de la Libertad. Archivos de Medicina, 14(2). https://doi.org/10.3823/1388

Ríos Barbosa, F., Gutiérrez Londoño, F., Ospina Gómez, S., Solano González, J. S., & Rodrigo Bastidas, A. (2022). Biomarcadores en paciente frágil: una revisión exploratoria. Gaceta Médica de Caracas, 130(1). https://doi.org/10.47307/gmc.2022.130.1.14

Tanabe, F. M., Zanei, S. S. V., & Whitaker, I. Y. (2022). Do frail elderly people affect the nursing workload in intensive care units? Revista Da Escola de Enfermagem Da U S P, 56, e20210599. https://doi.org/10.1590/1980-220X-REEUSP-2021-0599EN

Van der Ploeg, T., & Gobbens, R. (2022). A Comparison of Different Modeling Techniques in Predicting Mortality With the Tilburg Frailty Indicator: Longitudinal Study. JMIR Medical Informatics, 10(3). https://doi.org/10.2196/31480

Zamora-Sánchez, J. J., Urpí-Fernández, A. M., Sastre-Rus, M., Lumillo-Gutiérrez, I., Gea-Caballero, V., Jodar-Fernández, L., Julián-Rochina, I., & Zabaleta-del-Olmo, E. (2022). The Tilburg Frailty Indicator: A psychometric systematic review. In Ageing Research Reviews (Vol. 76). https://doi.org/10.1016/j.arr.2022.101588

Contribution of each author to the manuscript:

Task	% of contribution of each author	
	A1	A2
A. theoretical and conceptual foundations and problematization:	50%	50%
B. data research and statistical analysis:	40%	60%
C. elaboration of figures and tables:	50%	50%
D. drafting, reviewing and writing of the text:	60%	40%
E. selection of bibliographical references	50%	50%
F. Other (please indicate)	50%	50%