Original Article

# Bibliometric Profile of the World Scientific Production on Thanatology in Nursing: Visibility, Impact, and Alternative Metrics

**Fran Espinoza-Carhuancho[1], John Barja-Ore[2], Frank Mayta-Tovalino[3]**

[1]School of Nursing, Universidad Científica del Sur, Lima, Peru, [2]Dirección de Investigación, Universidad Privada del Norte, Lima, Peru, [3]CHANGE Research Working Group, Faculty of Health Sciences Universidad Científica del Sur, Lima, Peru

## Abstract

**Objective:** We will analyze the bibliometric metrics of the global scientific production in thanatology for nursing care. **Methods**: A cross-sectional and retrospective study with a bibliometric approach evaluated publications indexed in Scopus from 2017 to 2022. MESH terms were selected, and together with the Boolean operators AND OR a search strategy was developed and applied on December 20, 2022. We also analyzed the metadata of the publications included in the study using Elsevier's Scival program. **Results**: Scientific production has increased from 29 in 2017 to 48 in 2022. Most of the articles analyzed had national cooperation (45.2%) and single authorship was presented in a lower proportion (9.6%). The United States (55) is the country with the most publications; in addition, South Korea had the lowest production (10) and lowest weighted impact (FWCI: 0.35). The articles are mainly published in first-quartile journals, such as the Journal of Pain and Symptom Management. The University of Toronto has 71% more citations than expected. Lester David and Dadfar Mahboubeh lead the subject with four published articles each. **Conclusion**: Thanatology in the field of nursing is a topic that has increased in recent years, and its main means of dissemination are the scientific journals of the Q1 and Q2 quartile. The leading country in this area was the United States, while Brazil was the only Latin American country with institutions among the most productive.

**Keywords:** Bibliometric, nursing, thanatology

## Introduction

Death is a natural part of the life cycle, but it can also have profound psychological and physical effects on both the person who has passed away and their loved ones, including healthcare professionals.[1] Behaviors in the face of death are diverse, and people form attitudes towards death as subjects perceive and undergo it. In the case of death, we can speculate on the difference in attitudes because of the sophistication of the phenomenon and the peculiarities of human disposition.[2]

Conceiving at the time of death is a cognitive factor in a person's life and helps to become aware of the encounter with reality. Concern about death is a multidimensional concept with cognitive, psychological, and empirical characteristics.[3] Fear has different denominations. They are mostly found in the biological behavior of man and relate to the unconscious struggle of a living being. Therefore, proactive and passive attitudes are intrinsically rare.[4]

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The death of a patient and impending bereavement can alter the emotional state of healthcare personnel. They may experience grief, fear, disappointment, and frustration. Caring for a dying patient can be an emotionally draining and painful task. Knowledge of the dying process and how to cope with it is widespread and especially important for medical professionals. As part of their daily routine, nurses' emotional coping skills have a direct and great impact on the quality of care and dying.[5]

Nurses are exposed to high levels of stress as they become emotionally involved in the problems faced by their patients.

**Address for correspondence:** Dr. Frank Mayta-Tovalino, Postgraduate Department, Universidad Científica del Sur, Lima, Peru, C. Cantuarias 385, Miraflores 15074, Peru.
E-mail: fmaytat@cientifica.edu.pe

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Nurses often establish emotional and psychological relationships. As a result, work stress has a negative impact, causing professional burnout.[6]

Likewise, fear of death is also linked to the development of psychological disturbances.[7] Some studies have shown that nurses may have a greater fear of dying than other health science professionals as they are more exposed and may be more susceptible to these emotional effects.[8,9] As a result, nurses may turn to various alternatives to shield themselves from overwhelming emotions, such as denial. Nursing is among the most stressful professions, with multiple contributing factors, including the patient's health and the immense responsibility for their wellbeing and potentially life-saving decisions.[10]

Bibliometrics allows the analysis of scientific publications through different metrics, so it is considered a fundamental tool in research management,[11] since it favors the understanding of the impact or influence that a manuscript has with respect to others. Bibliometrics is a rapidly growing field in academia and science, but it is challenging to determine the precise number of bibliometric studies in health sciences due to the steady increase of publications. In the thanatology field, bibliometric research can identify distinct research and collaboration patterns that could lead to new collaborations and applications in underexplored areas. It is worth noting that the distinctiveness of bibliometric studies can have valuable implications and benefits for research in this area. Bibliometric analysis relies on bibliographic citations, and while qualitative analysis is gaining importance, it is not yet widely used. For example, Web of Science is a popular database used for counting bibliographic citations, and one of the most cited articles dates to 1951 and has received over 305,000 citations.[12]

Thus, this research aimed to analyze the bibliometric metrics of the global scientific production on thanatology in the nursing field.

## Materials and Methods

### Study design

The present study was a cross-sectional and retrospective study with a bibliometric approach using different analysis techniques such as mapping, citation, collaboration, and productivity. Scientific publications indexed in Scopus during the period (2017 and 2022) which covered the largest number of articles indexed in this area were evaluated. The .csv file was then exported to the Scival tool (Elsevier) and bibliometric analyses were performed.

### Search strategy

The search for information was conducted on December 20, 2022. Scopus was chosen as the basis for the research because it contains numerous specialized journals in health. The MESH thesaurus was selected; and, with the help of two logical operators ⁄AND⁄ and ⁄OR,⁄ the present search strategy was defined: TITLE-ABS (⁄Thanatology⁄ OR ⁄thanatologist⁄ OR ⁄thanatophobia⁄ OR ⁄thanatopsis⁄ OR ⁄Death process⁄ OR ⁄Dying process⁄ OR ⁄tanatologia⁄ OR ⁄Death education⁄ OR ⁄death fear⁄ OR ⁄Phobia death⁄ OR ⁄Fear of death⁄ OR ⁄dead things⁄ OR ⁄Fear of death⁄ OR ⁄Fear of dead things⁄) AND SUBJAREA(NURS). We managed to identify 831 documents, of which 732 were accessible in the Scopus database in the period (2017 and 2022). Then was exported into the SciVal program and analyzed using the various bibliometric indicators. Because only articles indexed in Scopus were included, no duplicates were found.

### Bibliometric indicators

Several metrics were used to analyze scientific production: author, publication, number of citations, institution and collaboration, country, journal quartile, h-index, SCImago Journal Rank (SJR), CiteScore 2020, Field Weighted Citation Impact (FWCI), and Source Normalized Impact per Paper (SNIP).

### Data analysis

The SciVal program (Elsevier) was used for the study, which made it possible to export the data from the scientific publications from files with an extension Microsoft Excel.

## Results

### Collaboration in the scientific production on thanatology

One noteworthy observation from Table 1 is that the category of national cooperation had the highest percentage (45.2%), whereas simple authorship had the lowest percentage (9.6%). With regards to citation index, national collaboration had a higher number of citations (425) compared to international collaboration (269). However, the latter had a higher weighted impact (FWCI: 1.12) [Table 1].

**Table 1: Collaboration in the scientific production on thanatology**

| Métric | Scholarly output | | Citations | Citations per publication | Field-weighted citation impact |
|---|---|---|---|---|---|
| | % | *n* | | | |
| International collaboration | 20.1 | 48 | 269 | 5.6 | 1.12 |
| Only national collaboration | 45.2 | 108 | 425 | 3.9 | 1.1 |
| Only institutional collaboration | 25.1 | 60 | 218 | 3.6 | 0.7 |
| Single authorship (no collaboration) | 9.6 | 23 | 38 | 1.7 | 0.36 |

## Top 10 most productive countries in thanatology

Among the top 10 most productive countries on thanatology in nursing, the United States was the country with the highest number of published articles (55), followed by Brazil (26) and China (20); however, Turkey had the highest number of citations per publication (4.03) and, therefore, the highest overall citation impact. On the other hand, South Korea (10) was the country with the lowest scientific production and lowest weighted impact (FWCI: 0.35) [Table 2].

## Top 10 institutions publishing on thanatology

Regarding the 10 institutions with the highest scientific productivity in nursing thanatology, it was observed that the highest number of published papers were from the

**Table 2: Top 10 most productive countries in thanatology**

| Country | Scholarly output | Views count | Field-weighted citation impact | Citation count |
|---|---|---|---|---|
| United States | 55 | 1460 | 0.79 | 254 |
| Brazil | 26 | 593 | 0.41 | 71 |
| China | 20 | 548 | 0.88 | 110 |
| Spain | 19 | 844 | 0.69 | 79 |
| Australia | 16 | 533 | 1.36 | 68 |
| Canada | 16 | 453 | 1.36 | 110 |
| Germany | 11 | 255 | 0.77 | 59 |
| Turkey | 11 | 257 | 4.03 | 56 |
| United Kingdom | 11 | 287 | 1.35 | 38 |
| South Korea | 10 | 136 | 0.35 | 24 |

**Table 3: Top 10 institutions publishing on thanatology**

| Institution | Country | Scholarly output | Citations | Authors | Citations per publication | Field-weighted citation Impact |
|---|---|---|---|---|---|---|
| University of Toronto | | 7 | 79 | 28 | 11.3 | 1.71 |
| Monash University | | 5 | 37 | 7 | 7.4 | 1.96 |
| Iran University of Medical Sciences | | 5 | 53 | 2 | 10.6 | 2.21 |
| University of Sydney | | 4 | 10 | 3 | 2.5 | 0.44 |
| Tianjin Medical University | | 4 | 27 | 5 | 6.8 | 0.95 |
| Stockton University | | 4 | 51 | 1 | 12.8 | 2.01 |
| Universidade Estadual de Maringá | | 4 | 4 | 9 | 1 | 0.22 |
| Universidade Federal da Bahia | | 4 | 8 | 11 | 2 | 0.42 |
| Universidade Federal de Santa Catarina | | 4 | 5 | 11 | 1.3 | 0.26 |
| Queensland Health | | 3 | 13 | 8 | 4.3 | 2.04 |

University of Toronto (7) with 71% more citations than expected. On the other hand, even though Iran University of Medical Sciences had five publications, these papers have more expected citations (FWCI: 1.96). Three of the 10 most productive institutions are Brazilian (Universidade Estadual de Maringá, Universidade Federal da Bahia and Universidade Federal de Santa Catarina) [Table 3].

## Top 10 main journals in Scopus that publish on thanatology

Among the top 10 Scopus journals with the most publications in nursing thanatology, the Journal of Pain and Symptom Management had the most publications (11). However, the International Journal of Palliative Nursing has fewer articles, but had a greater impact since it has an average of 7.9 citations per publication. In addition, most of the articles published on this topic were of high impact [Table 4].

## Top 10 most published authors on thanatology

As for the authors with the highest production, Lester David and Dadfar Mahboubeh lead the subject with published articles each. In addition, they are the ones with the highest impact, with 12.8 citations per publication. The 10 featured authors published their last article on thanatology in nursing between 2019 and 2022. [Table 5].

## Trend of articles on thanatology

The number of articles published from 2017 to 2022 has increased from 29 to 48, respectively. The top journals were those positioned in the Q1 and Q2 quartile. The proportion of manuscripts published in Q3 (18%) and Q4 (17.2%) journals were similar [Figure 1].

## Citation by country

With a total of 45 items, 11 clusters were found. When evaluating the citations by country, the green cluster represented by the United States condensed the highest amount of citations. Followed by the United Kingdom, Australia, and Brazil as the clusters also condensed the citation on the topic of thanatology in nursing [Figure 2].

## Co-occurrence by index keyword

With a total of 938 keywords, 12 clusters were identified. In pink is the largest cluster corresponding to the keyword *}human.}* This cluster was related to the green, blue, purple, and yellow clusters corresponding to the keywords *}aged,} }dead,} }psychological aspect,}* and *}attitude to death}* respectively, as those that condensed the highest co-occurrence in the topic of thanatology in nursing [Figure 3].

**Table 4: Top 10 main journals in Scopus that publish on thanatology**

| Scopus source | Quartile | Publications | Citations perpublication | SNIP | CiteScore2021 | SJR |
|---|---|---|---|---|---|---|
| Journal of Pain and Symptom Management | Q1 | 11 | 4.7 | 1.938 | 6.4 | 1.527 |
| Journal of Hospice and Palliative Nursing | Q1 | 10 | 2.9 | 0.857 | 2.1 | 0.533 |
| BMJ Supportive and Palliative Care | Q1 | 10 | 4.7 | 0.958 | 5.3 | 0.578 |
| Medicina Paliativa | Q3 | 7 | 4 | 0.267 | 0.7 | 0.212 |
| International Journal of Palliative Nursing | Q2 | 7 | 7.9 | 0.524 | 1.4 | 0.331 |
| Palliative and Supportive Care | Q2 | 7 | 5.6 | 1.223 | 3.6 | 0.724 |
| Journal of Palliative Medicine | Q1 | 6 | 7.5 | 1.214 | 4 | 0.954 |
| Nurse Education Today | Q1 | 5 | 2.6 | 1.998 | 5.3 | 0.993 |
| Revista brasileira de enfermagem | Q3 | 5 | 3.4 | — | 1.3 | 0.275 |
| Revista Cubana de Enfermeria | Q4 | 5 | 0.2 | 0.24 | 0.3 | 0.131 |

Source-Normalized Impact per Paper (SNIP). SCImago Journal Rank (SJR)

**Table 5: Top 10 most published authors on thanatology in nursing**

| Name | Scholarly output | Most recent publication | Citations | Citations per publication | *h*-index |
|---|---|---|---|---|---|
| Lester, David | 4 | 2020 | 51 | 12.8 | 50 |
| Dadfar, Mahboubeh | 4 | 2020 | 51 | 12.8 | 12 |
| Fernández-Martínez, Elena | 3 | 2021 | 13 | 4.3 | 8 |
| Marçon, Sônia Silva | 3 | 2020 | 4 | 1.3 | 15 |
| Prado, Roberta Teixeira | 2 | 2022 | 6 | 3 | 2 |
| Rivas-Ruíz, Francisco | 2 | 2019 | 1 | 0.5 | 19 |
| Liébana Presa, Cristina | 2 | 2021 | 6 | 3 | 8 |
| Erdmann, Alacoque Lorenzini | 2 | 2019 | 4 | 2 | 15 |
| Waller, Amy | 2 | 2021 | 2 | 1 | 25 |
| García Hernández, Alfonso Miguel | 2 | 2021 | 0 | 0 | 3 |

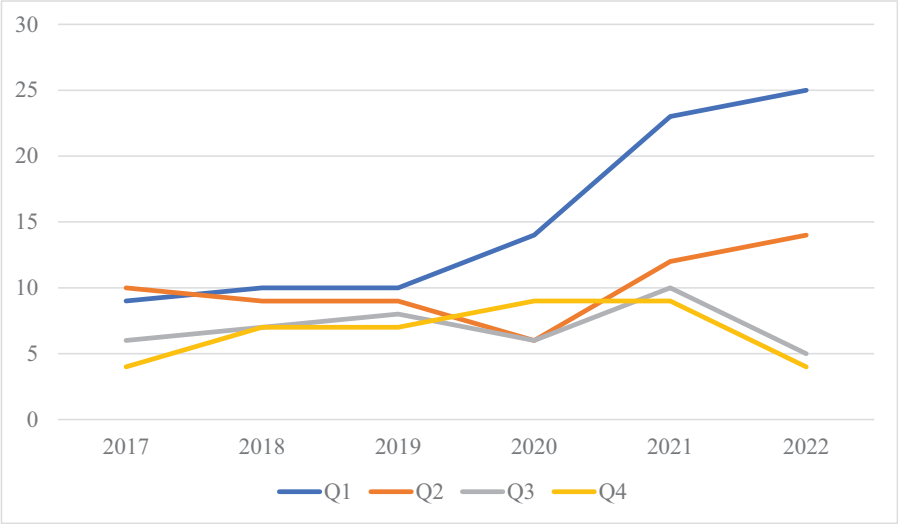



**Figure 1:** Trend in the number of articles on thanatology in nursing according to scientific journal quartile.

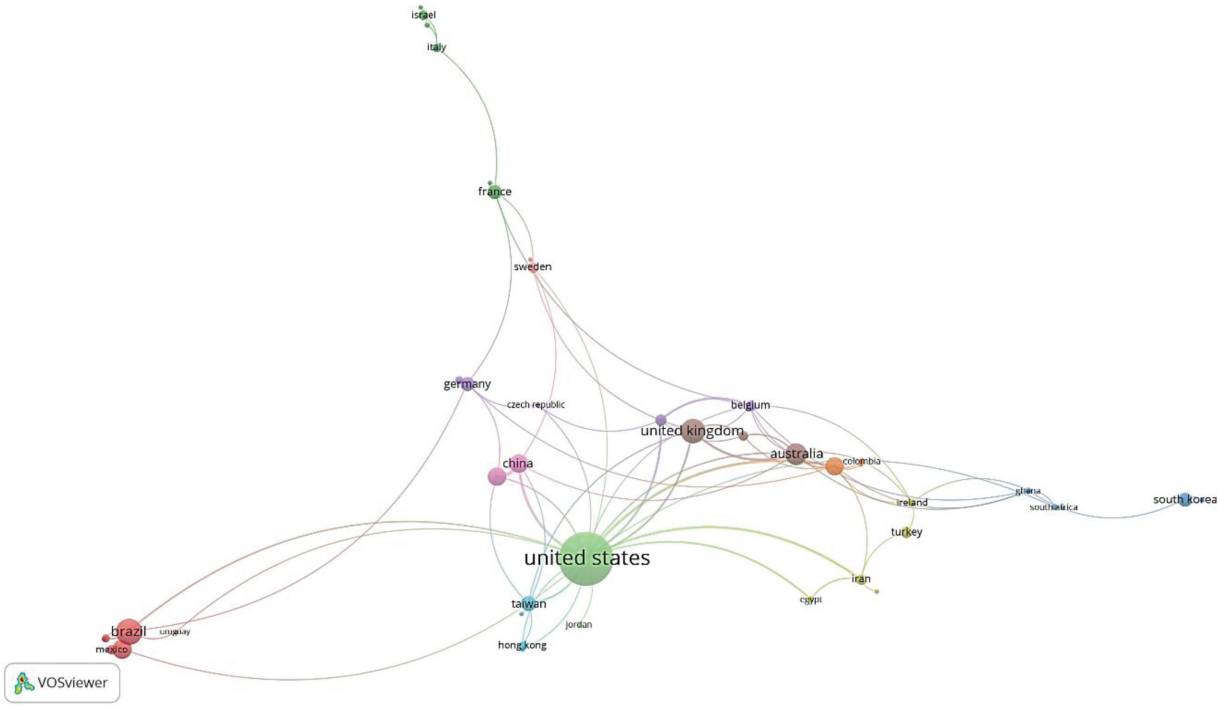



**Figure 2:** Citation by country.

## Discussion

Nursing education and practice require, in addition to a focus on the protection and care of life, a comprehensive understanding of death and bereavement as part of the care process for health care users.[13] Nurses need the competencies to cope and deal appropriately with this critical time in the life cycle.

From 2017 to 2022, an increase in the number of scientific articles indexed in Scopus that are related to thanatology in nursing has been evidenced. This information is favorable considering that, in a review conducted in 2014, it was shown that the production on this topic was still minimal.[14]

Our findings profile the United States as the undisputed leader in the scientific production of thanatology in nursing and Canada as the one with the highest impact. Consistent with this data, a 2015 study found that most manuscripts featured lead authors of U.S. nationality, followed by Canadians.[15]

With respect to previous information, it should be noted that the metrics of the articles analyzed show that national and institutional collaboration were the most frequent in this field

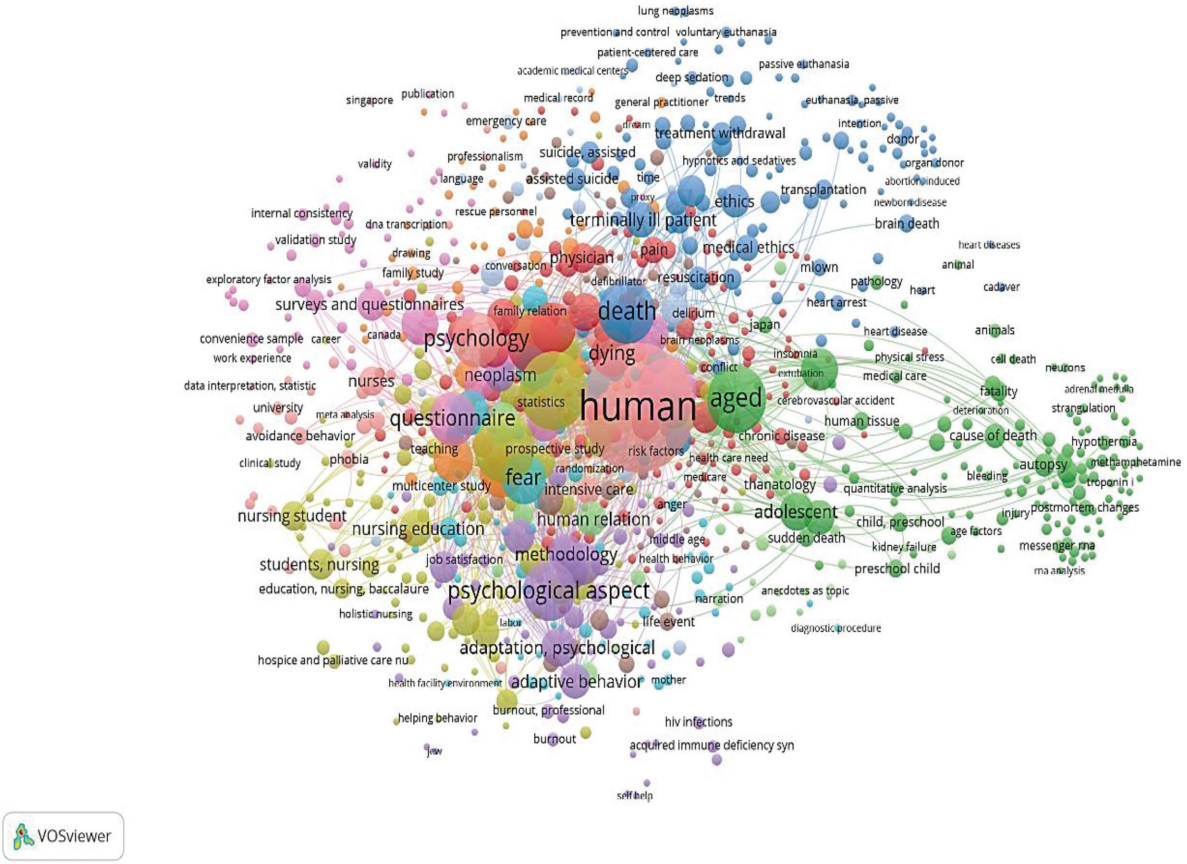



**Figure 3:** Co-occurrence by index keyword.

of knowledge. Therefore, future researchers, research groups, and public and private institutions from different countries and different professions are of utmost importance[16] to establish contact networks to propose research in accordance with the lines of research in this area, such as grief and attitudes towards death, which were the most frequent contents in the manuscripts analyzed in a previous study.[17] Authors Lester David and Dadfar Mahboubeh are the most productive, both presenting four manuscripts, among which those linked to the line of research on the concern or fear of death in nursing staff stand out.[18,19]

The Journal of Pain and Symptom Management is the one that has been mostly selected by the authors for the publication of their manuscripts, which could be due not only to the impact it has and the quartile in which it is located, but also because it is a journal specialized in the dissemination of research related to life-threatening pathologies, as well as care during this final stage of the human being.

This research presented some limitations. The first was that the search for scientific literature was only executed in Scopus, although this is one of the most important worldwide, it is possible that in others there are publications on this topic in the field of nursing. In addition, the lack of metadata during the export may affect the estimation of the bibliometric indicators used; however, it should be noted that this is a characteristic limitation of this type of study.

## Conclusions

The contribution of this study is to identify current trends and patterns in the academic production on thanatology in nursing. This study highlights the main countries and institutions contributing to this area of research and the need for further international cooperation. The articles have been published mainly in high impact scientific journals, although most of them have only national collaboration. It is worth noting that the Latin American representation in this area is given by Brazilian institutions, while the United States is the leading country in the dissemination of this knowledge.

## Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

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This study has not received funding from any source.

## Conflict of interest

There are no conflicts of interest.

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