

Analysis of Scientific Production on Pedagogy of Death in the Scopus

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Abstract

Introduction. Although death is a reality inherent to human life, it continues to be a taboo phenomenon that generates unease in some contexts such as education. Its limited curricular approach and the personal implications of its treatment in the classroom constitute some difficulties for greater inclusion in the different stages.

Method. The aim of this study is a bibliometric analysis of the scientific output on the pedagogy of death in Scopus. The sample consisted of 139 papers to which different bibliometric techniques were applied (bibliographic coupling, co-authorship, co-citation, co-occurrence).

Results. The results revealed a growing scientific production, with Testoni as the most prolific author. As potential lines of development, it is worth highlighting the implementation of training schemes for teachers to be able to educate about death, as well as educational activities (with different methodologies and resources) in order to work on reducing anxiety and fear of death.

Discussion and Conclusion. The relevance of the study of scientific production is concluded to establish collaborations between researchers and develop new lines of research on Pedagogy of Death.

Keywords: death; pedagogy; death education; bibliometric study; death anxiety

Resumen

Introducción. Aunque la muerte es una realidad inherente a la vida humana, sigue constituyendo un tema tabú y que genera desasosiego en algunos contextos como el educativo. Su escaso abordaje curricular y las implicaciones personales de su tratamiento en el aula constituyen algunas dificultades para una mayor inclusión en las diferentes etapas.

Método. Este estudio pretende analizar bibliométricamente la producción científica sobre pedagogía de la muerte en Scopus. La muestra la conforman 139 artículos a los que se aplican diferentes técnicas bibliométricas (acoplamiento bibliográfico, coautoría, co-citación, co-ocurrencia).

Resultados. Los resultados revelan una producción científica creciente, con Testoni como la autora más prolífica. Como potenciales líneas de desarrollo, subrayar la implementación de planes formativos para docentes sobre educar para la muerte, así como intervenciones didácticas (con diferentes metodologías y recursos) que permitan trabajar en reducir la ansiedad y el miedo ante la muerte.

Discusión y Conclusión: Se concluye la relevancia del estudio de la producción científica para establecer colaboraciones entre investigadores y desarrollar nuevas líneas de investigación sobre la pedagogía de la muerte.

Palabras clave: muerte; pedagogía; educación sobre la muerte; estudio bibliométrico; ansiedad por la muerte

Introduction

Death is a natural, unique, and universal phenomenon (Wu, 2020), one last journey intrinsic to the mortal condition of human beings. Death is the end of the vital cycle (Tenzek, & Nickels, 2017), and it holds two proven facts. The first involves the actual finitude of people, as living beings immersed in a process of evolution and transformation linked to continuous cycles of births and deaths. The second concerns the confirmation of death as an inevitable, personal, and non-transferable fact, the certainty of which dwells within each individual. The way life's finitude is perceived is linked to the socio-cultural context and determined by aspects such as values, beliefs, attitudes and traditions, along with individual personal experiences regarding death, thus giving a unique meaning to this event (Colomo et al., 2021a) and to the way of facing it (Niemic, & Schulenberg, 2011).

Despite the advantage of accepting our mortal condition to develop an identity, the negative idea about human mortality (prevalent especially in the Western world) links it directly to suffering, pain, and fear, thus making it difficult to control and handle these feelings (McClatchey, & King, 2015). This fact comes from a society that tends to keep death away from daily life, making it difficult to mourn and to accept one's own death. The arising fears are caused by the uncertainty of not knowing when and how it will occur, and what will happen after it. It is the underlying doubts of the human being's mortal condition that produce fear, unease, and anxiety about the finitude of life (Solomon et al., 2017; Testoni et al., 2021a; Thiemann et al., 2015). However, experiencing a certain level of anxiety about death is natural (Lester et al., 2016), as it is an ancestral fear of the unknown. Nonetheless, this apprehension, which stems from the awareness of the finite nature of human beings (Abdel-Khalek, 2005), should not be a limiting factor in a person's existence, experiences, and decision making.

In this way, fear and anxiety about death are the factors that can alienate, avoid, and even hide such an issue (Puolimatka, & Solasaari, 2006), thus turning it into a taboo in many areas such as education. As mentioned, death is part of life and cannot be left out of the pedagogical context (Wass, 2004). Therefore, teaching about finitude means educating about life itself (Phan et al., 2020), and it ought to be included in the different educational stages (Friesen et al., 2020). As a result of this need, and promoted by Hannerlore Wass, an interest emerged in working on death in the educational field (Doka, 2015). Pedagogy of death was therefore established, consisting of a set of knowledge, methods, resources, and goals that

establishes death as a subject of utmost importance for life, becoming a guide for it (Rodríguez et al., 2020a). The fundamental goal is to help students in formal, non-formal, and informal educational contexts understand the finitude in a natural way, without any tragic views of fear (Corr, 2016). The fact that people are the only living beings capable of reflecting upon their mortal condition should make it possible to work on the acceptance of their own finitude through education. This will lead to a transformation in their values and personality (Atwater, 1988), so that they will prioritise positive human interactions and relationships over material and outdated issues. It is therefore possible to state that the final goal of the pedagogy of death is to promote a full existence in every aspect and way, by being aware that finitude is an inevitable factor (Wong, 2009).

For this subject to be developed and implemented, it should be noted that educational actions on death consist of two key moments (Colomo et al., 2021b): preventive actions and palliative actions. The former normalises the mortal condition of human beings and the omnipresence of death in a didactic way, while the latter uses tools and resources to accompany students during bereavement. To achieve this, it is important to have both death in the curriculum as well as the initial and continuous training of education professionals. However, different studies still show the scarce or non-existent preparation, both preventive and palliative, of these professionals (Adamson, & Peacock, 2007; Brown et al, 2015; Colomo, & Cívico, 2018), turning any loss related to the school community into a traumatic event (Pereira-Webber, & Pereira-Webber, 2014). Therefore, requesting and supporting specific training programmes on the pedagogy of death is paramount, as they have multiple benefits. They reduce anxiety when facing death (Cacciatore, & Flint, 2012; Heidari et al, 2016; Jo, & An, 2015; Kim et al., 2016; Nienaber, & Goedereis, 2015; Stylianou, & Zembylas, 2016; Tang et al., 2002; Wallace et al., 2019); they improve the understanding of the mortal condition (Harrawood et al., 2011; Testoni et al., 2020a; Wong, 2017); and they prepare teaching staff to address finitude (Case et al., 2017; Engarhos et al., 2013; Sevaty, & Tedrick, 2014).

Considering its relevance, there should be a greater number of research studies that provide evidence to the scientific community on the need of introducing death into the curricula of the different educational stages. Moreover, such studies ought to illustrate the importance of preparing and training education professionals for an effective and enriching development of this field. Lastly, it is also crucial to be aware of the existing studies so that this issue is

recognised as relevant based on solid arguments and confirmed by prestigious researchers and studies.

Objectives and Hypotheses

Based on these premises, the aim of this study is a bibliometric analysis of the scientific production on the pedagogy of death in the international database Scopus. In connection with this, the following research questions were identified:

- 1) How has the scientific output of pedagogy of death evolved according to the following variables: year, subject areas, authors, journals, countries, institutions, and impact of publications?
- 2) Who are the authors with the most influential publications in academia?
- 3) What are the collaborative research networks with the greatest output on the pedagogy of death?
- 4) What are the main lines of research related to the field of study?

Method

A bibliometric study was carried out to assess the current level of research on the pedagogy of death. This is a meta-analysis technique on scientific output (González et al., 2020), which establishes guidelines and criteria to analyse the evolution of publications (at a quantitative and descriptive level). Additionally, it involves a given field of knowledge and the evaluation of different variables such as the area of knowledge or the year of publication. Its validity is demonstrated by the many research studies carried out using this technique (e.g. Bhatt et al., 2020; Khanra et al., 2020).

The Scopus database was used to select document samples. It was chosen because it incorporates a scientific output that meets rigorous quality criteria and contemplates broad areas of knowledge in the academic field (Caviggioli, & Ughetto 2019; Khanra et al., 2020). The search command, with the corresponding keywords and Booleans, was "PEDAGOGY OF DEATH" OR "DEATH EDUCATION" OR "DIDACTICS OF DEATH" The choice of these keywords was intended to achieve a complete approach to scientific knowledge about death and its relationship with education. It starts from the most general field, which is death education (comprising studies in which education takes death into account from different perspectives and proposals) as a area of knowledge. As disciplines, pedagogy of death

(involving studies with a pedagogical vision of death and the use of educational resources to work on it) and didactics of death (including studies on techniques and methods to teach about death) are considered.

This search was carried out in the title, keywords, and abstracts, yielding a total of 615 documents up to 25 September 2021, including papers, book chapters, or conferences, among others. Different screening criteria were applied to the 615 resulting documents, according to the object of study and following the PRISMA statement (Figure 1). These screenings were done to refine the sample, reducing the number of publications to keep the most relevant ones. First, the search results were limited to publications indexed in the areas of social sciences, psychology, and arts and humanities. The reason was to relate the chosen descriptors with the indexing areas most related to the educational context. This narrowed the sample to 334 documents. Then, only papers were included, rejecting books, book chapters, revisions, and conferences, thus obtaining 275 documents. This decision was due to the fact that articles go through exhaustive review processes, which is not always the case in other types of publications. Finally, only papers published from the year 2000 onwards were considered, while those published prior to that date were rejected. The reasoning behind this was to limit the sample. Despite being an emerging discipline, the subject of death and education has a long scientific history. For this reason, only publications from the beginning of the 21st century were taken into account. The final product, after applying the different limitations and exclusions, consisted of 139 papers (123 in English, 14 in Spanish, 1 in German, and 1 in Turkish). This created the sample to be analysed bibliometrically, which was exported in comma-separated values (.csv) for its subsequent study.

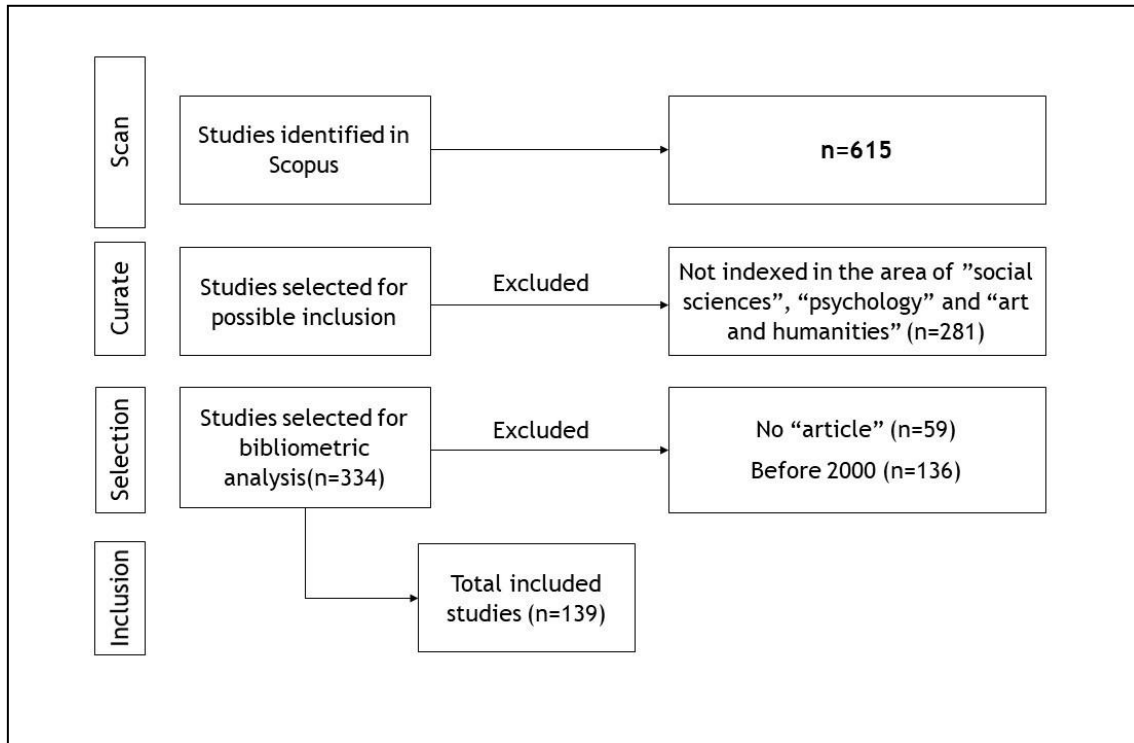


Figure 1. *Flowchart of the study selection process based on the PRISMA declaration.*

Different bibliometric techniques were then used: a) analysis of the scientific output, to examine its evolution according to the stipulated variables; b) bibliographic coupling, to find out the influence of a publication in the scientific context based on its similarity (common references) with other related research; c) co-authorship analysis, to determine the level of scientific collaboration between authors and research groups; d) co-citation analysis, to discover how often different papers are cited together; e) word set analysis, to highlight which descriptors/key words encompass the contents of the articles analysed. In the results section, the criteria (requirements related to the frequency of citations and documents, or frequency that the keyword appears) that were applied for the selection of the sample to be analysed will be specified for each bibliometric technique. In order to examine the relationship between publications, the VOSviewer software was used to visually represent the existing relational nodes according to the observed factor.

The following variables were considered to analyse the scientific output: the year, in order to examine the time distribution of the papers; the areas of knowledge, to identify to which subject areas the papers belong; the authors, to find out who the most prolific researchers on the subject are; the journals, to discover which ones include the highest amount of publications

on the subject; the countries, to detect the places where most research is done on the subject; the research institutions, to reveal which research centres are referents in the field of pedagogy of death; and the publications with the highest impact, to highlight the reference papers on this field at the time the study was carried out. Descriptive analyses were performed, explaining the frequencies of each of the variables. The inclusion/exclusion criteria on these study variables for the subsequent analysis of the scientific output are shown below (Table 1).

Table 1. *Study variables and inclusion / exclusion criteria*

Variables	Criteria of Inclusion/Exclusion
Year	All articles after 2000
Subject area	All subject areas with 40 or more papers
Author	All authors with 4 or more papers
Journal	All journals title with 4 or more papers
Countries	All countries with 11 or more papers
Institution	All institutions with 5 or more papers
Publications with the Highest Impact	All papers with 39 or more citations

Results

In order to fulfil the aim of this study, the results section is organised on the basis of the different techniques implemented to answer the research questions. It begins with an analysis of scientific output, followed by an analysis of bibliographic coupling, co-authorship, co-citation, and co-occurrence.

Analysis of the Scientific Production

Based on the 139 articles that make up the study sample, the different study variables under consideration are addressed.

a) Year

Considering that papers published before 2000 were not taken into account, a stable trend is observed until 2014, with a range of seven papers between 2008 (7) and 2001 (0). Thereafter, the trend is clearly upwards, reaching its highest peak in 2020 (20 papers), the most prolific year out of those analysed. As can be seen, this is an increasingly recurrent topic in recent years, with scientific production increasing significantly in the past 3 years.

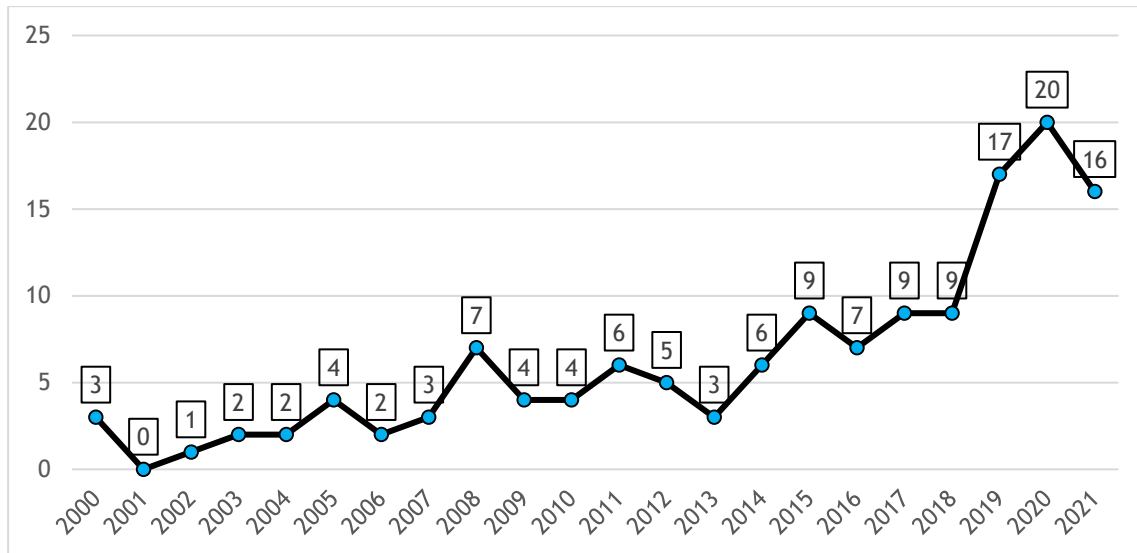


Figure 2. *Papers published per year*

b) Subject area

In the sample selection process, articles from the areas of “social sciences”, “psychology”, and “art and humanities” were included. The reason was to select articles related to the field of education and pedagogy. However, belonging to an area is not exclusive. In this way, a publication can belong to more than one area. An example would be an article included in the area of "social sciences" and "medicine" because it focuses on death anxiety from the educational dimension.

In this investigation, for this variable to be considered, it was decided that there had to be at least 40 publications. In addition, it should be clarified that these papers are assigned to an area of knowledge according to a multi-classification criterion. This means that the same paper, depending on its subject matter, can be included in more than one subject area. This implies that the total number of areas under consideration for the analysis (Table 2) is higher than the 139 papers that make up the study sample.

Table 2. *Subject area*

Subject area	Papers
Social Sciences	92
Psychology	59
Medicine	49
Arts and Humanities	40

Social sciences were the area of knowledge with the highest number of papers (92), with psychology in second place (59), and arts and humanities in last place (40). Similarly, although the publications were limited to the areas mentioned above, 49 papers in the sample (around 35%) are also classified in the medicine field, based on their content and the issues they cover.

c) Authors

This variable analyses the most prolific authors on the subject under study (Table 3). In order to be analysed, they must have published at least 4 papers.

Table 3. *Most prolific authors at Scopus*

Author	Papers
Testoni, I.	16
De la Herrán, A.	9
Rodríguez, P.	9
Ronconi, L.	8
Zamperini, A.	7
Cacciatore, J.	4
Wieser, M.A.	4

Ines Testoni is the leading author on the subject (16 papers), followed by the Spaniards Agustín de la Herrán and Pablo Rodríguez of the Autonomous University of Madrid, both with nine papers. The others—except for Joanne Cacciatore of Arizona State University—are Testoni's collaborators, both from her university in Padua, Italy (Ronconi and Zamperini) and from other universities (Wieser of the University of Klagenfurt in Austria).

d) Journal

Bearing in mind that journals with fewer than four papers on the subject are excluded (Table 4), it is worth highlighting that the first three journals are publications that mainly focus on the topic under study. Thus, they become a point of reference on the subject of death, with the journal *Death Studies*, with 28 papers, being the most prolific in the educational analysis of this phenomenon. To conclude the analysis of this variable, two of these journals, linked to the area of Psychology, covered the study of psychological factors derived from the treatment of death in education, with 4 papers each.

Table 4. *Journals indexed in Scopus with the highest number of publications*

Journal title	Papers
Death Studies	28
Omega United States	21
OMEGA - Journal of Death and Dying	8
Behavioral Sciences	4
Frontiers in Psychology	4

e) Countries and regions

To discover which are the most prolific countries on the subject under study (Table 5), the exclusion criterion was having fewer than five papers.

Table 5. *Countries with more articles in Scopus*

Country and regions	Papers
United States	57
Spain	20
Italy	16
Hong Kong (China)	13
United Kingdom	11

The country with the highest number of papers (57) dealing with death from the education perspective is the United States, followed by Spain, with less than half (20), and Italy (16). Hong Kong (region of China), with 13 articles, stands out as the only non-Western country.

f) Institutions

With regard to this variable, the specified inclusion criterion was having five or more papers on the subject under study (Table 6).

Table 6. *Institutions with more papers in Scopus*

Institution	Papers
University of Padua	16
Autonomous University of Madrid	11
University of Haifa	7
Chinese University of Hong Kong	5

The University of Padua, with 16 papers, and the Autonomous University of Madrid, with 11, are the most prolific institutions. These data are based on the affiliation of the authors with the highest number of papers with these universities. The University of Haifa (Israel) is in third place, despite not having any author among those who have published the most papers, nor did Israel reach the inclusion filter established for production by country.

g) Publications with the highest impact

In order to analyse the publications with the highest impact and relevance based on the number of citations, the criterion was to include papers with 39 or more citations (Table 7).

Table 7. *Papers with more impact on Scopus*

Authors	Year	Title	Source	Cited by	Average number of cited per year
Dickinson, G.E.	2007	End-of-life and palliative care issues in medical and nursing schools in the United States	Death Studies, 31(8), 713-726.	60	4.3
McGovern, M., & Murray, C.A.	2000	Death education: Knowledge, attitudes, and perspectives of irish parents and teachers	Death Studies, 24(4), 325-333.	50	2.4
Mascarenhas, L., & Testoni, I.	2011	The emergence of thanatology and current practice in death education	OMEGA - Journal of Death and Dying, 64(2), 157-169.	49	4.9
Sliter, M.T., Sinclair, R.R., Yuan, Z., & Mohr, C.D.	2014	Don't fear the reaper: Trait death anxiety, mortality salience, and occupational health	Journal of Applied Psychology, 99(4), 759-769.	39	5.6
Cacciatore, J., & Flint, M.	2012	ATTEND: Toward a Mindfulness-Based Bereavement Care Model	Death Studies, 36(1), 61-82.	39	4.3
Mok, E., Man, W., & Kam-yuet, F.	2002	The issue of death and dying: Employing problem-based learning in nursing education	Nurse Education Today, 22(4), 319-329.	39	2.1

None of the most cited papers repeats the same author, and three of them belong to the most prolific journal analysed (Death Studies). Although the ranking of impact is based on the

number of citations, it should be noted that a high citation intensity is not determined by a higher number of citations. The paper by McGovern and Murray (2000), for example, with 50 citations and in second position, has an average of 2.4 citations per year. Hence, at this rate, in a few years it will be surpassed by other papers that will achieve a greater impact. First place goes to Dickinson's research (2007), with a total of 60 citations and an average of 4.3 citations per year, focusing on providing education about death and palliative care in medical and nursing schools in the United States. Furthering the focus on training, there are two more proposals on this list: Mork et al. (2002) who analyse the impact of Problem-Based Learning methodology with nurses to be able to work on the topic of death with dying patients (39 citations); and Mascarenhas and Testoni (2011) who conduct a systematic review on the incorporation and development of thanatology in educational programmes (49 citations). Second place goes to McGovern and Murray's publication (2000), focusing on the knowledge and attitudes about death education of the parents and teachers of a group of Irish students. Also on the list of publications with the highest impact are the papers by Sliter et al. (2014) and Cacciatore and Flint (2012). Both publications focus on coping with the grieving process and reducing death anxiety as well as measuring the impact of these aspects on psychobiological factors (Sliter et al., 2014) or using mindfulness to control and manage the situation (Cacciatore, & Flint, 2012).

Bibliographic coupling

With this technique it is possible to assess the influence of a paper within the scientific production under analysis according to its relationship and similarity with other publications. To do this, the number of common references in the sample papers was taken into consideration, applying backward citation chaining. In this way, it was possible to find the authors of reference on the subject of death and its educational treatment. The authors are used as the unit of analysis for the bibliographic coupling, with an inclusion criterion of a minimum of 2 documents and 25 citations per author. The relationship nodes generated from the 16 items satisfying the criterion are reflected in Figure 3. Five sets of authorships were established based on their coupling relationship.

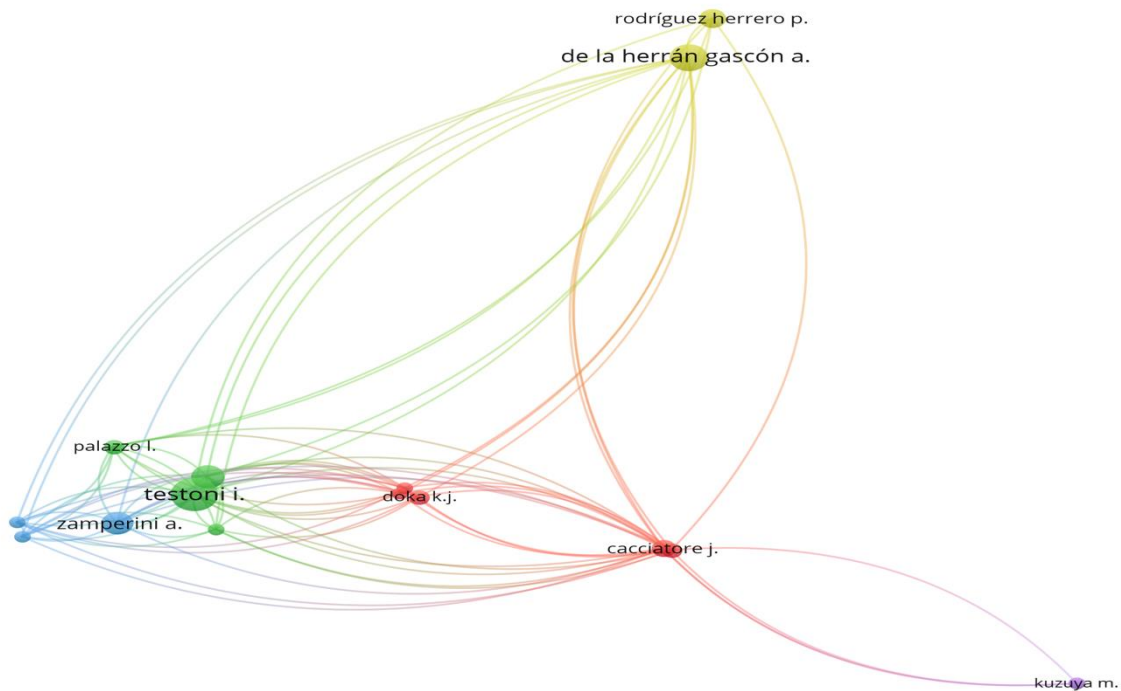


Figure 3. *Bibliographic coupling with “authors” as the unit of analysis.*

It is worth highlighting the link strength of the authors that make up the green cluster, where Testoni reaches the highest intensity (total link strength 2951) and number of citations (205). She is followed by Ronconi (total link strength 2029), who occupies the third position in terms of citations (87). The blue cluster also shows high link strengths, with Zamperini (total link strength 1728 and 92 citations) being the leading author in this group. It should be noted that both clusters include authors who have co-signed papers, with Testoni as the link between them all (Testoni et al., 2018a; 2018b; 2019; 2020a; 2021a). The yellow cluster, which includes Herrán and Rodríguez who co-authored (Herrán et al., 2019; 2020; 2021; Rodríguez et al., 2013; 2015; 2019; 2020a; 2020b), shows a medium link strength (total link strength 546). Within the analysed set, the red and purple clusters have the lowest link strength, with Wong (2009; 2017) standing out as having the lowest number of citations (26) and a low link (total link strength 30).

Co-authorship analysis

Applying a co-authorship analysis permits a focus on the collaborative networks that are formed around the scientific production on the pedagogy of death. The selected authors were those who had produced at least two co-authored papers with a minimum of 25 citations. The seven items that met this criterion are shown in Figure 4.

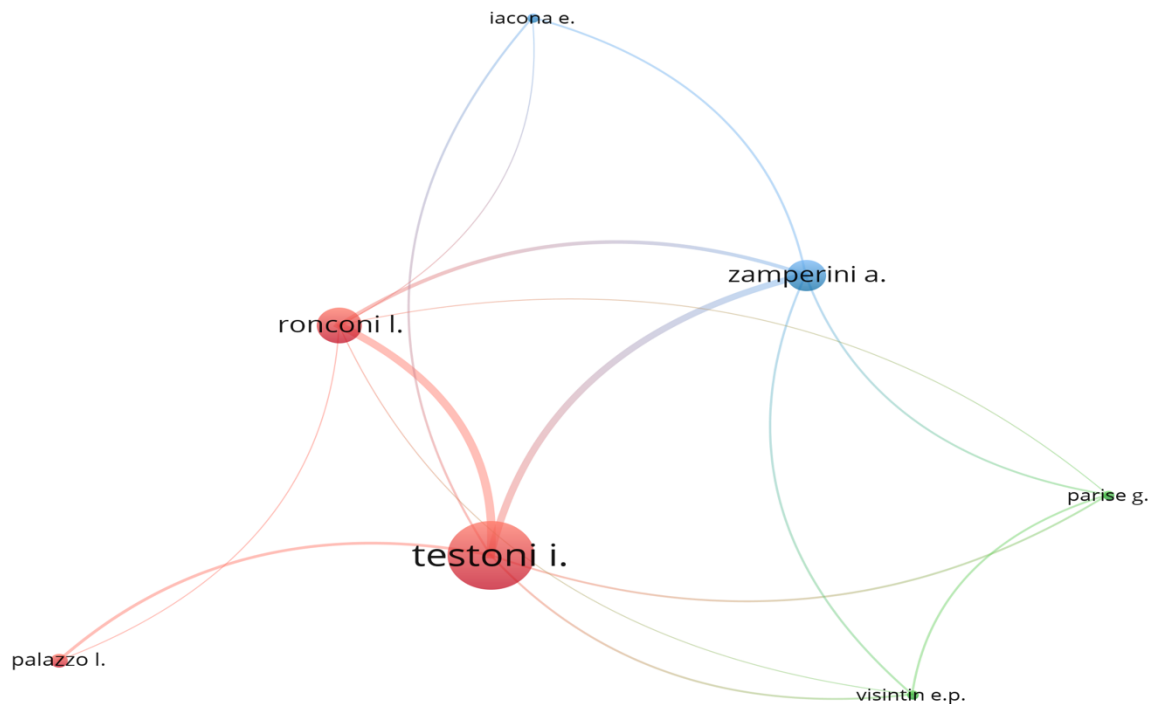


Figure 4. Co-authorship with "authors" as a unit of analysis.

Three sets were established based on co-authorship. It should be noted that the size of the nodes is linked to their relevance. The collaborative networks led by authors affiliated with the University of Padua in Italy are noteworthy. Therefore, Testoni (red cluster) stands out as the main author, sharing co-authorship with the rest of the researchers analysed. The only author who does not belong to this institution is Visintin, whose affiliation is with the University of Lausanne in Switzerland. He has collaborated with Testoni and other researchers from the University of Padua, such as Parise, Ronconi, and Zamperini, creating a link between the research teams of the Universities of Padua and Lausanne.

Co-citation and co-occurrence analysis

Performing a co-citation analysis, based on how frequently different publications are cited together, allows for the identification of the main themes in the existing literature on a research topic. In addition, the analysis of keyword co-occurrence also yields information on the core content of the analysed publications. Thus, when a set of words appears with a higher frequency, this means that there is a higher level of conceptual linkage between them. Therefore, both analyses are carried out to answer the question about the main lines of research related to the pedagogy of death. As for co-citation, a minimum of 25 citations was established as a criterion, with 19 items fulfilling it (Figure 5).

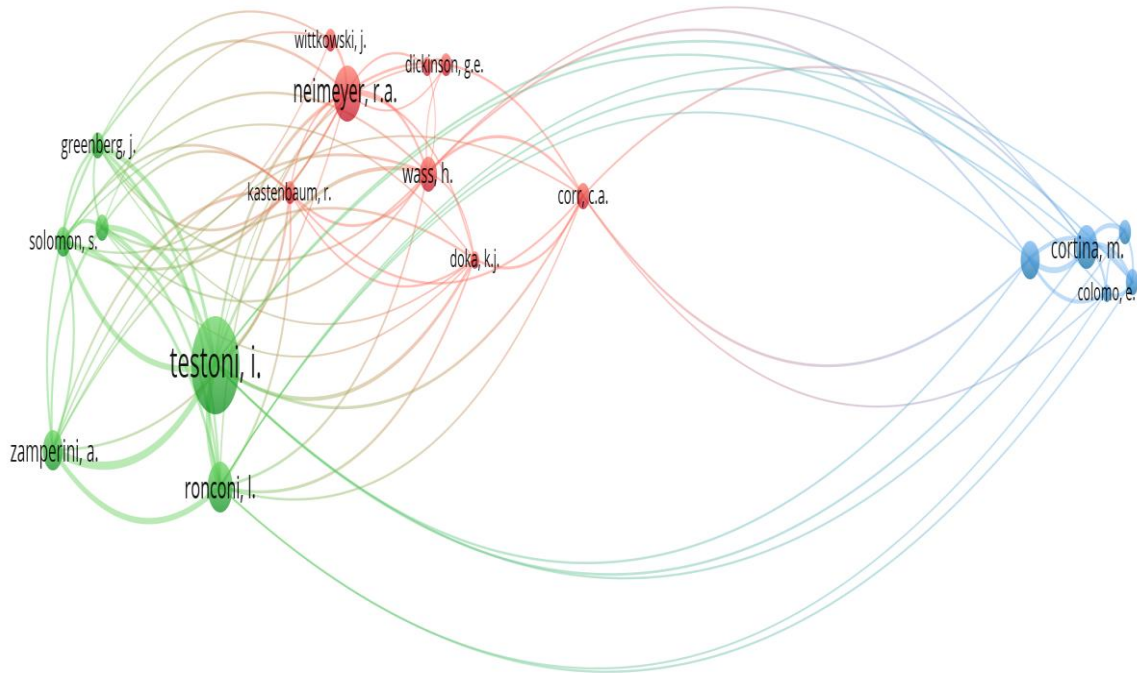


Figure 5. Co-citation with "authors" as a unit of analysis.

Three sets were established based on co-citation according to the documents that tend to appear together. It is worth highlighting the co-citation intensity of publications by Testoni (total link strength 3148), Ronconi (total link strength 2033), and Zamperini (total link strength 1601), as well as other authors with a relevant co-citation intensity that had not appeared in previous analyses, such as Cortina (total link strength 852) and Colomo (total link strength 454).

As for the co-occurrence of descriptors, of the 139 papers in the study sample, the authors suggested 274 keywords, and the papers were indexed with 539 keywords, reaching a total of 753. Of these, 42 keywords appeared more than eight times in the papers that made up the sample (Figure 6). Four co-occurrence clusters were established, based on the descriptors that are commonly used together as keywords.

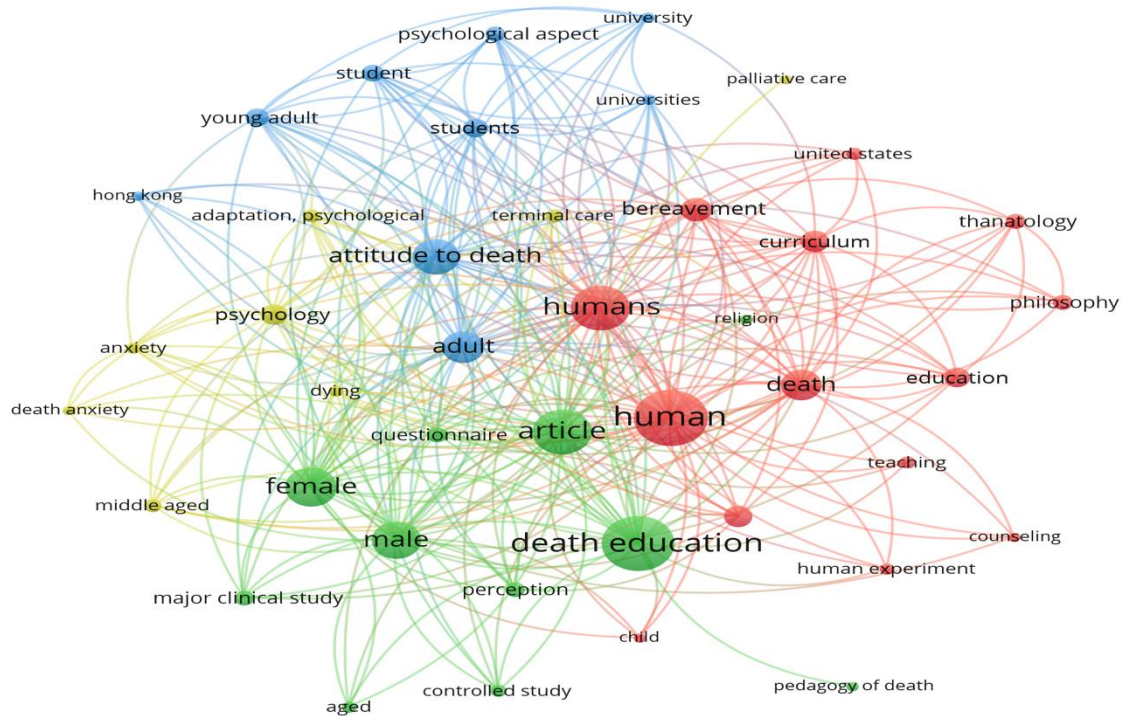


Figure 6. *Concurrence of keywords in scientific production.*

The most frequent descriptors were human (80) and humans (60), along with Death Education (79), coinciding with one of the Booleans used. In addition to these, the most common disciplines addressing the subject of the pedagogy of death are psychology (21), education (20), philosophy (14), or religion (8). The main topics studied in relation to the pedagogy of death are attitude to death (43), bereavement (25), curriculum (22), anxiety (10), and death anxiety (8).

Discussion and conclusion

Thanks to the application of bibliometric techniques, it has been possible to observe that scientific production on the pedagogy of death is in full development and is attracting more and more researchers, generating different lines of work.

As the results show, the scientific production on the pedagogy of death has seen an upward trend in the past 3 years (2019-2021), with social sciences and psychology being the areas par excellence with the largest number of published papers. The country with the highest production of papers is the United States. However, the University of Padua and the

Autonomous University of Madrid have the highest number of publications, as these institutions have the most prolific authors on the subject (Testoni, Herrán, Rodríguez, Ronconi, and Zamperini). As for the journals, they are divided between those dealing specifically with the subject of death, such as *Death Studies* or *Omega Journal of Death and Dying*, and those indexed in the area of psychology, such as *Behavioural Sciences* or *Frontiers in Psychology*. The papers with the greatest impact (most cited) focus on the effect that the subject of death has on educational processes, taking various aspects into account. These include the educational offer and new content areas, the methodologies used (Dickinson, 2007; Mascarenhas, & Testoni, 2011; Mork et al, 2002), coping with grief processes and their psychological impact (Cacciatore, & Flint, 2012; Sliter et al., 2014), and the knowledge and attitudes of families and teachers regarding the implementation of death pedagogy programmes (McGovern, & Murray, 2000).

After the descriptive analyses, different bibliometric techniques were applied to analyse the scientific activity. The scientific panorama of the study can be exposed with objective data (for example, number of clusters or total link strength between authors or keywords). However, the visualization of data in scientific maps is a very interesting expression resource (Skov, 2021). In this investigation, science maps were used to graphically reflect the structure, evolution, and main actors of the pedagogy of death. Although the data gives us the same information, the visualization network is easier to interpret (Börner et al., 2018). The size of the nodes, the link strength, or cluster organization improve the understanding of scientific data. The maps have been an innovative contribution compared to other studies on this subject.

As for the authors of the most influential publications, Testoni and her collaborators stand out as the most prolific. They focus on the effects of death education courses on Italian adolescents (Testoni et al., 2018b; 2020a); the ontological representation of death (Testoni et al., 2016a); and the influence of death education on existential thinking (Testoni et al., 2020b). Also significant are the contributions of Spaniards Herrán and Rodríguez, who discuss topics such as the background to the pedagogy of death (Rodríguez et al., 2019), or the views of families and teenagers regarding the inclusion of the subject of death in the educational system (Herrán et al., 2020; 2021).

As for the most prolific collaborative networks, special mention should be made of those created by researchers at the University of Padua (16 publications in total). These researchers

published both in co-authorship with other collaborators at that institution, and with Visintin, a researcher at the University of Lausanne. Publications focusing on the analysis of death and suicide through literature (Testoni et al., 2016a; 2016b) emerged from this inter-university collaboration. However, there is an underlying need to strengthen the collaboration between institutions and research groups, thereby fostering a spirit of cooperation in the search for evidence and scientific advances on the pedagogy of death.

Based on the analysis of co-citation and co-occurrence, much of the research maintains death education as its study focus, as identified by the Booleans introduced for the search. Noteworthy are the works addressing the presence/absence of the pedagogy of death in the curriculum (Colomo et al., 2021a; Corr et al., 2019; Herrán et al., 2019; Rodríguez et al., 2020b). It is also worth emphasizing those that address didactic interventions and methodological proposals for working on death in the classroom, including the use of different resources. Such resources include problem-based learning (Mork et al., 2002); service learning (Rodríguez et al., 2015; Servaty, & Tedrick, 2014); narrated photographs (Testoni et al., 2019); psychodramas (Testoni et al., 2018a; 2021b); bibliodrama (Testoni et al., 2021a); films (Head, & Smith, 2016; Niemiec, & Schulenberg, 2011; Tenzek, & Nickels, 2017); songs (Colomo, & Oña, 2014); or stories (Colomo, 2016). To implement death education correctly, specific training is needed for teachers to be able to tackle this process, as pointed out by different studies (Colomo, & Cívico, 2018; Corr, 2016; Pedrero-García, 2019; 2020; Ramos-Pla, 2019; Rhatigan et al., 2015; Stylianou, & Zembylas, 2021). Another increasingly present and relevant field of research involves publications focusing on psychobiological factors derived from the fear of death or grieving processes, such as death anxiety (Cacciatore, & Flint, 2012; Colomo et al., 2019; 2021b; McClatchey, & King, 2015; Moreno, & Risco, 2018; Nienaber, & Goedereis, 2015; Sliter et al., 2014; Wallace et al., 2019). All these topics constitute the main lines of research on the pedagogy of death.

Limitations

This work is limited by the lack of incorporation of publications belonging to other relevant databases, such as Web of Science, Eric, or Scielo. This is due both to the fact that journals that publish the papers are often indexed in different databases, and to the strict criteria for the incorporation of publications demanded by Scopus, which ensures a high-quality representative sample. Furthermore, papers from other areas besides social sciences,

psychology, arts, and humanities could have also been included, as other fields of knowledge, especially medicine, could potentially contribute further information.

Future lines of work

One future line of research, still focusing on publications on the pedagogy of death, is the possibility of specifically addressing different formative stages of formal education, as well as studies focusing on non-formal education. In addition, the influence of the pedagogy of death on specific variables, such as anxiety about death, spirituality, fear, or mourning processes, could also be considered. Another potential line of research would be a pre-test and post-test on an intervention with future teachers to find out their perception of including the pedagogy of death in their curriculum. A final interesting line would be a qualitative study on the normalization of the subject of death in school, where its impact on the resolution of grieving processes could subsequently be studied.

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