



Bibliometric Analysis of Euthanasia in the Perspective of Medical Ethics

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Abstract

Background: Euthanasia has emerged as a critical topic of debate in society, encompassing both public discourse and private considerations within medical, legal, and ethical domains. The concept, which involves death with or without physician assistance, has gained significant attention due to its complex implications for human rights, medical ethics, and professional practice. The development of euthanasia policies in various countries has raised new challenges related to conscientious objection and medical practice adjustments.

Methods: This study employed a bibliometric analysis approach using Scopus as the primary data source. The search query focused on "euthanasia in medical ethics perspective" for publications from 2016 to 2024. Data cleaning and transformation were conducted using OpenRefine, while VOSviewer software (version 1.6.6) was utilized for data analysis and visualization, generating network, overlay, and density visualizations to identify publication trends across various metrics.

Results: The analysis revealed significant fluctuations in euthanasia-related publications from 1976 to 2024, with notable peaks in 1992, 1996, and 2000. The United States emerged as the leading country in publications, followed by significant contributions from the Netherlands and Belgium. Medical disciplines dominated the subject areas (45.2%), followed by nursing (9.7%) and social sciences (5.9%). The research identified three main clusters in global euthanasia research: one focusing on humanitarian and ethical aspects led by the United States, another centered on legalization progress led by Belgium and the Netherlands, and a third cluster examining death and legal aspects.

Conclusion: Euthanasia research shows diverse disciplinary contributions, with medical perspectives dominating but requiring integration with nursing and psychological insights for comprehensive policy development that respects patient values.

Keywords: Euthanasia, Medical Ethics, Bibliometric Analysis, End-of-Life Care, Healthcare Policy

Introduction

Euthanasia has become a significant topic of debate in society, not only as a public issue, but also as a private issue involving individuals and professional groups, including medical, legal, and applied ethics.¹ Despite its private nature, public attention to euthanasia shows that the topic has a strong appeal among the public.² Euthanasia, which is defined as death that can occur with or without the help of a doctor, has become a subject of deep discussion in various circles.³ The term can be subdivided into voluntary and involuntary euthanasia. The traditional distinction between active and passive euthanasia requires critical analysis. First of all, active euthanasia is in many cases more humane than passive euthanasia. Secondly, conventional doctrine leads to decisions about life and death on irrelevant grounds.⁴ In this context, the ability of nurses to act according to conscience becomes an important aspect of professional ethics, especially when dealing with patients' end-of-life decisions. The development of Medical Assistance in Canada, for example, revealed new challenges related to conscientious objection that require adjustments in nursing practice.⁵ The definition of death is also a complex

medical issue. Often, courts assume that a person who is still breathing cannot be considered dead. However, in certain situations, such as braindeath, a person may be considered medically dead.⁶

Talking about euthanasia, *eu* (good), *Thanatos* (dead, corpse), is actually inseparable from what is called the right to self-determination in patients. This right is one of the main elements of human rights. Advances in the way people think have led to new awareness of these rights as well as various developments in science and technology, especially in the field of medicine, which have resulted in very dramatic and significant changes in the understanding of euthanasia.⁷ This type of euthanasia, dubbed "mercy killing", is practiced on the grounds that the caregiver wants to "ease the pain" suffered by the patient.⁸ A medical personnel who performs active euthanasia can be said to commit an act of murder and can be criminally punished.⁹ There are several reasons for euthanasia, including the patient's illness, which requires a lot of funds, while the family cannot afford the treatment.¹⁰ Euthanasia can be carried out by using intensive care units and installing sophisticated equipment such as ventilators and respirators, or stopping such treatment altogether.¹¹

From a humanitarian point of view, euthanasia seems to be an act that should be praised, namely helping fellow humans in ending their misery.¹² Although juridically euthanasia is still not possible, it turns out that applications for active euthanasia have been submitted by several people in recent years. One of them was Berlin Silalahi who applied for active euthanasia or lethal injection to the Banda Aceh District Court, because she was paralyzed and had a chronic illness.¹³

The wish of patients with advanced illness to hasten death (WTHD) often triggers discussions about euthanasia. Studies show that this wish can have diverse meanings depending on the patient's personal and socio-cultural background, and does not necessarily mean they want to take concrete steps to end their life.¹⁴ This research emphasizes the importance of understanding patients' moral thoughts regarding illness and death in the context of euthanasia. While passive euthanasia may be ethically acceptable with some considerations, active euthanasia is often rejected on ethical, moral and legal grounds.¹⁵

In a broader context, the state needs to take proactive steps to protect the interests of individuals and society, as well as ensure public welfare and economic stability. This becomes particularly relevant in sensitive issues such as euthanasia, which often require in-depth discussions between patients and doctors.¹⁶ Requests for future euthanasia directives (AEDs) must be clearly explained, including the conditions under which death may occur. In the Netherlands, for example, although there is no strict legal regulation, it is recommended that euthanasia directives are regularly updated to define situations in which euthanasia becomes the primary option for the patient. This process is important to help patients and their families make informed decisions that are in line with their values.¹⁶ Currently, there are legal provisions legalizing the act of hastening the dying process in several countries, including the Netherlands, Belgium, Switzerland, Luxembourg, Canada, Colombia, as well as several states in the United States, which collectively represent nearly 18% of the US population.¹⁷

In its analysis, the concept of euthanasia should not only be seen from the patient's perspective, but should also consider ethical, legal, human rights, as well as cultural and religious aspects.¹⁸ At the operational level, these ethical principles should be applied in policies and practices so that euthanasia is implemented with adequate ethical considerations, preserving human dignity. In this way, we can ensure that decisions are fair and sensitive to individual needs, creating a more humane environment in the face of this complex challenge.¹⁹

Methods

The bibliometric analysis used a search query to identify euthanasia-related publications worldwide from 2016 to 2024. The search query included the keywords "euthanasia in medical ethics perspective". The data source used was Scopus, a leading platform for patent and scientific searches. OpenRefine was used as the software to clean and transform the search result data. In contrast, VOSviewer software (version 1.6.6) was used for data analysis and visualization to generate network, overlay, and density visualizations. More details about the bibliometric analysis method can be found in figure 1.

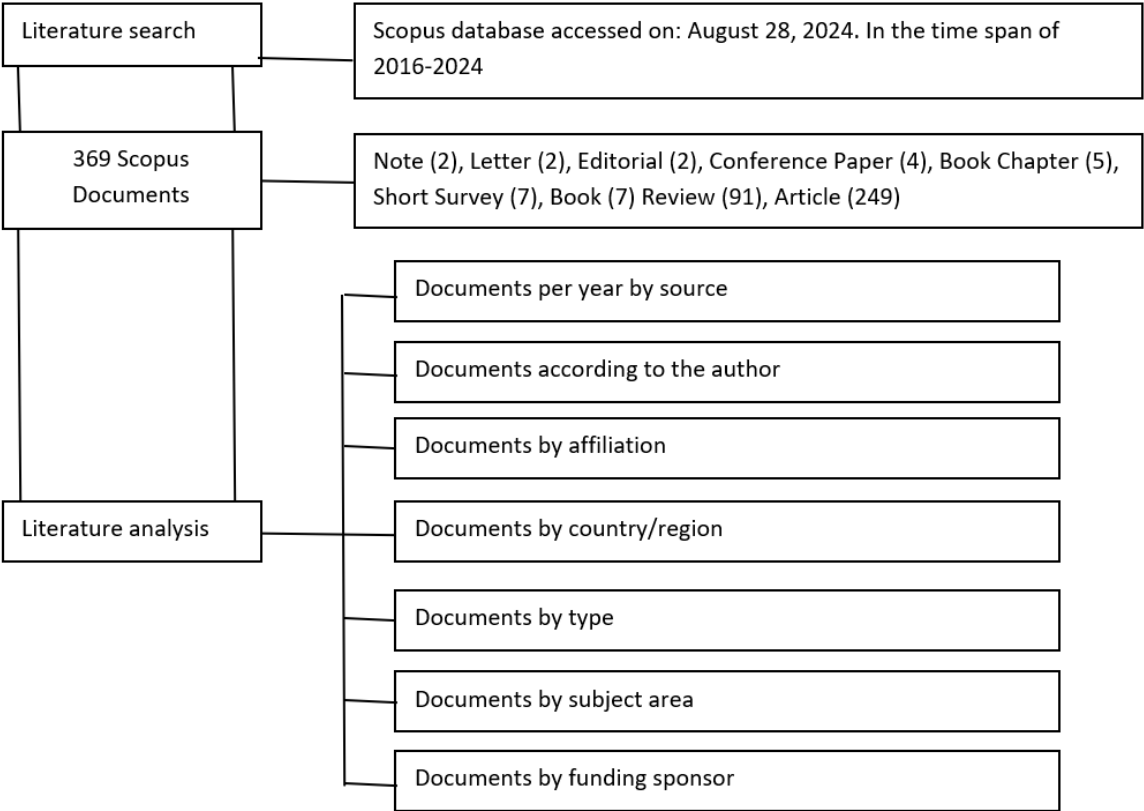


Figure 1. Flow of data collection

The purpose of the data analysis and visualization in the figure is to identify publication trends by documents per year, author, affiliation, country/region, type, subject area, and funding sponsor. The bibliometric analysis used the VOSViewer application to map research trends in euthanasia research. VOSViewer is software for creating and visualizing web bibliographies, VOSViewer is mainly used when working with small and large data sets. It displays data maps and various analyses.

Results and Discussions

Bibliometric analysis plays an important role in understanding publication trends and patterns in various research fields. In the context of euthanasia, this review aims to explore the existing literature, highlight significant developments, and identify sources that contribute to the scientific discussion. Through a graphical analysis showing the number of documents per year and their sources, we can examine how the issue of euthanasia has been discussed in the literature over time. This analysis includes not only overall trends in publications, but also variations in contributions from different sources, reflecting the dynamics within the research community. By understanding the historical and contemporary context of these publications, we can better understand the complexity of the discussion around euthanasia and the factors that influence researchers' attention to this issue. In the next section, we will discuss in depth the relevant bibliometric analysis charts and provide insights into the developments and challenges in euthanasia research.

3.1 By year

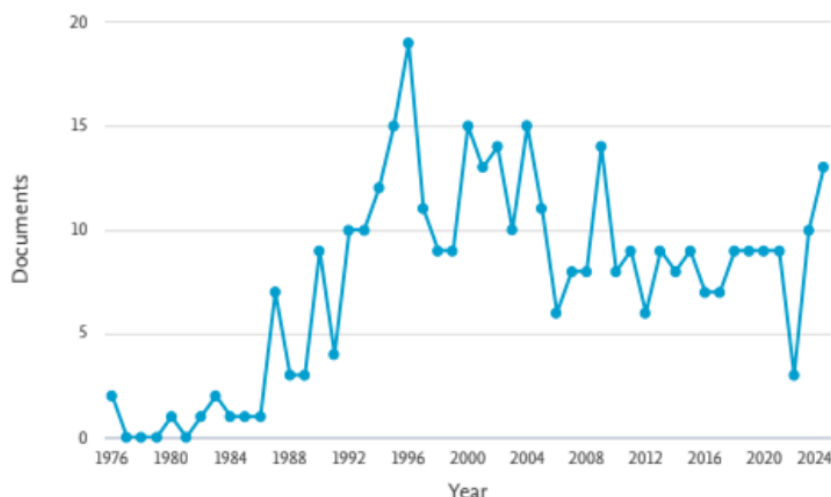


Figure 2. Analysis Documents by year

Source : Scopus database, 2024

Based on the graph shown, there are significant fluctuations in the number of publications of journal articles on euthanasia from 1976 to 2024. There was the first spike in publications in 1992, reaching a peak of 17 documents. This was likely related to the legal and ethical debates taking place at the time, when several countries began to consider legalizing euthanasia. Then, another surge of publications occurred in 1996, reaching 19 documents. This could be attributed to the intensification of public discussion and debate on the issue of euthanasia in various parts of the world. Furthermore, in 2000 there was another significant increase, reaching 18 documents. This may be due to the increasing academic and public attention and debate regarding the legal, ethical and medical implications of euthanasia. After this period, there were fluctuations with a downward trend until 2016. However, 2020 saw an increase again, reaching 13 documents. The projection for 2024 also shows an increasing trend, reaching 14 documents. This reflects that the topic of euthanasia remains relevant and an ongoing concern in the context of legal, ethical and medical aspects.

3.2 According to the Author

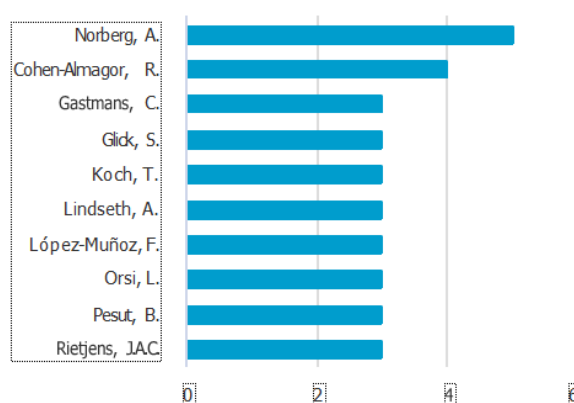


Figure 3. Analysis Documents by author

Source : Scopus database, 2024

Based on the graph, we can further analyze the authors' contributions to euthanasia-related research. The most prolific author is Norberg, A., with a much higher number of documents than other authors, indicating that Norberg, A. is one of the leading researchers and has a strong focus on the topic of euthanasia. Besides Norberg,

A., there are several other authors who also have significant contributions, such as Cohen-Almagor, R. and Gastmans, C., who seem to be quite prolific and influential authors in the literature on euthanasia. On the other hand, authors such as Glick, S., Koch, T., Lindseth, A., and several others have a lower number of publications, although they still make important contributions in developing the understanding and discourse regarding euthanasia. One of the important articles written by Norberg, A. entitled "Ethical Dilemmas Concerning Euthanasia in Dementia Care: A Qualitative Study" which was published in 2020. In this article, Norberg, A. analyzes the ethical dilemmas faced in dementia care related to euthanasia, by exploring the perspectives of healthcare professionals and patients' families regarding the ethical and practical considerations that arise when facing euthanasia decisions for dementia patients. The results of this study provide important insights in understanding the complexity of euthanasia issues, particularly in the context of dementia care, which can further contribute to the development of relevant guidelines and policies.^{20,21}

3.3 Based on affiliation

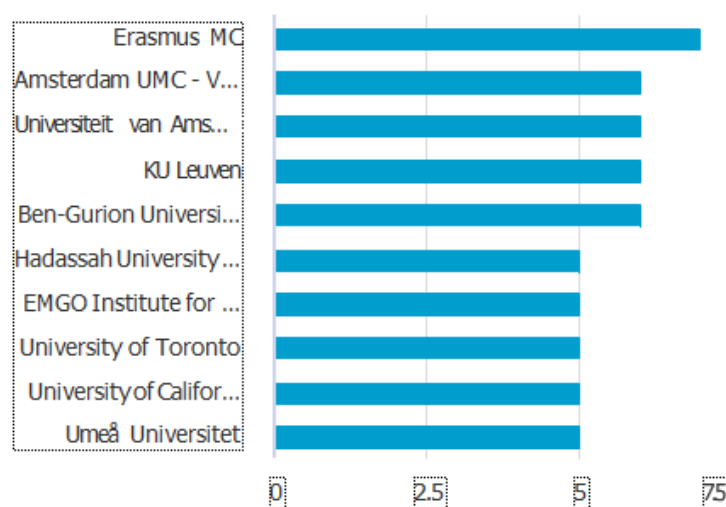


Figure 3. Analysis Documents by affiliation

Source: Scopus database, 2024

The graph showing the number of documents by institutional affiliation reveals some important findings about the contribution of institutions in euthanasia research. Erasmus MC and Amsterdam UMC in the Netherlands stand out as institutions with the highest number of publications, indicating that the Netherlands, with its progressive legal policy on euthanasia, is becoming a major center in this field of research. In addition, Ben-Gurion University in Israel and the University of California in the US also show a significant number of publications, indicating that academic interest in euthanasia research is not limited to Europe, but also extends to other countries, signaling the global relevance of this issue. The difference in the number of publications between institutions reflects the concentration of research in some locations. More productive institutions are likely to have more focused research programs, better resources, and stronger collaborations with other researchers. Overall, this analysis shows that euthanasia research involves a variety of perspectives from institutions in different parts of the world. Identifying the most active institutions can help in planning collaborations and understanding emerging research trends. Further research into the specific contributions of each institution will provide deeper insights into the challenges and directions of euthanasia studies.

3.4 Country-based

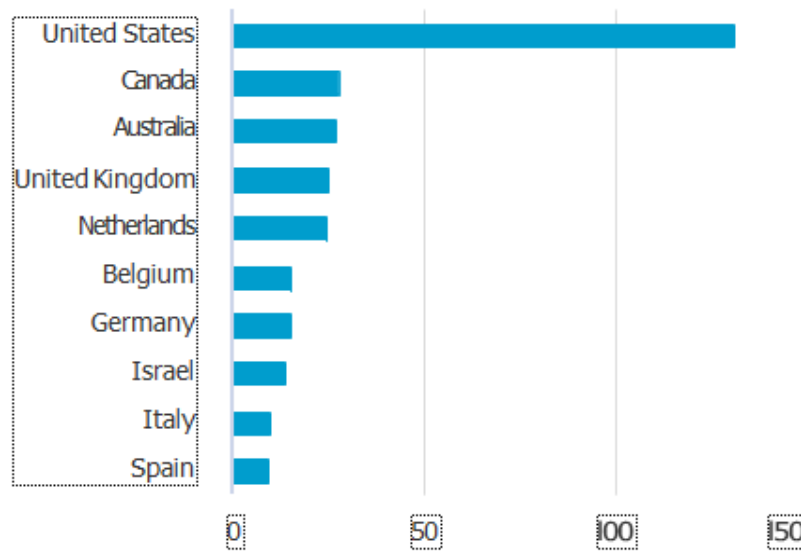


Figure 4. Analysis Documents by country
Source: Scopus database, 2024

An analysis of publications on euthanasia shows that the United States is the most dominant country, with regard to legal debates over individual rights and health policy. Some states, such as Oregon and California, have passed euthanasia laws, encouraging more research. Canada also showed significant contributions after legalizing medical euthanasia in 2016, focusing on the ethical, legal and social impact implications. In the Netherlands and Belgium, which have progressive laws, research often explores the patient experience and social impact of euthanasia. Meanwhile, Germany and Spain have fewer publications but remain important. In Germany, discussions focus on moral and legal issues, while Spain, which recently legalized euthanasia, is beginning to develop research on social acceptance and implementation challenges.

3.6 Based on Type

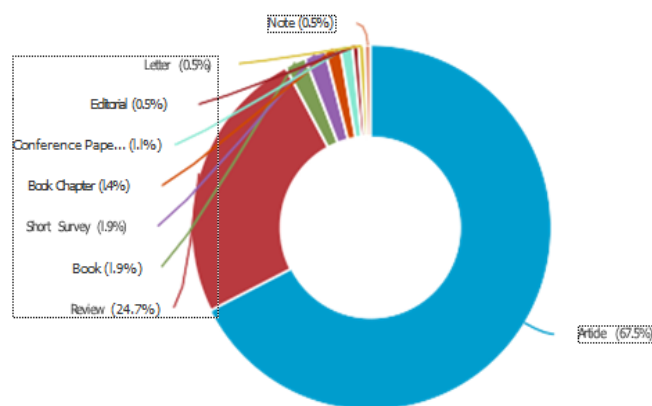


Figure 5. Analysis Documents based on type
Source: Scopus database, 2024

A bibliometric analysis of publications on euthanasia shows that most contributions come from research articles, reaching 76.5%. This reflects the tendency to focus on empirical research that comprehensively investigates various aspects of euthanasia. Meanwhile, review articles accounted for 24.7% of the overall publications. This type of document plays an important role in summarizing previous research and identifying trends and key issues related to the topic of euthanasia. In addition to research and review articles, there were smaller contributions from other document types, such as letters (0.5%) and editorials (0.3%). Although the portion is not large, these types of documents indicate the dynamics of academic discussions that take place around the issue of euthanasia. Meanwhile, conference papers accounted for 0.4% of the total publications, while contributions from book chapters and books were only 1.4% and 1.9%, respectively. This finding indicates that major publications related to euthanasia tend to occur in academic journals that are scrutinized through a rigorous peer review process. Overall, this analysis shows that research articles and review articles are the most dominant forms of publication in the euthanasia literature. Review articles play an important role in synthesizing and integrating existing knowledge, while research articles focus on in-depth empirical investigations of the issues and dynamics associated with euthanasia.

3.6 Based on Subject Area

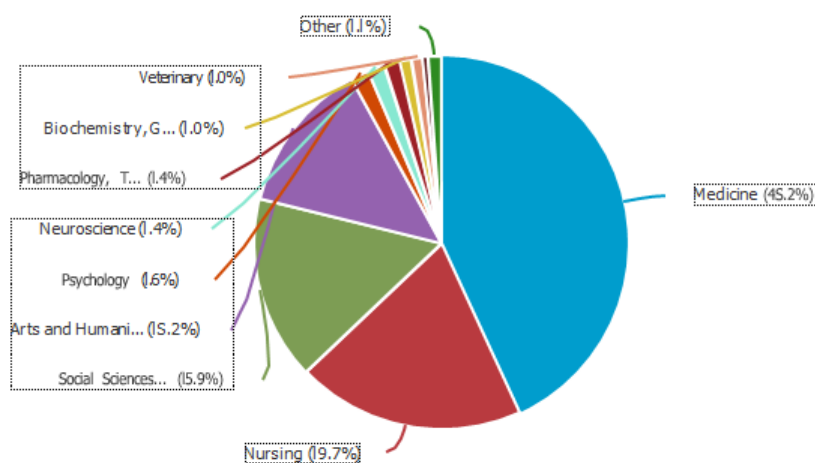


Figure 6. Analysis Documents by Subject Area
Source: Scopus database, 2024

Bibliometric analysis of publications on euthanasia shows that this topic is dominated by the medical discipline, which accounts for 45.2% of the total publications. This is understandable given that euthanasia is an issue that is closely related to end-of-life care and medical ethical issues. As the discipline directly responsible for the practice of euthanasia, medical perspectives are very important in discussing various aspects of euthanasia, both in terms of procedural, clinical considerations, and ethical implications. In addition, nursing also made a significant contribution of 9.7%. The nursing profession plays an important role in providing care and support for patients and families facing euthanasia decisions, so publications from this discipline are also relevant in understanding this issue comprehensively. The discipline of psychology accounted for 4.6% of publications, emphasizing the importance of understanding the psychological dimensions of euthanasia, such as the emotional impact and decision-making process on patients and families. Meanwhile, social sciences contributed 5.9%, providing insights into societal, cultural, and policy perspectives on euthanasia. Although medicine dominates, a multidisciplinary approach is necessary to understand euthanasia holistically. Other disciplines such as neuroscience (0.4%) and arts and humanities (0.5%) also provide additional perspectives that can enrich the scientific discourse on this complex issue. Overall, the dominance of medicine in publications on euthanasia reflects the importance of this discipline's perspective and contribution in addressing the technical, clinical, and ethical aspects associated with the practice of euthanasia. However, an interdisciplinary approach is still needed to comprehensively understand euthanasia, given its impact that extends to various dimensions of human life.

3.7 Co-occurrence analysis

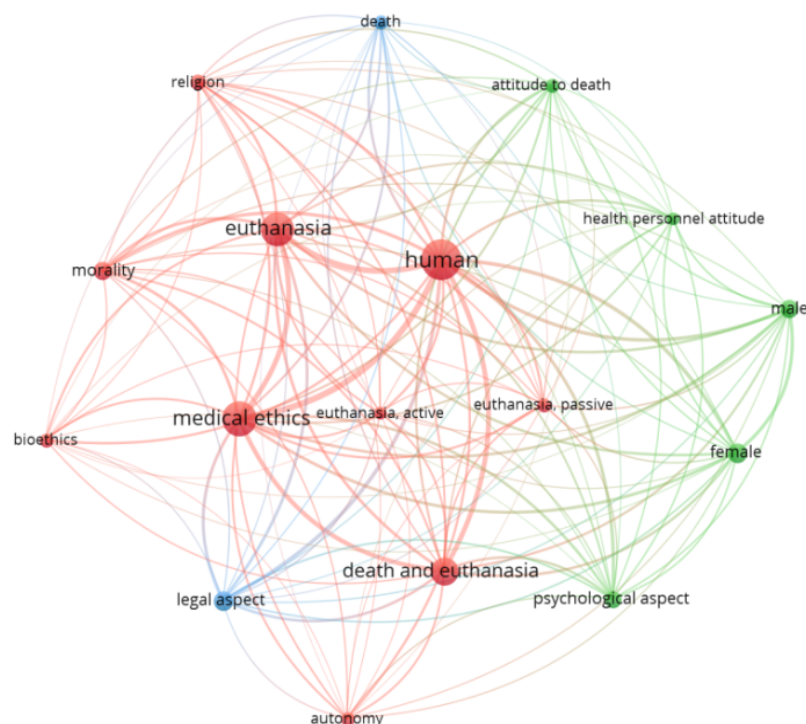


Figure 7. Co-occurrence analysis

In the figure presented above, there are 3 kinds of colors that indicate there are 3 clusters regarding euthanasia research in medical ethics. This means that these keywords will be used more frequently in research. The first cluster consists of 10 keywords marked in red. In this first cluster, the ones with the largest circles are Human, euthanasia, and medical ethics. The second cluster consists of 5 keywords marked with green circles with the largest circles being attitude of death, female, and health personnel attitude. The third cluster consists of 2 keywords marked with red color which consists of death and legal aspect.

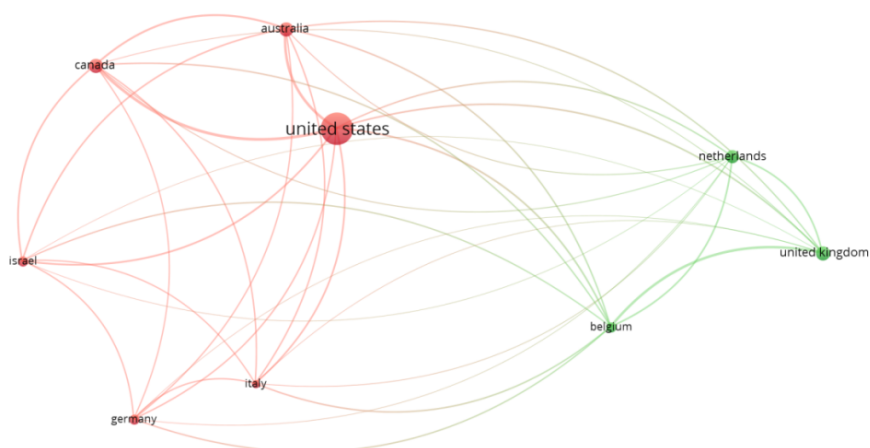


Figure 8. Bibliographic coupling of documents

Based on the figure, there are three main clusters in euthanasia research. The red cluster, which includes the United States, Canada, Germany, Italy, and Israel, focuses on the humanitarian and ethical aspects, with the

United States taking center stage. The green cluster, consisting of the Netherlands, Belgium, and the United Kingdom, shows progress in the legalization of euthanasia, with Belgium as the main highlight. The interrelationship between the two clusters illustrates a complex debate, where the red cluster emphasizes ethical considerations, and the green cluster shows policy progress. This analysis shows significant variation in approaches to euthanasia across countries.

Conclusions

Bibliometric analysis of euthanasia shows that the topic remains relevant and attracts researchers' attention, with fluctuations in publications reflecting dynamic legal and ethical debates. Significant contributions from authors and institutions in the Netherlands and the United States reflect the important role of both countries in the development of euthanasia policy and practice. Multidisciplinary approaches, particularly from medicine, nursing, and psychology, demonstrate the need for a holistic understanding. Medicine provides technical insights, nursing highlights support for patients and families, while psychology helps understand the emotional impact of euthanasia decisions. The issue of euthanasia is raised globally with many different perspectives and policies. Therefore, it is important to continue dialog and collaboration across disciplines. This collaboration will enrich understanding and assist in the development of more humane and evidence-based policies, ensuring that decisions sensitively and ethically reflect the needs and values of patients.

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Declarations of competing interest

No potential competing interest was reported by the authors.

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