

# STRUCTURAL EQUATION MODEL TO PREDICT WELL-BEING AND FUNCTIONAL DEPENDENCE IN OLDER ADULTS

<sup>1</sup>ANDREA DAMARIS HERNÁNDEZ ALLAUCA, <sup>2</sup>TACO HERNÁNDEZ PAMELA ROSA, <sup>3</sup>JOSÉ LUIS TINAJERO LEÓN, <sup>4</sup>ANGEL PATRICIO MENA REINOSO

<sup>1</sup>Docente Investigador Escuela Superior Politécnica de Chimborazo- Grupo de Investigación y Transferencia de Tecnologías en Recursos Hídricos (GITRH) y Grupo de Investigación en Turismo (GITUR).

[andrea.hernandez@esPOCH.edu.ec](mailto:andrea.hernandez@esPOCH.edu.ec)

<sup>2</sup>Ingeniera Civil, Maestría en Ingeniería Civil con mención en Gestión de la Construcción (c),

[rosapamelatacohernandez@gmail.com](mailto:rosapamelatacohernandez@gmail.com)

<sup>3</sup>Escuela Superior Politécnica de Chimborazo (ESPOCH)  
Facultad de informática y electrónica

[joseluis.tinajero@esPOCH.edu.ec](mailto:joseluis.tinajero@esPOCH.edu.ec)

<sup>4</sup>Escuela Superior Politécnica de Chimborazo (ESPOCH); Facultad de Informática y Electrónica  
[angel.mena@esPOCH.edu.ec](mailto:angel.mena@esPOCH.edu.ec)

## Summary

To develop this article, a documentary review of the elaboration and production of research works related to the study of the Model of Structural Equations that allows predicting the Well-being and Functional Dependence in Older Adults in order to know through a bibliometric study the main characteristics of 35 publications registered in Scopus database during the period 2018-2022. The results of this database were organized in graphs and figures categorizing the information by variables such as Year of Publication, Country of Origin and Area of Knowledge which allowed to identify through a qualitative analysis, the position of different authors against the proposed theme.

The main findings found through the present research was that the United Kingdom and the United States stood out for having the highest scientific production, leading the list with 10 publications each. Likewise, the Area of Knowledge that made the greatest contribution to the construction of bibliographic material related to the study of the variables was psychology with 17 published documents.

**Key Words:** Structural Equation Models, Prediction, Well-being, Dependency, Older Adults.

## 1. Production

We are often exposed to studies, surveys or research that seek to respond to some concerns that affect the population in general in order to facilitate decision-making or provide better alternatives for the treatment of these problems. Although in most cases we do not know its real name, we are faced with Structural Equation Models that are defined as "A multivariate statistical technique that, making use of multiple regression and factor analysis, aims to validate causal relationships between variables, whether observed or not. (Labraca Churches, 2021)". Their relevance has emerged from the effectiveness they have been able to demonstrate since their creation in the collection of data from various variables related to a particular theme.

In the case of older adults called "subjects of law and special constitutional protection, socially active, with guarantees and responsibilities with respect to themselves, their family, their society, their immediate environment and future generations" (Ministry of Health and Social Protection., n.d.) it is necessary to find out the causes that gradually afflict their free movement and independence, generating in them decay and in many cases the acquisition of negative health conditions that They may even end up in chronic illnesses that totally affect the lives of these people. As also stated by the Ministry of Health and Social Protection:

People age in multiple ways depending on the experiences, crucial events and transitions faced during their life courses, that is, it involves processes of development and deterioration. Generally, an older person is a person 60 years of age or older. (Ministry of Health and Social Protection., n.d.)

That is why, this research article seeks to describe the main characteristics of the set of publications attached to the Scopus database and that are directly related to the aforementioned variables, as well as the description of the position of certain authors affiliated with institutions around the world, during the period between 2018 and 2022.

## 2. General objective

Analyze from a bibliometric and bibliographic perspective, the elaboration of works on the variable s Model of Structural Equations to Predict the Well-being and la Functional Dependence inOlder Adults during the period 2018-2022.

## 3. Methodology

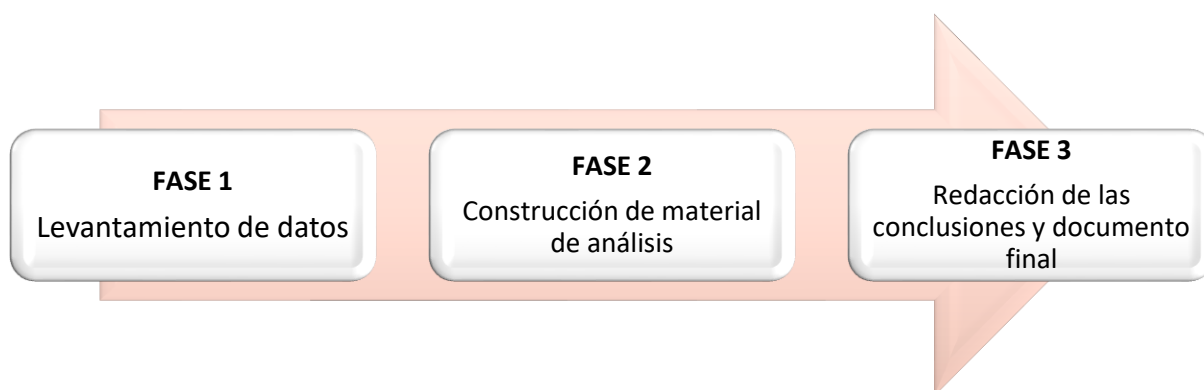
This article is carried out through a research with mixed orientation that combines the quantitative and qualitative method.

On the one hand, a quantitative analysis of the information selected in Scopus is carried out under a bibliometric approach of the scientific production corresponding to the study ofthe Model of Structural Equations to Predict Well-being and FunctionalDependence inOlder Adults.

On the other hand, it is analyzedfrom a qualitative perspective, examples of some research works published in the area of study indicated above, starting from a bibliographic approach that allows describing the position of different authors against the proposed topic.

It is important to note that all thesearch was carried out through Scopus, managing to establish the parameters referenced in *Figure 1*.

### 3.1 Methodological design



**Figure 1. Methodological design**  
Source: Authors.

#### 3.1.1 Phase 1: Data collection

The data collection was executed from the Search tool on the Scopus website, where 35 publications were obtained from the choice of the following filters:

structural AND equations AND model AND predicting AND well-being AND functional AND dependency AND in AND elderly AND adults AND ( LIMIT-TO ( PUBYEAR , 2022 ) OR LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR LIMIT-TO ( PUBYEAR , 2018 ) )

- Published documents whose study variables are related to the study of the Model de Structural Equations to Predict Well-being and Functional Dependence in Older Adults.
- Limited to the years 2018-2022.
- No limit of countries.
- No limit in areas of knowledge.
- Without distinction of type of publication.

### 3.1.2 Phase 2: Construction of analytical material

The information collected in Scopus during the previous phase is organized to later be classified by graphs, figures and tables as follows:

- Co-occurrence of Words.
- Year of publication.
- Country of origin of the publication.
- Area of knowledge.
- Type of Publication.

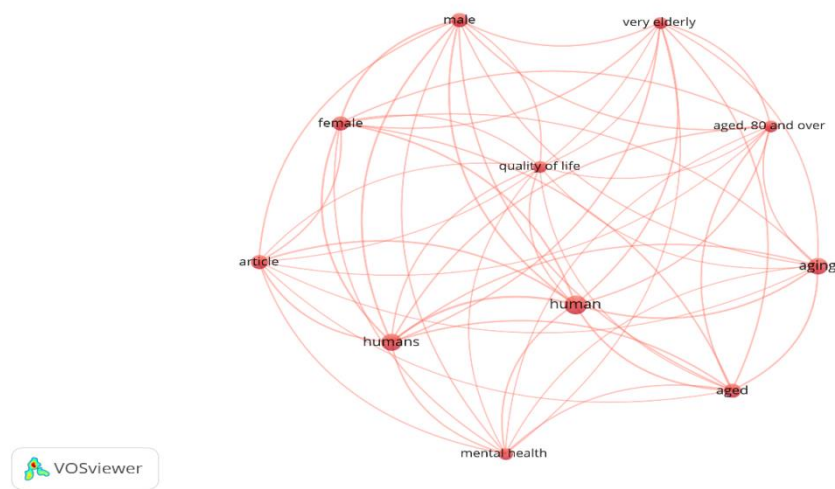
### 3.1.3 Phase 3: Drafting of conclusions and outcome document

In this phase, we proceed with the analysis of the results previously yielded resulting in the determination of conclusions and, therefore, the obtaining of the final document.

## 4. Resultados

### 4.1 Co-occurrence of words

Figure 2 shows the Co-occurrence of keywords found in the publications identified in the Scopus database.



**Figure 2.** Co-occurrence of words

Source: Authors. (2023); based on data exported from Scopus.

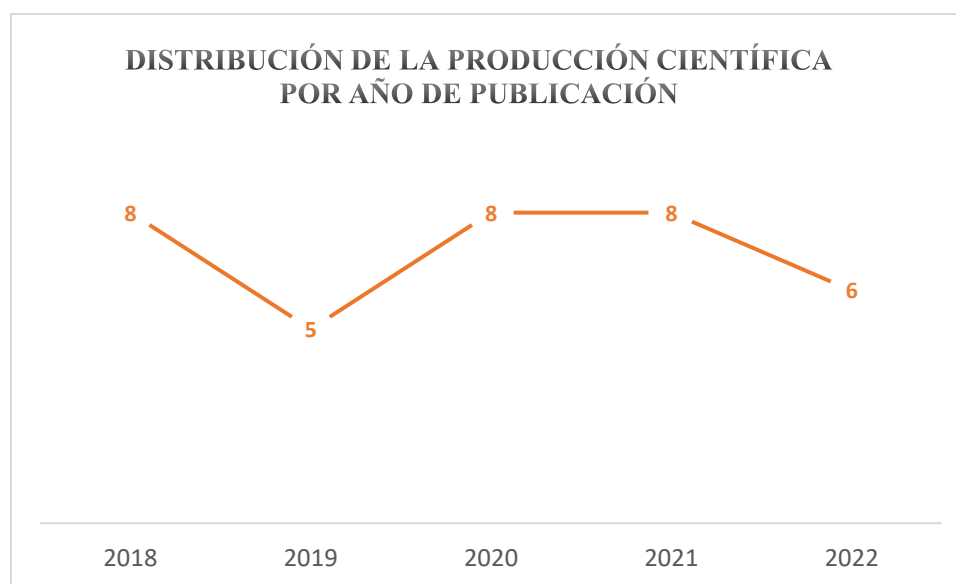
The data in Figure 2, exported from Scopus, shows us our variables and their relationship with other terms which we will explain below.

Human beings have a life cycle that with the passage of time leads us to age and with it certain special conditions are acquired that mostly depend on external factors such as sex, age, quality of life, level of education, among others so it is not possible to generalize taking into account only the status of older adult.

In the same way that the mobility and independence of an adult can be affected by their particular condition, their mental health can also suffer deterioration that could culminate in illnesses with strong diagnoses that would make them completely dependent on a caregiver or third party in charge for being a patient who requires special care.

#### 4.2 Distribution of scientific output by year of publication

Figure 3 shows how the scientific production is distributed according to the year of publication.



**Figure 3.** Distribution of scientific production by year of publication.

**Source:** Authors. (2023); based on data exported from Scopus

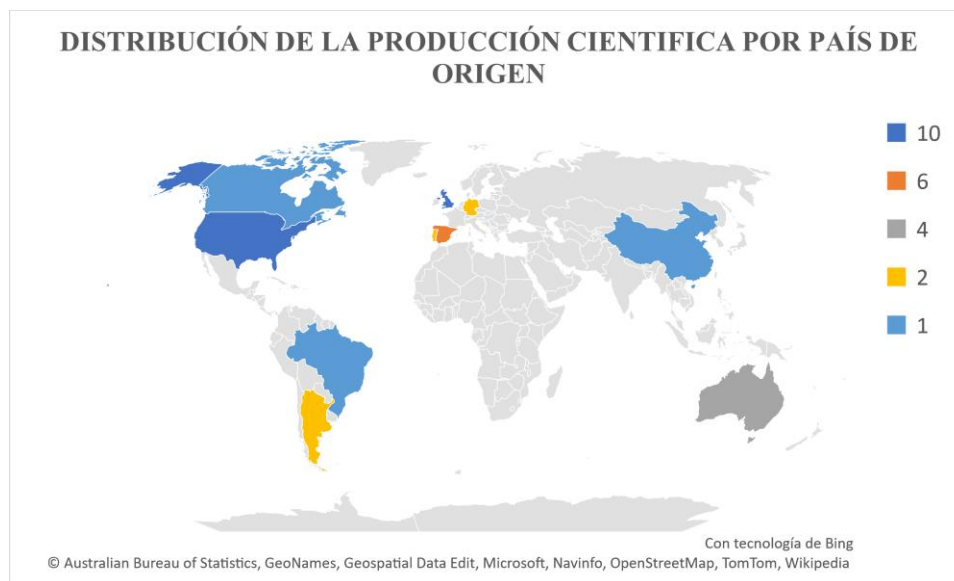
In figure 3 we find the scientific production concerning the variables Model of Structural Equations to Predict Well-being and Functional Dependence in Older Adults in the period between 2018 and 2022, which resulted in the publication of 35 documents, in the Scopus database, containing the keywords. Likewise, it is evident that throughout the period some changes were experienced. We started with the year 2018 with 8 documents, a number that varies during the following years. During 2019, 5 texts were published, while in 2020 it reached 8 publications, a figure that was also maintained in 2021. The following year the number of publications again decreases, reaching 6 documents throughout the year.

From the year 2021, the article "Health conditions associated with disability in older adults of a physical activity program" stands out, (Buriticá, Hernández, Jaramillo, Ramírez, & Soto, 2021) which seeks to "end the chronic health conditions associated with the development of disability in older adults in the city of Santiago de Cali, Colombia" (Buriticá, Hernández, Jaramillo, Ramírez, & Soto, 2021) through a study where 322 older adults were selected to carry out the survey "Health, Well-being and Aging Colombia, section 8, and the WHODAS 2.0 tool, version 36 items" (Buriticá, Hernández, Jaramillo, Ramírez, & Soto, 2021) through which it was determined that mobility was the disability with the greatest impact on this population, as well as blood pressure

the most repeated disease, among others. Concluding that "the most complex activities of daily living are the first to present difficulty". (Buriticá, Hernández, Jaramillo, Ramírez, & Soto, 2021)

#### 4.3 Distribution of scientific production by country of origin.

Figure 4 shows how scientific production is distributed according to the nationality of the authors.



**Figure 4.** *Distribution of scientific production by country of origin.*

Source: Authors. (2023); based on data provided by Scopus.

In the study of the Model of Structural Equations to Predict Well-being and Functional Dependence in Older Adults, the United Kingdom and the United States lead the list of documents published with a total of 10 records in the Scopus database during the period of the years 2018-2022, followed by Spain and Australia with 6 and 4 texts each.

The article "Prediction of life satisfaction in elderly Spanish adults attending university educational programs" (Galiana, Gutiérrez, Oliver, Sancho, & Tomás, 2020) raises the need to present a new model of study of the well-being of older adults based on "the predictive power of spirituality on life satisfaction, while controlling the main components of successful aging" (Galiana, Gutiérrez, Oliver, Sancho, & Tomás, 2020). For this, 1016 adults aged 55 years or older were selected with whom "a structural model with latent variables using Mplus was specified and estimated", (Galiana, Gutiérrez, Oliver, Sancho, & Tomás, 2020) demonstrating that although conventional variables are successful, spirituality is also relevant to determine the well-being of older adults. "The main conclusion is that the most powerful predictor of life satisfaction is the social component, although spirituality also plays an important role as an additional dimension in the paradigm of successful aging." (Galiana, Gutiérrez, Oliver, Sancho, & Tomás, 2020)

At this point, it is important to note that the preparation of scientific publications in many cases is carried out from collaborations that may involve private and / or public institutions from one or several countries. Therefore, the same publication can be linked to one or more authors with different nationality and thus to more than one country simultaneously, being part of the total number of articles or publications of each of them in the final sum. They will then see, in Figure 5, in greater detail the flow of collaborative work by several countries.



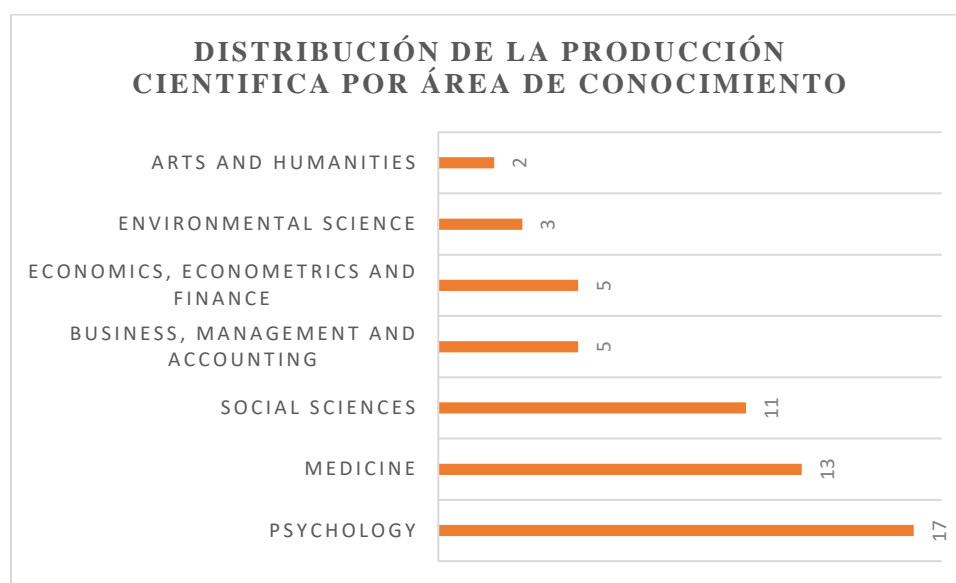
**Figure 5.** Co-citations between countries.

Source: Authors. (2023); based on data provided by Scopus.

Figure 5 shows the grouping of research according to the collaboration between authors belonging to various international institutions. There is evidence of outstanding participation among authors affiliated with institutions in the United Kingdom, the United States and Spain.

#### 4.4 Distribution of scientific production by area of knowledge

Figure 6 shows the distribution of the elaboration of scientific publications from the area of knowledge through which the different research methodologies are implemented.



**Figure 6.** Distribution of scientific production by area of knowledge.

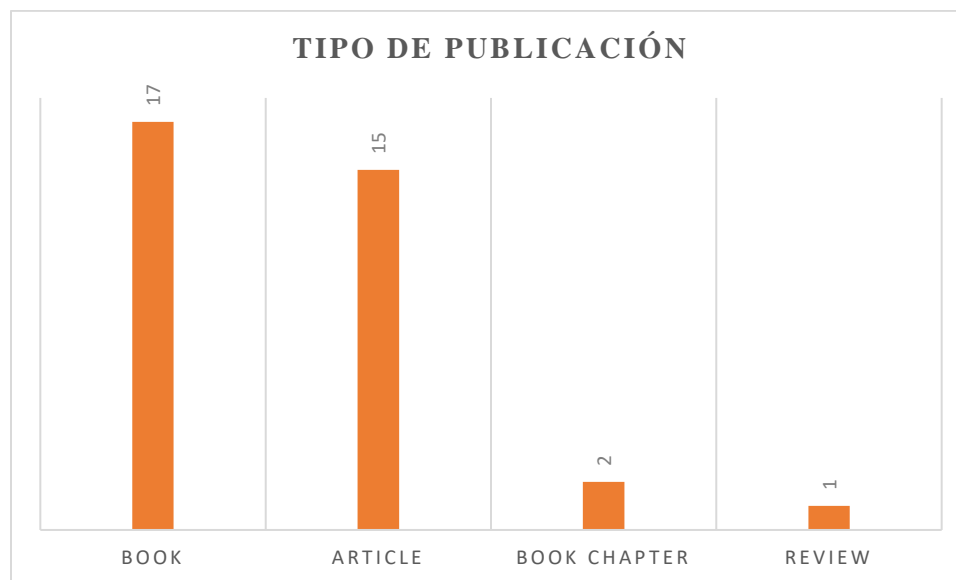
Source: Authors. (2023); based on data provided by Scopus.

Due to the nature of our variables and the repercussions they can generate in an entire community, it is not surprising that most of the publications found in the Scopus database, on these are made from psychology occupying the main position in the publication of documents. Other areas such as medicine and social sciences have contributed to the study of these variables, publishing 13 and 11 papers respectively.

As we can see in Figure 6, the variables object of this study are relevant in various areas of knowledge, since they can be analyzed from the different approaches that emphasize knowing the factors that influence the well-being and degrees of dependence reached by older adults.

#### 4.5 Type of publication

In the following graph, you will observe the distribution of the bibliographic finding according to the type of publication made by each of the authors found in Scopus.



**Figure 7.** Type of publication.

Source: Authors. (2023); based on data provided by Scopus.

Figure 7 clearly shows that the predominant type of publication in the study of the Model of Structural Equations to Predict Well-being and Functional Dependence in Older Adults was the book with a total of 17 documents. In second place, the journal article is located with 15 documents followed by the book chapters with 2 publications.

Although, the book achieved more publications, it was found greater relationship with the topics developed in the journal articles, especially in the one entitled "Depressive symptoms and overload in family caregivers in Alzheimer's disease: a model of structural equations" (Conde-Sala, Gascón-Bayarri, Reñé-Ramírez, Turró-Garriga, & Viñas-Díez, 2019) where the authors are interested in determining the state in which the caregivers or people in charge of patients with Alzheimer's disease, emphasizing above all in the depressive pictures presented by caregivers even when "the relationship between the two is not clearly defined". (Conde-Sala, Gascón-Bayarri, Reñé-Ramírez, Turró-Garriga, & Viñas-Díez, 2019) That is why he sought "to explain the factors associated with the symptoms and depressive overload in the main caregiver and apply a model of structural equations to identify the relationship between them. Subjects and methods" by (Conde-Sala, Gascón-Bayarri, Reñé-Ramírez, Turró-Garriga, & Viñas-Díez, 2019) performing "multivariate regression analysis to identify the characteristics of patients and caregivers associated with the burden and depression of the main caregiver, and a structural equation model was designed to analyze the relationship between the variables" managing to prove that " (Conde-Sala, Gascón-Bayarri, Reñé-Ramírez, Turró-Garriga, & Viñas-Díez, 2019) Overload had a direct effect on depression, both at baseline and at 24 months." (Conde-Sala, Gascón-Bayarri, Reñé-Ramírez, Turró-Garriga, & Viñas-Díez, 2019)

#### 5. Conclusions

From the bibliometric analysis carried out in the present research work, it was established that the United Kingdom and the United States, was the country with the highest number of records published for the variables Model of Structural Equations to Predict Well-being and Functional



Dependence in Older Adults with a total of 10 publications, each, in Scopus database during the period 2018-2022 and that the area of knowledge with the greatest contribution was psychology with a total of 17 texts.

Although finding information directly related to the variables was not very simple, since although there were issues concerning older adults, not all of them referred to the use of this type of techniques that contribute to the prediction of their well-being and functional dependence on them. However, we can determine that the Equation Models have managed to make a great contribution in the information collected regarding older adults, taking into account that fundamental variables have been added to guarantee successful aging.

Such is the case of the United Kingdom and the United States, the two leading countries in this type of research where their population of older adults is still considered important for society and regardless of their situation they have the opportunity to continue exercising some paid work allowing the maintenance of their quality of life and the use of their faculties, which facilitates greater physical and mental activity contributing to the preservation of all their faculties for longer.

On the contrary, Latin America has very little participation there is very little information in the study of this issue so it is not surprising to observe a greater number of inactive older adults and dependent on third parties, including the government thanks to the precarious conditions in which they developed their lives. For this reason and in order to continue generating awareness of the importance of guaranteeing access to this type of information in a transparent way by anyone, we hope to promote with this article the participation of scientific communities in the study of these variables from any scientific profile and area of knowledge. always seeking to provide more alternatives that contribute to the research of topics of general interest.

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