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Research Article

A worldwide bibliometric analysis on euthanasia

Ötanazi üzerine dünya genelinde bir bibliyometrik analiz

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Abstract

Introduction: Euthanasia, which allows individuals with an incurable disease to end their lives in an honourable way, is a long-debated practice. It is related to various issues such as culture, philosophy, religion, ethics, public value, and efficient use of health resources. While some advocate for the right of individuals to choose euthanasia, others criticize it on ethical, legal, and religious grounds.

Methods: In this study bibliometric analysis was used and the data were obtained from the Web of Science Core Collection database on July 26, 2024. Only English publications and articles were included using keywords such as "euthanasia," "end-of-life decisions," "medical assistance in dying," "physician-assisted death," and "physician-assisted suicide" without time restrictions. VOSviewer software was used to create network and density graphs, and SciMAT software was used to create strategic diagrams.

Results: A total of 2,230 studies published between 1980 and 2024 were analyzed. The author with the most publications is Deliens, L, with 86 studies. The majority of studies were published in the USA, Netherlands, and Canada (692, 336, 225 respectively). The most frequently used keywords are euthanasia, palliative care, and ethics. The highest number of publications (149) was in the year 2021. In the strategic diagram for the first period (between 1980 and 2001), the themes of care and ethics were prominent, while for the second period (between 2002 and 2024), the clusters of nurse and shared decision-making were notable.

Conclusion: After its legalization in the Netherlands, euthanasia has been accepted and implemented in some countries over the years, with variations in scope. Some countries, like the Netherlands and Belgium, also accept health problems related to old age and mental illness as euthanasia requests. The discussion around euthanasia often revolves around the principles of medical ethics, including autonomy, beneficence, non-maleficence, and justice. Studies have focused on the role of physicians and nurses in the process, as well as end-of-life decision-making by patients. Recently, Canada defined the role of nurses in the euthanasia process, marking a significant development.

Keywords*:* Euthanasia, Ethics, Passive, Active, Voluntary, Palliative Care

Öz

Giriş: Tedavi edilemez bir hastalığa sahip bireylerin onurlu bir şekilde yaşamını sonlandırmasına izin veren ötanazi, yüzyıllardır tartışılmakta olan bir uygulamadır. Ötanazi kültür, felsefe, din, etik, kamu değeri ve sağlıkta kaynakların etkin kullanımı gibi pek çok konu ile ilişkilidir. Bireylerin ötanazi hakkını savunanlar olduğu kadar etik, hukuki ve dini yönden eleştirenler de bulunmaktadır.

Yöntem: Bu çalışmada bibliyometrik analiz yöntemi kullanılmıştır. Veriler Web of Science Core Collection veri setinden 26.07.2024 tarihinde elde edilmiştir. Yalnızca İngilizce ve makale türünde yayınlar çalışmaya dahil edilmiştir. "euthanasia" OR "end-of-life decisions" OR "medical assistance in dying" OR "physician-assisted death" OR "physician-assisted suicide" anahtar kelimeleri kullanılmıştır. Zaman kısıtlaması yapılmamıştır. VOSviewer yazılımı ile ağ ve yoğunluk grafikleri, SciMAT yazılımı ile stratejik diyagramlar oluşturulmuştur.

Bulgular: İlk çalışmanın yayınlandığı 1980 yılından 2024 yılına kadar yayınlanmış toplam 2,230 çalışmaya ulaşılmıştır. En fazla yayına sahip yazar 86 çalışma ile Deliens, L'dır. En fazla çalışma ABD, Hollanda ve Kanada'da yayınlanmıştır (sırasıyla 692, 336, 225). En sık kullanılan anahtar kelimeler euthanasia, palliative care ve ethics'tir. En fazla çalışma (149 yayın) 2021 yılında yayınlanmıştır. Birinci dönem (1980-2001 yılları arası) stratejik diyagramında care ve ethics temaları, İkinci dönem (2002-2024 yılları arası) stratejik diyagramında nurse ve shared-decision-making kümeleri öne çıkmaktadır.

Sonuç: Ötanazi uygulaması ilk defa Hollanda'da yasallaşmasının ardından yıllar içinde bazı ülkelerde de yasal olarak kabul edilip uygulanmaya başlanmıştır. Ülkeler arasında ötanazinin kapsamı değişebilmektedir; Hollanda ve Belçika gibi bazı ülkelerde yaşlılığa bağlı sağlık sorunları ve mental hastalıklar da ötanazi talebi için kabul edilmektedir. Ötanazi tıp etiğinin özellikle dört ilkesi (otonomi, fayda, zarar vermeme ve adalet) yönünden sıklıkla tartışılmaktadır. Hastanın yaşam sonu kararı kadar bu süreçte yer alan hekimler ve hemşireler de çalışmalarda ana tema olmuştur. Yakın zamanda Kanada ötanazi sürecinde hemşirenin rolünü tanımlayan ilk ülke olmuştur.

Anahtar kelimeler: Ötanazi, Etik, Pasif, Aktif, Gönüllü, Palyatif Bakım

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Key Points

1. More than two thousand studies on euthanasia have been published worldwide.
2. The top three countries with the highest number of publications are the USA, the Netherlands and Canada.
3. In studies published between 1980 and 2001, the themes of care and ethics come to the fore.
4. In studies published between 2002 and 2024, nurse and shared-decision-making themes are the most frequently used.

Introduction

The will of an individual to control their own life and the desire to end it has been a topic of discussion since ancient times. Unbearable suffering, especially when faced with an incurable disease, has been viewed by some philosophers as a valid reason to choose death. Socrates and his student Plato believed that it is acceptable and understandable for a person to choose to stop living when confronted with severe illness. In his work “The State”, Plato criticizes the physician Herodotus for finding ways to prolong death and excessively manage the symptoms of serious illnesses, a concept now referred to as distanasia [1]. The Stoics also argued that accepting death could be a means to escape suffering. However, despite some support for the idea of assisted suicide for terminally ill individuals during that time, philosophers like Aristotle regarded the act of suicide as cowardly [2].

During the Roman Empire, it was believed that terminally ill patients had valid reasons to contemplate suicide, as medical practices were not advanced enough to alleviate pain and suffering. However, the spread of Christianity in the West altered attitudes toward euthanasia. The Catholic Church strictly prohibited both suicide and euthanasia, and from 693 AD, anyone who attempted to harm themselves was excommunicated [1,2]. Throughout the Middle Ages, science, art, and medicine were heavily influenced by the Catholic Church. This religious authority viewed suffering as a way for God to purify sin, likening it to the suffering of Jesus on Golgotha. However, the Renaissance brought a revival of scientific and philosophical inquiry, sparking renewed debate on the issue of euthanasia. Thinkers such as Thomas More and Francis Bacon contributed to redefining euthanasia. They advocated that the dying person should be assisted in achieving an honourable death free from suffering. In his work "Utopia," More suggested that in cases of extraordinary suffering, the option to end a patient's suffering through the withholding of food or the administration of a lethal drug should be available, but only with the patient’s consent. Contrarily, in the 17th century, theologian Johann Andreae, in his utopia "Christianopolis," opposed More and Bacon’s arguments. He defended the right of seriously ill and incurable patients to continue living, even if they experienced distress and alienation. By the 19th century, opposition to euthanasia gained prominence once again [1].

In the twentieth century, eugenics-related euthanasia drew significant attention. For instance, the euthanasia practiced by the Nazis in England during the early 1900s and in Germany during World War II targeted individuals with physical and mental disabilities. This form of euthanasia was far removed from its contemporary understanding. At that time, it was used with the intent to exterminate individuals deemed undesirable or certain national groups [1,3].

Since the 1960s, cases involving individuals requesting euthanasia for themselves or their relatives suffering from incurable diseases have remained at the forefront of public discussion. Responses to these cases vary; some people believe that these requests are justified, while others think they should be denied [1,2]. This debate continues today in countries where euthanasia has not been legalized.

Literature on Euthanasia

The term "euthanasia" comes from an ancient Greek phrase (Eu-Thanatos), which translates to "good death" or "gentle death." [3,4]. Euthanasia refers to the medical practice of ending the life of a patient who is enduring unbearable pain due to a long-term, incurable disease, with the intention of preventing further suffering [5]. It involves a deliberate action to end an individual’s life in a painless, effective, and gentle manner, executed at their explicit and repeated request [4,6]. The fundamental rationale behind this act is the well-being of the individual whose life is being ended [3].

There are different categories of euthanasia, primarily classified into active and passive euthanasia. Active euthanasia refers to the intentional termination of a person's life by another individual, performed solely in the interests of the deceased. This usually involves the deliberate administration of a substance or procedure that causes death. Conversely, passive euthanasia entails the intentional ending of a person's life through the withholding of life-preserving treatments or substances, also in the interests of the deceased [7]. In summary, active euthanasia involves taking direct action to end a patient's life, while passive euthanasia involves refraining from action or withdrawing support to keep the patient alive [5,8]. Euthanasia can also be categorized based on individual consent, distinguishing between voluntary and involuntary euthanasia. In voluntary euthanasia, the individual clearly expresses a wish to die, either verbally or in writing, with their consent [3,5]. Voluntary active euthanasia (VAE) occurs when a physician intentionally administers medication to ensure the patient's death with the patient’s consent. In contrast, when a physician performs the same act without the patient’s consent, it is referred to as involuntary active euthanasia [2].

Physician-assisted suicide is another method used to end the life of patients who cannot be cured. It is typically distinguished from euthanasia due to differences in how practice is carried out. In euthanasia, a physician administers a lethal substance or ceases treatment to end the patient's life. In contrast, physician-assisted suicide involves the patient taking the lethal substance prescribed by the physician [3]. In this approach, the physician provides the necessary medication, allowing the patient to carry out the process on their own [9].

The primary argument put forth by euthanasia advocates is the importance of individual autonomy-the right to self-determination. They believe that individuals should have the ability to end their lives with dignity [10,11]. A treatment process that is deemed inconclusive or ineffective for a terminally ill patient is referred to as dysthasia. It is argued that dysthasia does not truly prolong life; instead, it lengthens the dying process, subjecting patients to prolonged pain and suffering. This situation may ultimately undermine the dignity of the individual [10].

In 2002, the Netherlands became the first European country to adopt a law permitting physicians to perform euthanasia, though under strict conditions. Following this, Belgium also legalized euthanasia with similar stringent requirements. In the subsequent years, euthanasia was legalized in Luxembourg (2009), Colombia (2015), Canada (2016), and the Australian state of Victoria (2017). New Zealand approved legislation in this area in 2020, which took effect in November 2021. The most recent country to enact euthanasia legislation is Spain (2021), while discussions are ongoing in Portugal and Chile regarding the allowance of euthanasia and assisted suicide [1,3,6,12]. Additionally, physician-assisted suicide is legal in Switzerland and in five U.S. states: Oregon, Washington, Montana, Vermont, and California. However, euthanasia remains prohibited in some countries, including Poland, Türkiye, and Israel [3,5,13].

There are notable differences between countries regarding the types of euthanasia accepted and how they are implemented. For instance, in Canada and Luxembourg, patients must be at least 18 years old, whereas in Belgium, the focus is on the patient's ability to understand their decision rather than their age. Some countries require the patient to have a terminal illness, while in others, this condition is not mandatory [5]. Although euthanasia is primarily used for chronic diseases that are untreatable and cause severe pain, its scope has expanded in certain countries in recent years. In the Netherlands, for example, both euthanasia and physician-assisted suicide are legally permitted for psychiatric conditions deemed incurable [14]. However, euthanasia and physician-assisted suicide in individuals with dementia remain highly controversial [11].

Euthanasia is one of the most controversial issues globally. It is a complex topic that can be examined from multiple perspectives [5,6]. Besides ethical considerations, researchers have also explored its legal, cultural, and religious dimensions [2,5,15-17]. One major ethical concern is that euthanasia may undermine the principle of equality among all lives and pose a risk to vulnerable populations. Critics argue that patients might be deprived of social and economic resources necessary for expensive, yet potentially beneficial treatments [16]. There are fears surrounding non-voluntary euthanasia practices or the psychological coercion of vulnerable patients, potentially leading to a “slippery slope” situation [2]. Additionally, some sick individuals may opt for euthanasia to avoid becoming a burden to their loved ones, preferring not to cause them distress and unhappiness through dependency [11]. From a legal standpoint, euthanasia involves consenting to killing, cooperating in the process, or being indifferent to it. Therefore, the legalization of euthanasia must be examined through the lens of criminal justice. This is particularly contentious in cases where euthanasia is not voluntary, raising questions about the appropriateness and legality of health systems or families making life-ending decisions on behalf of patients [16]. Euthanasia has also been the focus of numerous religious studies. Most world religions regard human life as sacred and oppose any form of human intervention in the death process [16]. The Abrahamic religions, in particular, reject all forms of assisted dying, including active euthanasia, passive euthanasia, or assisted suicide [1]. However, proponents of euthanasia argue that God would not endorse unnecessary human pain and suffering when there is no real hope for recovery [16].

Euthanasia has been a topic of discussion for centuries and is now legally accepted and practiced in some countries. It impacts health systems in various ways, particularly regarding ethical, legal, and religious issues. This study aims to examine the concept of euthanasia in detail and to highlight the associated issues by conducting a bibliometric analysis of relevant studies. Using bibliometric techniques, this study provides a comprehensive overview of the literature on euthanasia and its related topics, illustrating its evolution over time. The findings are expected to assist health decision-makers and policymakers in making informed strategic decisions regarding euthanasia. Furthermore, this study will contribute to the development of new research by outlining the scientific background and current status of the topic for those interested in exploring it further.

Methods

Bibliometric analysis method was used in this study. Bibliometric analysis is a quantifiable method that generates measurable, reproducible, and objective data by examining emerging trends and the knowledge structure within a specific field. This approach provides researchers and relevant stakeholders with valuable insights into the field of study and promotes interdisciplinary collaboration [18]. Bibliometric methods are favored because they offer a comprehensive view of the evolution of the research area, allowing researchers to examine it from a broader perspective [19].

The Web of Science database, widely used in bibliometric studies for its extensive journal coverage and ease of analysis, was selected for this research. Data were downloaded from the Web of Science (WoS) Core Collection on July 26, 2024. Only English-language publications in the article category were included; book chapters, conference proceedings, and other non-article formats were excluded. A preliminary literature review was conducted to identify relevant keywords. The search utilized the following keywords combined with Boolean operators: ‘euthanasia’ OR ‘end-of-life decisions’ OR ‘medical assistance in dying’ OR ‘physician-assisted death’ OR ‘physician-assisted suicide.’ To filter out experimental studies involving animals and eugenics-related euthanasia studies, the search was further refined using the keywords and ‘patient’ OR ‘human,’ while excluding terms such as ‘animal,’ ‘mice,’ ‘mouse,’ ‘dogs,’ ‘rabbits,’ ‘rats,’ ‘cells,’ ‘gene,’ ‘blood,’ ‘bone,’ ‘in vivo,’ ‘Nuremberg,’ ‘Nazi,’ and ‘National Socialist.’ No time restrictions were applied, resulting in a total of 2,230 studies published between 1980 and 2024 being retrieved.

Network and density graphs were created using VOSviewer 1.6.18 for Microsoft Windows, while strategic diagrams were developed with SciMAT 1.1.06 software [20]. All publications were analyzed based on authors, countries, citations, keywords, indexing, publication year, and research area. The publications were then divided into two periods for strategic diagram analysis using SciMAT. The first period spans from 1980, the year of the first publication, until 2002, when euthanasia was legally accepted for the first time; the following years constitute the second period.

Results

A total of 2,230 studies were analyzed, revealing the authors and countries with the highest number of publications, the most cited studies, and the most frequently used keywords. Additionally, the publications were examined based on their distribution across various indexes, years, and research fields.

Authors with Most Publications

In the analysis of authors with the most publications, we considered those who have at least one publication and one citation. According to our findings, Deliens, L. ranks first with 86 publications, while Onwuteaka-Philipsen, B.D. is in second place with 83 publications. Table 1 presents the top five authors with the highest number of publications, and Figure 1 illustrates the analysis of authors publishing on euthanasia.

Table 1. Top five authors with the most publications

Author	Publications (n)	Total Citations (n)
Deliens, L.	86	3,043
Onwuteaka-Philipsen, BD.	83	3,557
Van Der Heide, A.	78	3,893
Van Der Wal, G.	54	3,193
Bilsen, J.	45	1,459

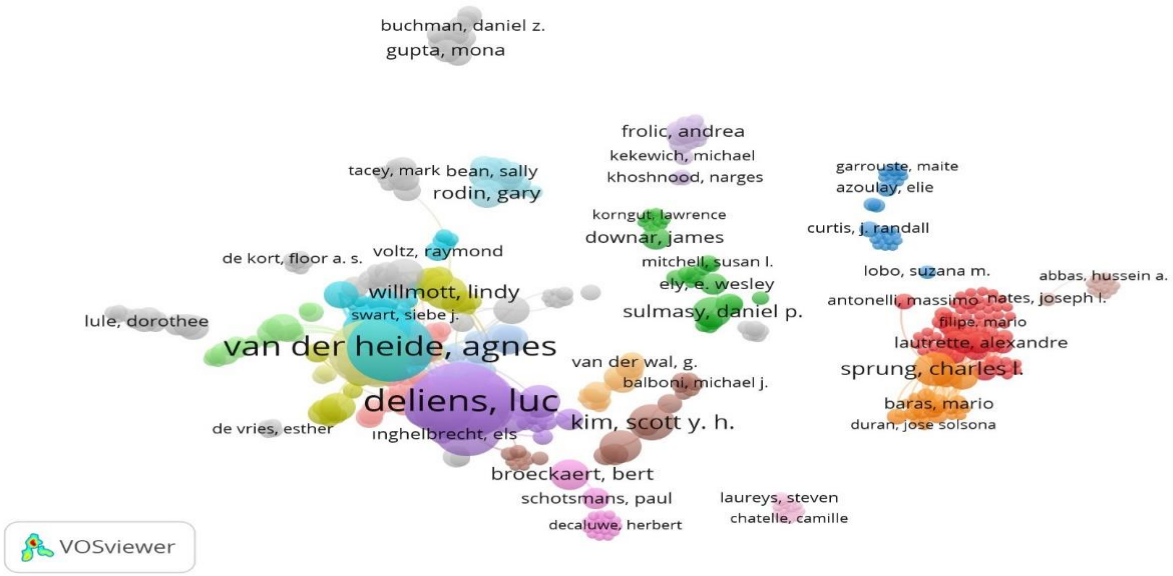

Figure 1. Analysis of the authors with the most publications

Countries with Most Publications

A total of 101 countries have published studies, with the top 25 countries featuring the highest number of publications displayed in Figure 2. The USA leads the list with 692 publications, followed by the Netherlands with 336 and Canada with 225. Türkiye ranks 21st, having published a total of 19 works.

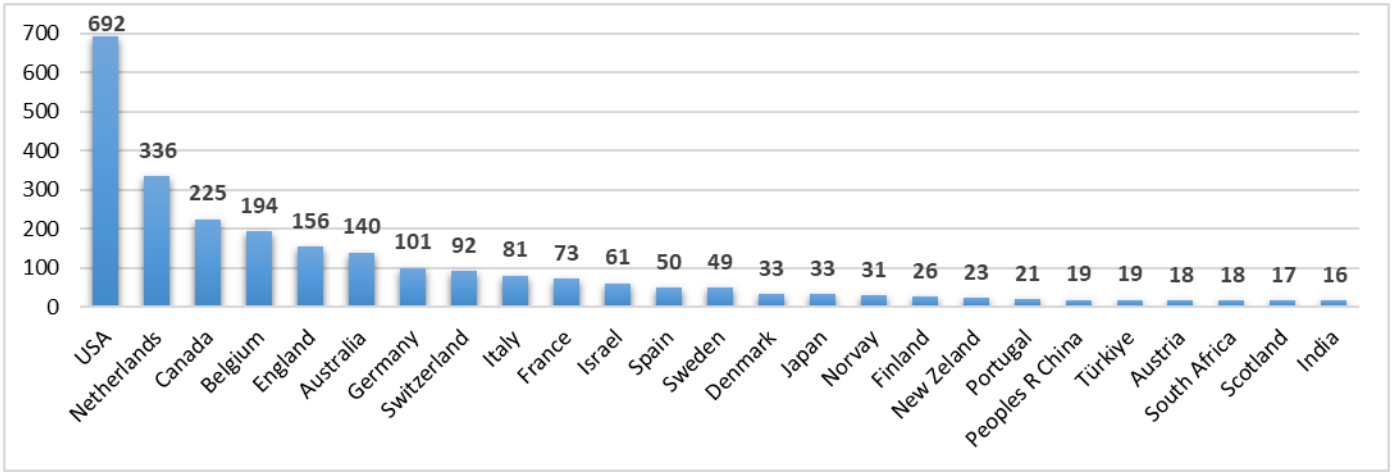

Figure 2. Number of publications by country (top 25 countries)

In the creation of the country network map, at least five publications and one citation criterion were utilized. This process identified a total of 47 countries. It was noted that the publications from 12 of these countries received no citations. The five countries with the highest number of citations were the USA (21,391), the Netherlands (11,370), Canada (7,293), Belgium (5,456), and England (3,812) (Figure 3).

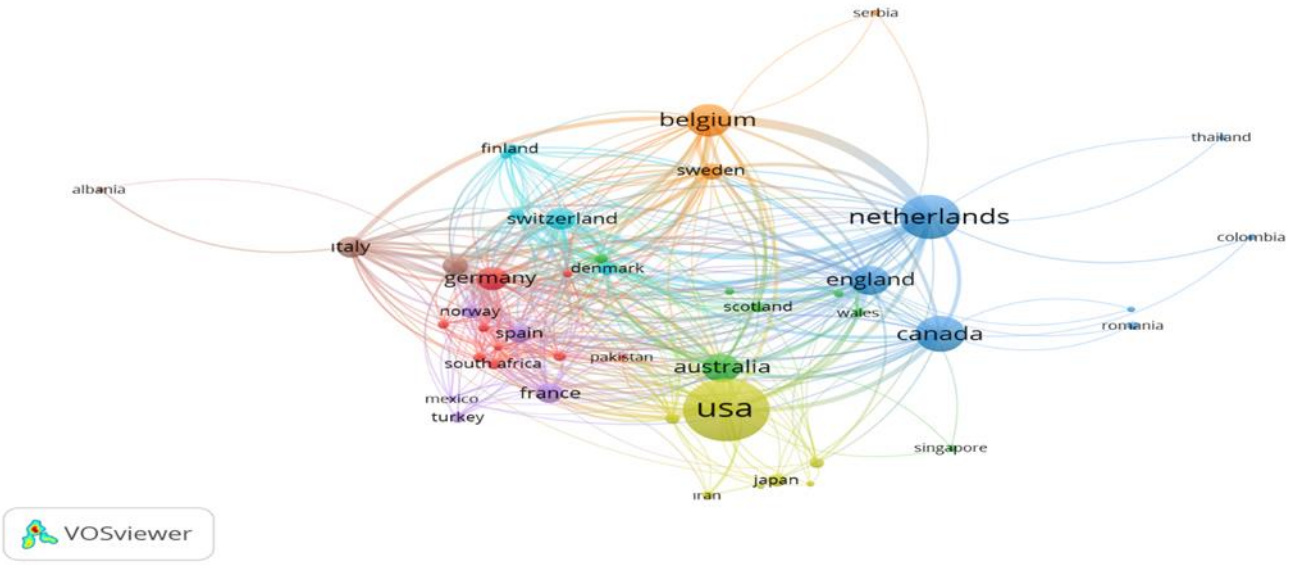

Figure 3. Network map of the countries with the highest number of publications

The Most Cited Publications

The study titled "Dignity Therapy: A Novel Psychotherapeutic Intervention for Patients Near the End of Life," published by Chochinov et al. in 2005, has the highest citation count, with 575 citations. Following closely is Chochinov's 1995 study, "Desire for Death in the Terminally Ill," which ranks second with 514 citations. Other influential studies in the top five include works by Van der Heide et al. (2003), Pochard et al. (2001), and Van der Maas et al. (1991) (Table 2).

Table 2. The most influential publications (Top 5)

Rank	The Most Influential Publications	Citation (n)
1	Chochinov, H. M., Hack, T., Hassard, T., Kristjanson, L. J., McClement, S., & Harlos, M. (2005). Dignity therapy: a novel psychotherapeutic intervention for patients near the end of life. Journal of clinical oncology, 23(24), 5520-5525.	575
2	Chochinov, H. M., Wilson, K. G., Enns, M., Mowchun, N., Lander, S., Levitt, M., & Clinch, J. J. (1995). Desire for death in the terminally ill. The American Journal of Psychiatry, 152(8), 1185–1191.	514
3	Van der Heide, A., Deliens, L., Faisst, K., Nilstun, T., Norup, M., Paci, E., ... & Van der Maas, P. J. (2003). End-of-life decision-making in six European countries: descriptive study. The Lancet, 362(9381), 345-350.	495
4	Pochard, F., Azoulay, E., Chevret, S., Vinsonneau, C., Grassin, M., Lemaire, F., ... & Dhainaut, J. F. (2001). French intensivists do not apply American recommendations regarding decisions to forgo life-sustaining therapy. Critical care medicine, 29(10), 1887-1892.	469
5	Van der Maas, P. J., Van Delden, J. J., Pijnenborg, L., Looman, C. W., of Statistics, C. B., & Hague, T. (1991). Euthanasia and other medical decisions concerning the end of life. The Lancet, 338(8768), 669-674.	460

The Most Frequently Used Keywords

A total of 3,146 keywords were identified across all studies. To determine the most frequently used keywords, we focused on those that appeared five or more times. This analysis revealed 229 keywords that met this criterion. The ten most commonly used keywords, regardless of the year, are listed in Table 3 below. Additionally, Figure 4 presents the network map of the keywords.

Table 3. The most frequent keywords (Top 10)

Rank	Most Frequent Keywords	Occurences
1	Euthanasia	556
2	Palliative Care	268
3	Ethics	167
4	Assisted Suicide	127
5	End-of-life Decisions	124
6	End-of-life Care	115
7	Physician Assisted Suicide	102
8	End-of-life	99
9	Medical Assistance in Dying	79
10	Suicide	70

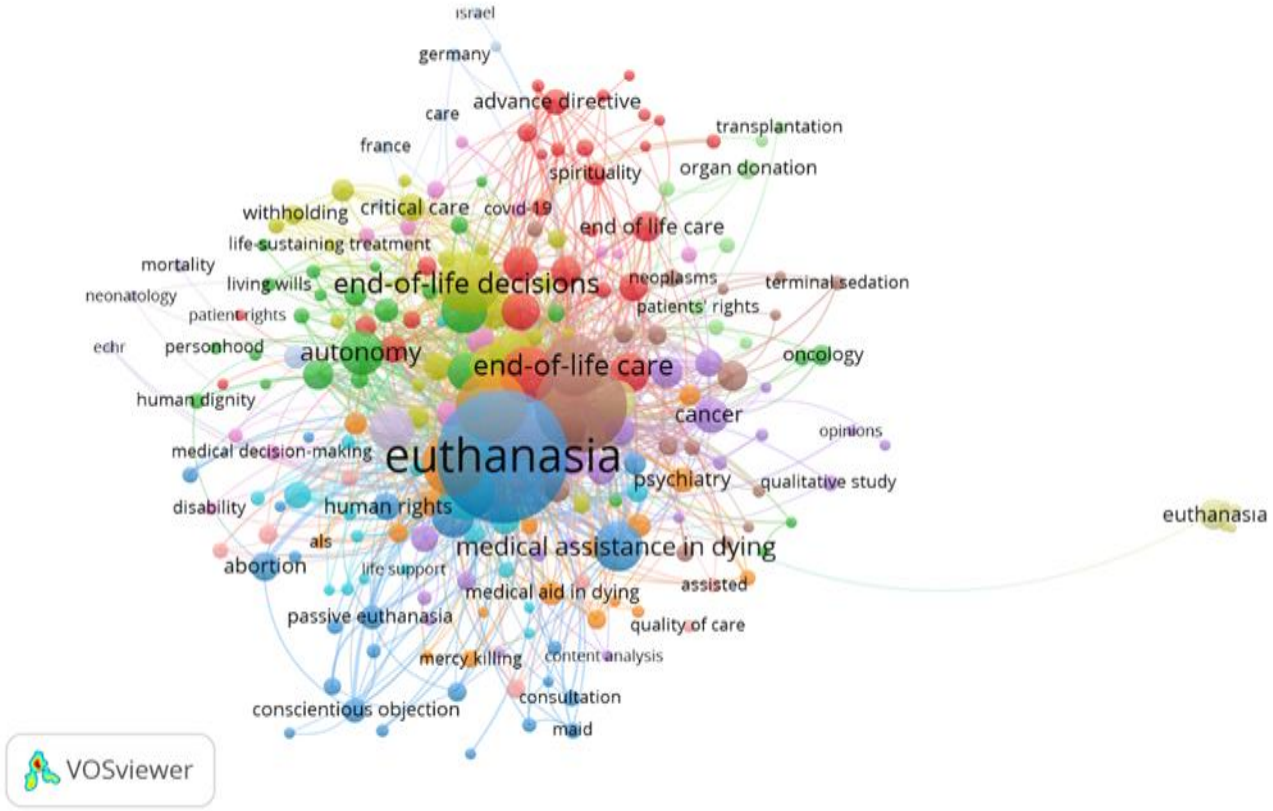

Figure 4. Keyword map

Distribution of Publications by Indexes

The analysis of the WOS Index Distribution revealed that the largest number of publications, totaling 1,476, were included in the Science Citation Index Expanded (SCI-Expanded). This was followed by the Social Sciences Citation Index (SSCI) with 1,366 publications, the Emerging Sources Citation Index (ESCI) with 307 publications, and the Arts & Humanities Citation Index (A&HCI) with 118 publications (Figure 5).

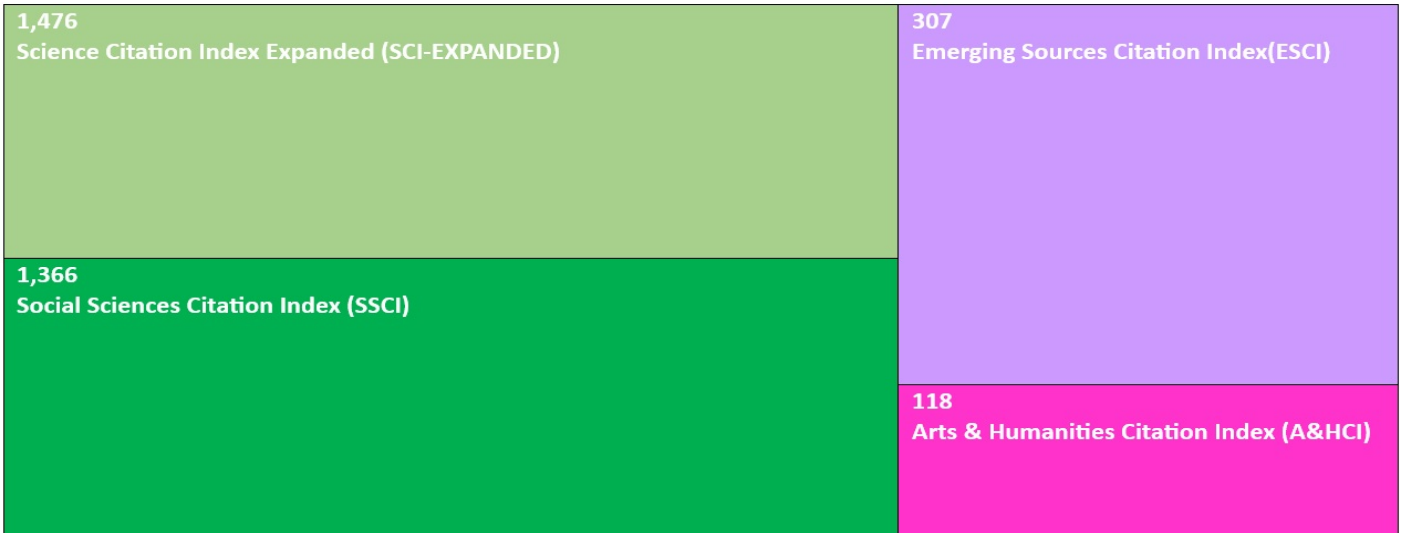

Figure 5. WOS Index distribution of publications

Number of Publications by Year

An analysis of the number of publications by year reveals that only 1 to 2 studies were published each year from 1980 to 1990. After 1990, there was a gradual increase in the number of publications, which surpassed 50 annually starting in 2004. The peak occurred in 2021, after which the number of publications began to decline in the following years (Figure 6).

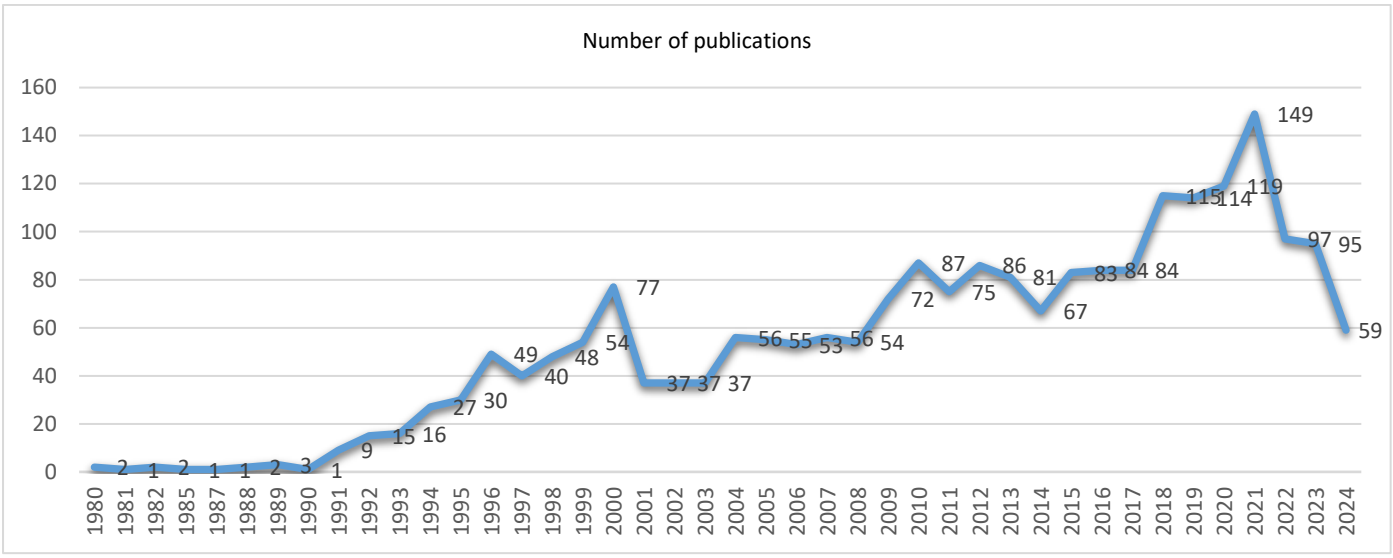

Figure 6. Distribution of the number of publications by year (All Years)

Publications by WoS Research Area

According to WOS research areas, the top five fields with the highest number of published studies are as follows: General Internal Medicine (n=516), Health Care Sciences and Services (n=424), Other Social Sciences (n=421), Biomedical Social Sciences (n=390), and Medical Ethics (n=286) (Figure 7).

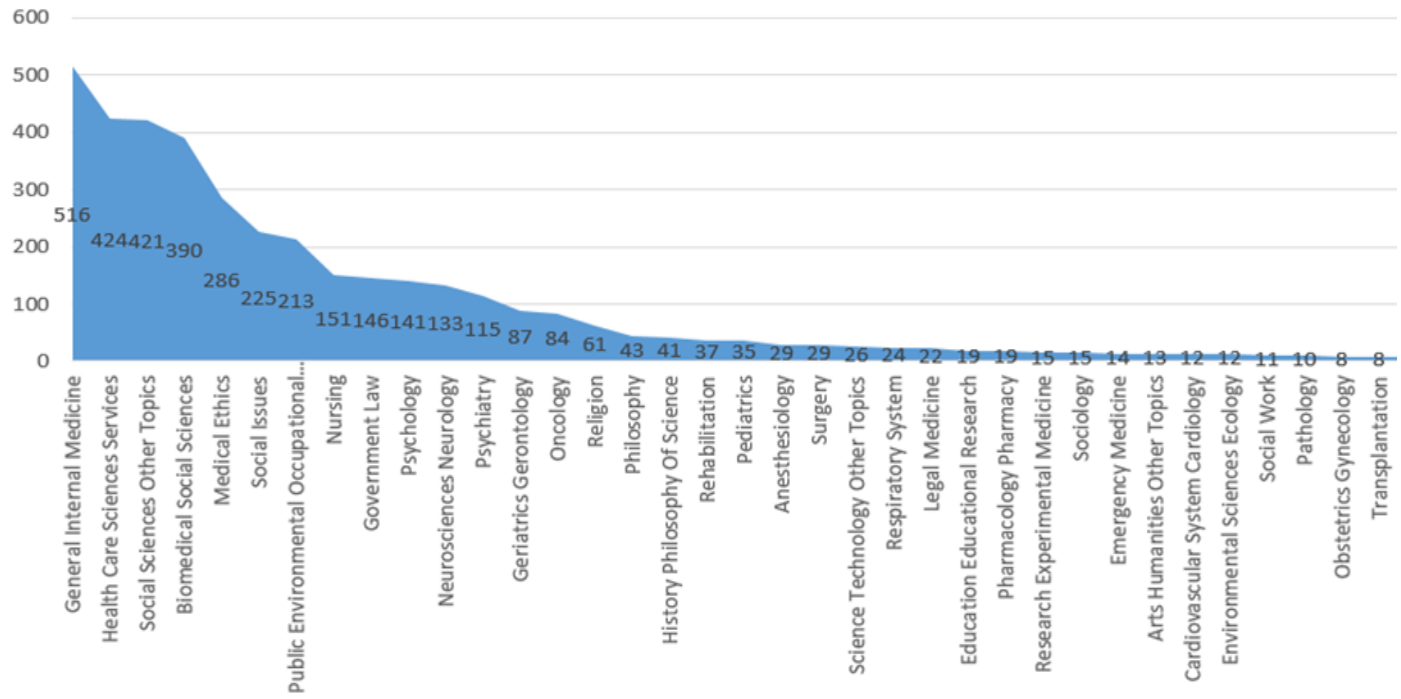

Figure 7. Distribution of publications according to WoS research areas

Strategic Diagrams According to Periods

The time frame from 1980 to 2024 was divided into two distinct periods for analysis. This division is based on the year 2002, when euthanasia was legally accepted in the Netherlands for the first time in the world. The first period includes the years 1980 to 2001, while the second period spans from 2002 to 2024.

The horizontal axis of the strategic diagram represents the centrality of the identified clusters, while the vertical axis indicates their density. Clusters located in the top right of the diagram are the most fundamental, representing the core areas of work during the period under study. The clusters in the lower right section represent themes that are evolving and continuing to develop during the examined period. Clusters in the lower left section include recently emerged themes or those that are gradually declining. The upper left section refers to clusters with a significant number of published studies, but these are more isolated from other research areas [19]. Figure 8 provides a detailed explanation of the axes and sections of the strategic diagram.

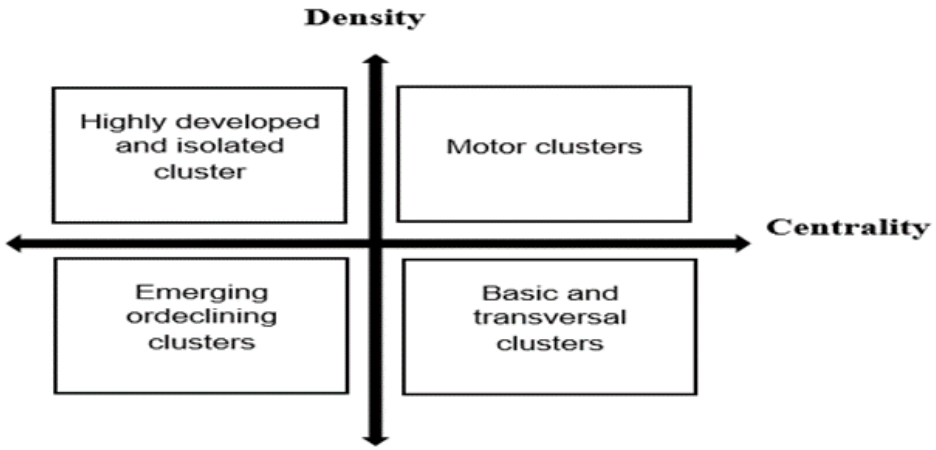

Figure 8. Strategic diagram showing thematic change in the analysed periods (Source: Cobo et al., 2012; as cited in Demir and Erigüç, 2018).

As shown in Figure 9, there is a variation in the number of keywords between the first and second periods. In the first period, 122 keywords were used. Notably, three of these keywords did not appear in the second period, while 94 new keywords were introduced.

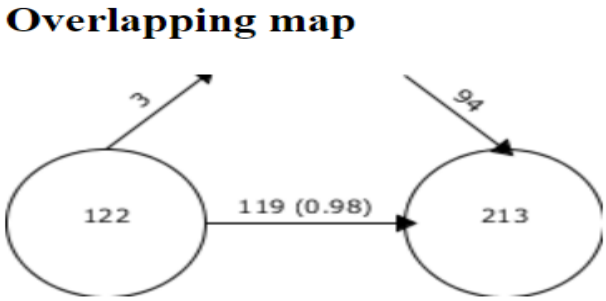

Figure 9. Overlapping map

The strategic diagrams of the first and second periods are shown in the figures below.

The first period (1980-2001) strategic diagram

When the centrality and density of the clusters are analysed in this period, it is seen that care and ethics clusters come to the forefront. The centrality of the care cluster is 68.4 and the density is 15.6. Ethics cluster has a centrality of 48.2 and a density of 12.5 (Figure 10).

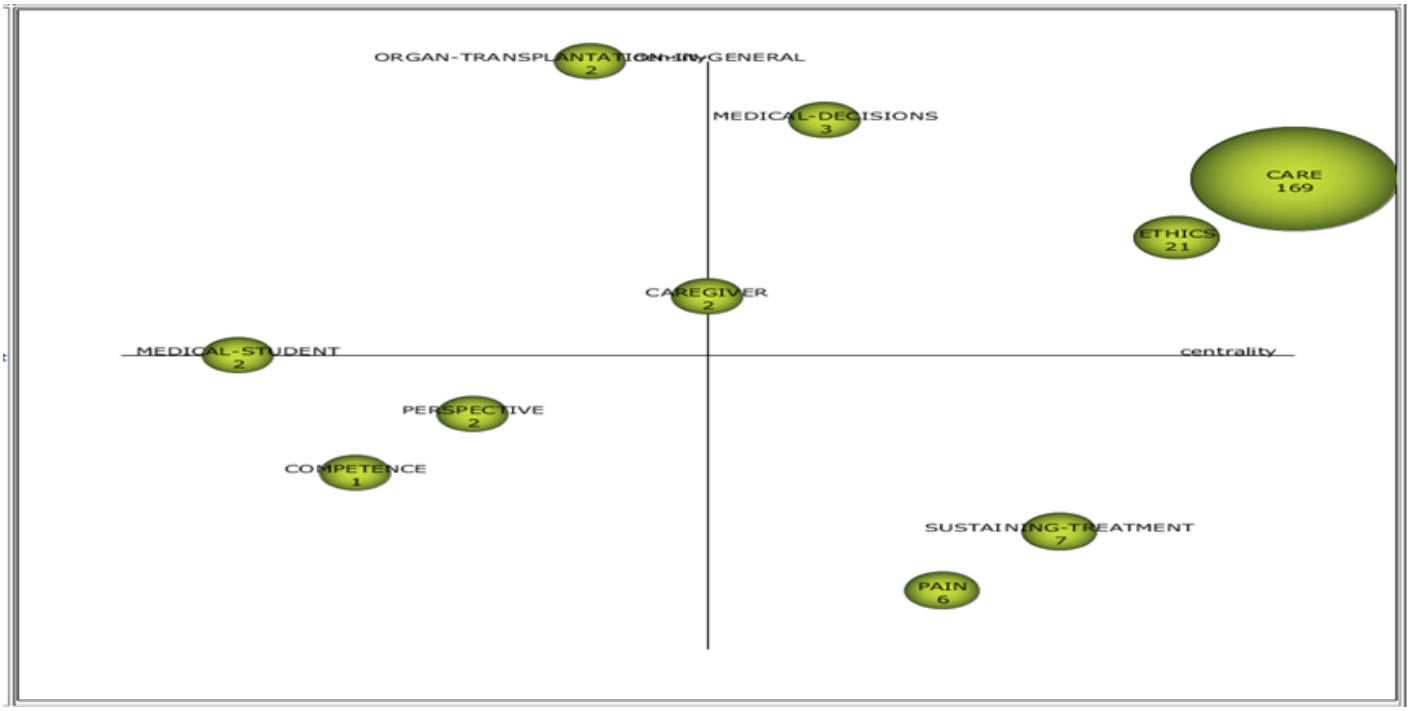

Figure 10. Strategic diagram of the first period

The Care cluster exhibits a high level of centrality and density compared to other clusters. High centrality indicates that many studies are focused on the relationships between this theme and others. In contrast, high intensity reflects a significant number of publications produced within this theme. As a result, the theme of care is frequently referenced, both in terms of publication volume and its connections to other themes. Commonly associated themes include euthanasia, attitudes, death, physician, patient, and advance directives (Figure 11).

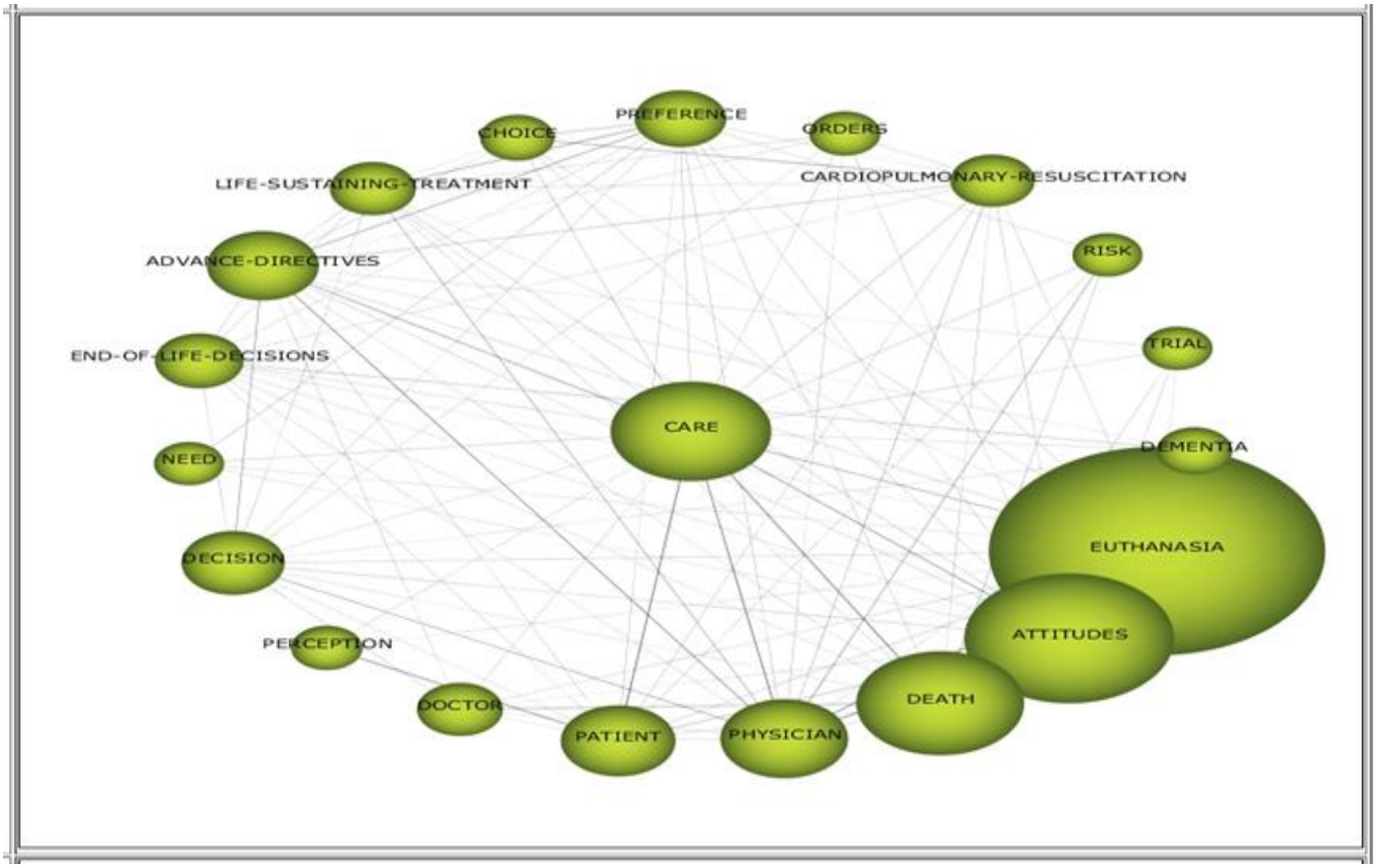

Figure 11. Cluster network of care theme

The other theme with high centrality and intensity in the first period is ethics. Although ethics theme is frequently used, it does not show a strong interaction with other themes. On the contrary, there is a strong interaction between survey, interview, hospital and intensive-care-unit themes (Figure 12).

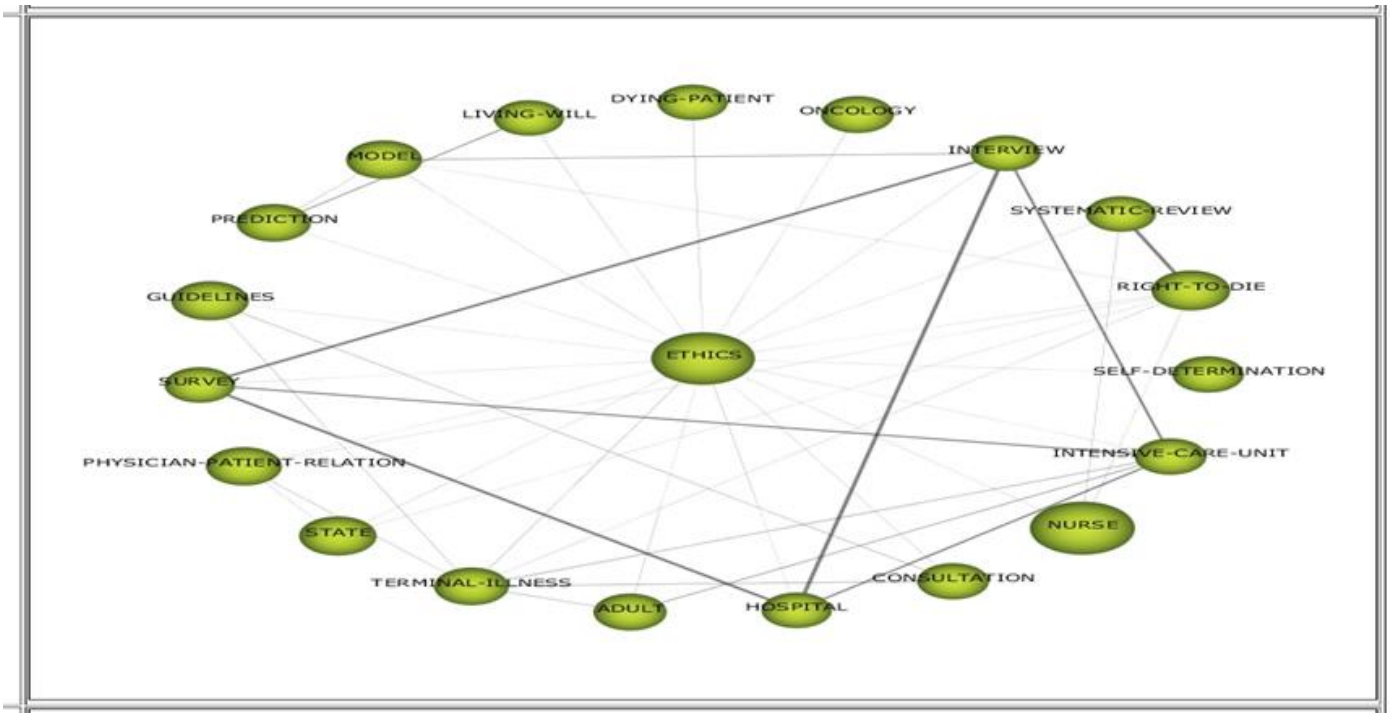

Figure 12. Cluster network of ethics theme

The second period (2002-2024) strategic diagram

When the centrality and density of the clusters of the period are analysed, it is seen that the nurse cluster has high scores (centrality: 56.3 and density: 14.6). Shared-decision-making cluster has a centrality of 29.8 and a density of 3.2 (Figure 13).

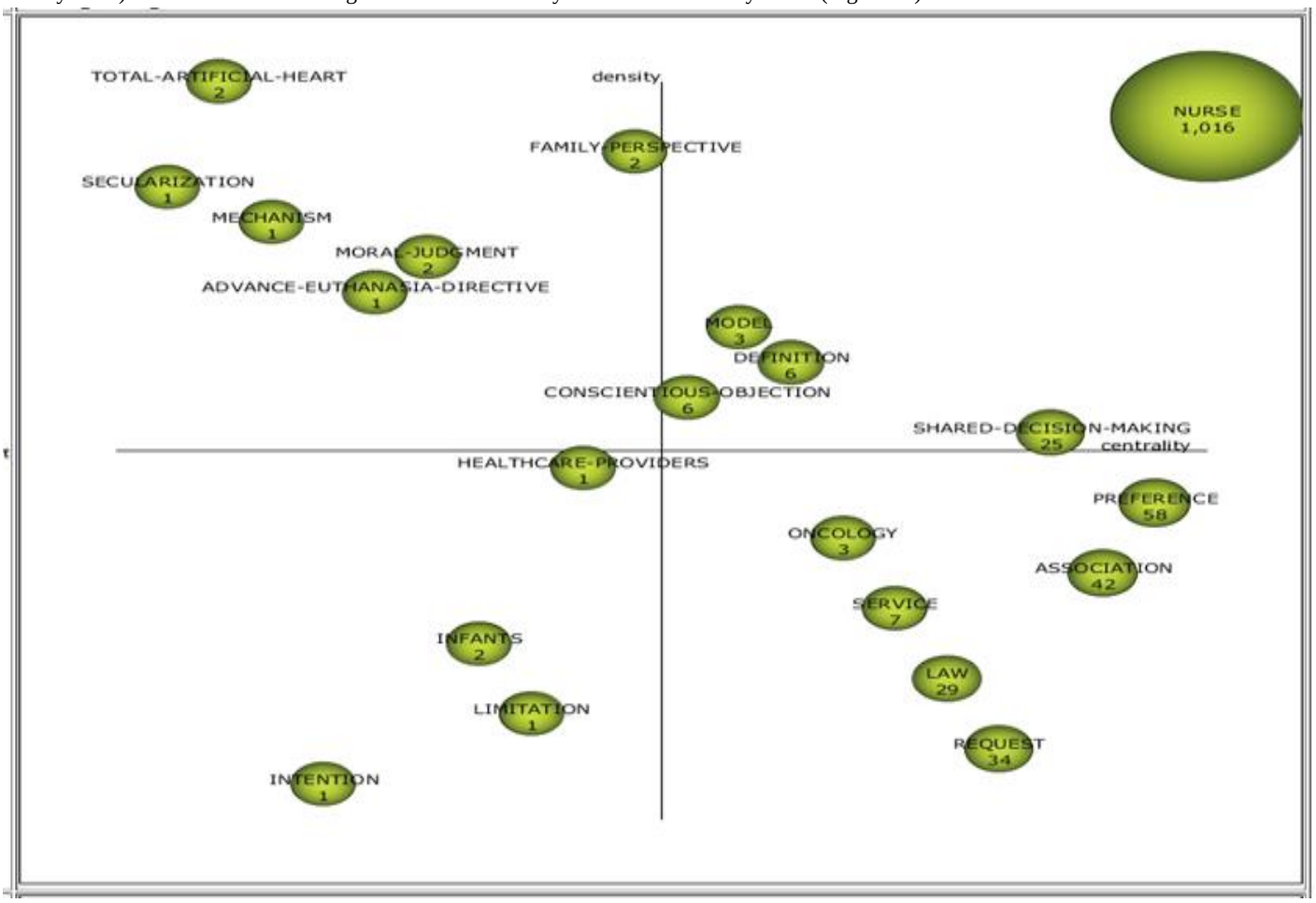

Figure 13. Second period strategic diagram

The theme with the highest centrality and density values in the second period is nurse. When the interaction of the nurse theme with other themes is analysed, the themes of eythanasia, attitutes and physician come to the fore (Figure 14).

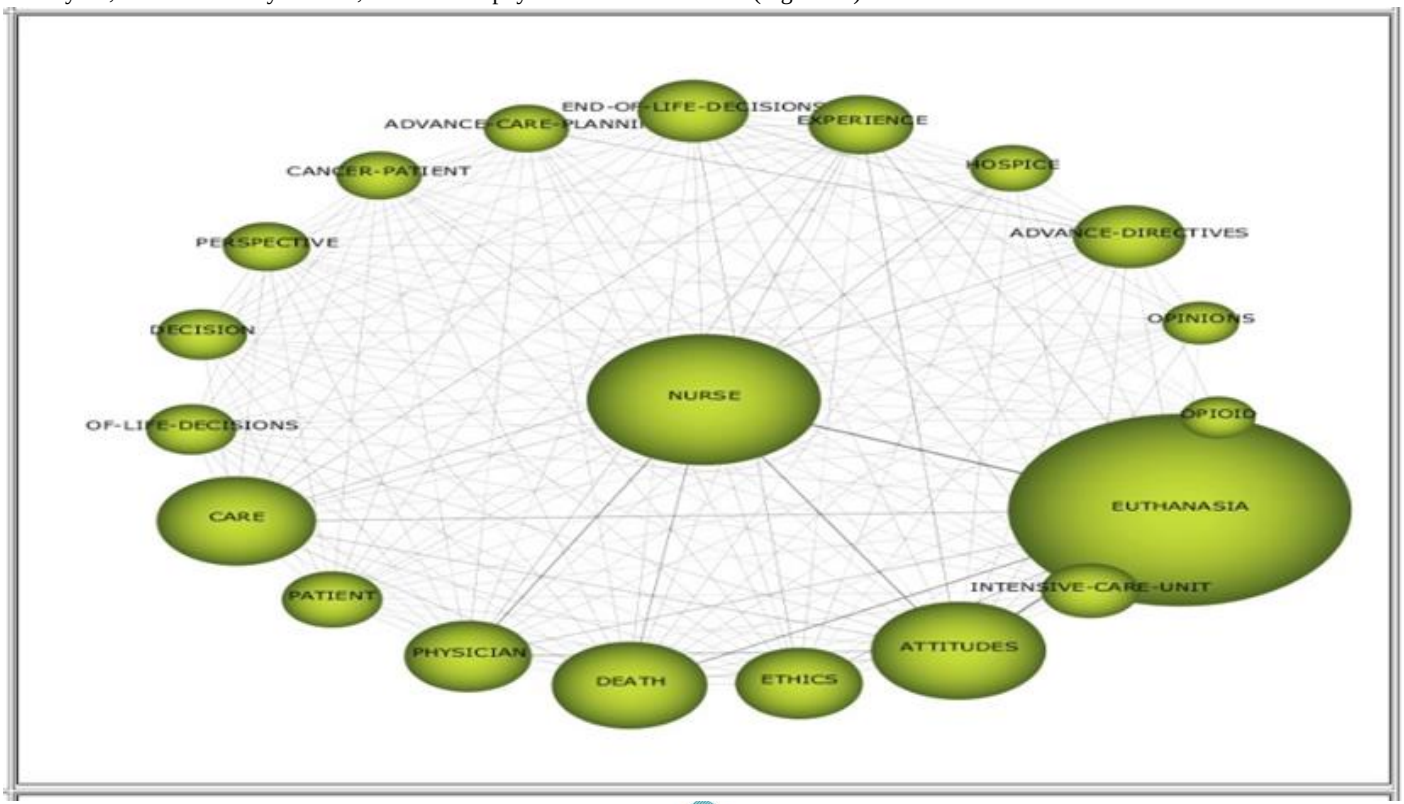

Figure 14. Cluster network of nurse theme

In the second period, the theme with the second highest centrality value is shared decision-making. Although this theme does not exhibit a strong interaction with other themes, it shows significant connections with the themes of principle, limit, and prolonging treatment. Additionally, the themes of non-invasive ventilation and motor neuron disease also display strong interactions (Figure 15).

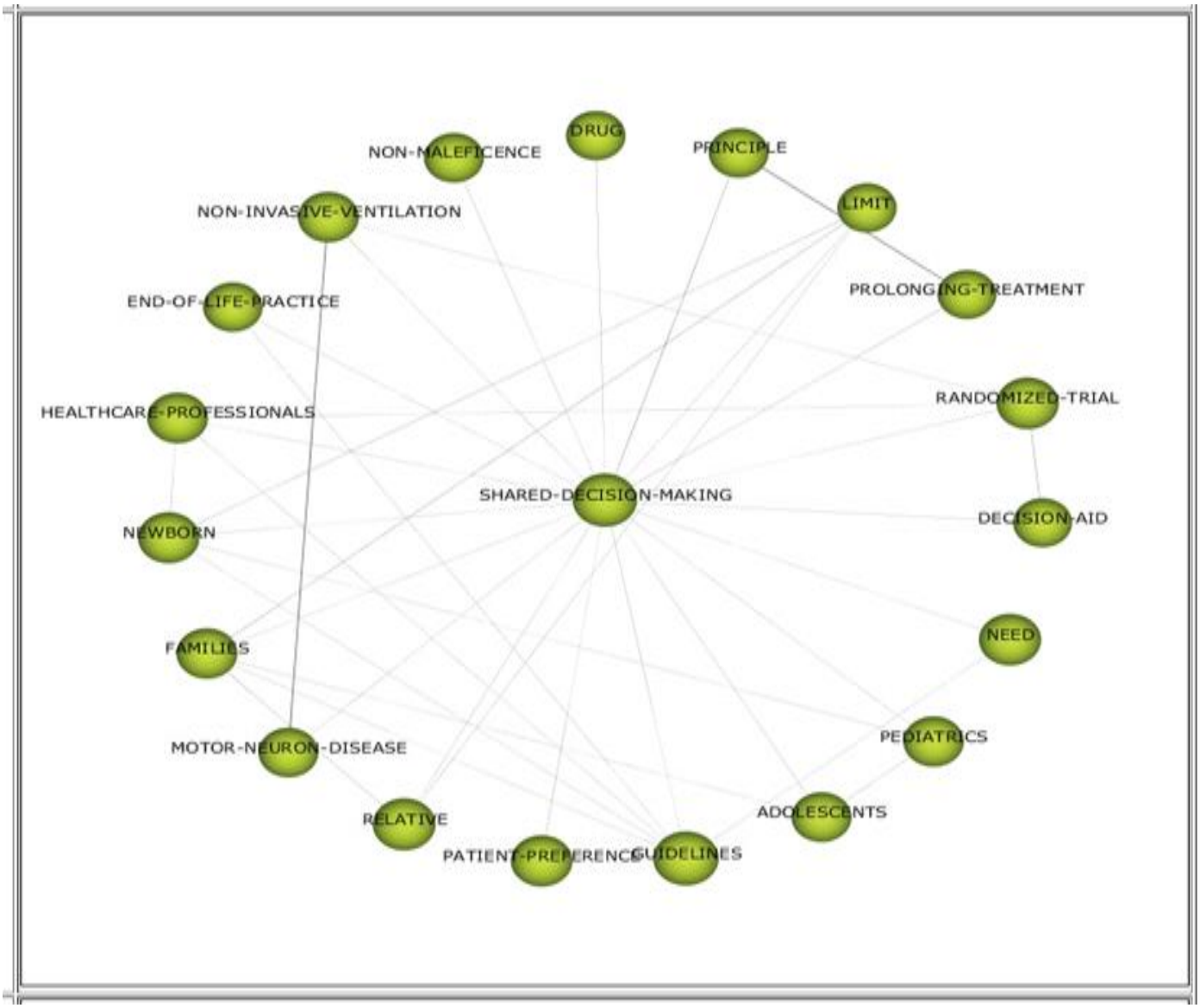

Figure 15. Cluster network of the shared-decision-making theme

A longitudinal analysis that examines the development and changes in the literature offers a comprehensive perspective. This study presents its longitudinal analysis in Figure 16. The prominent themes of care in the first period and nurse in the second period demonstrate a strong relationship. Additionally, there are notable connections between sustaining treatment and preference, medical decisions and moral judgment, as well as organ transplantation in general and infants. In the second period, new themes emerged that were not present in the first period, including conscientious objection, family perspective, total artificial heart, secularization, and advance euthanasia directive.

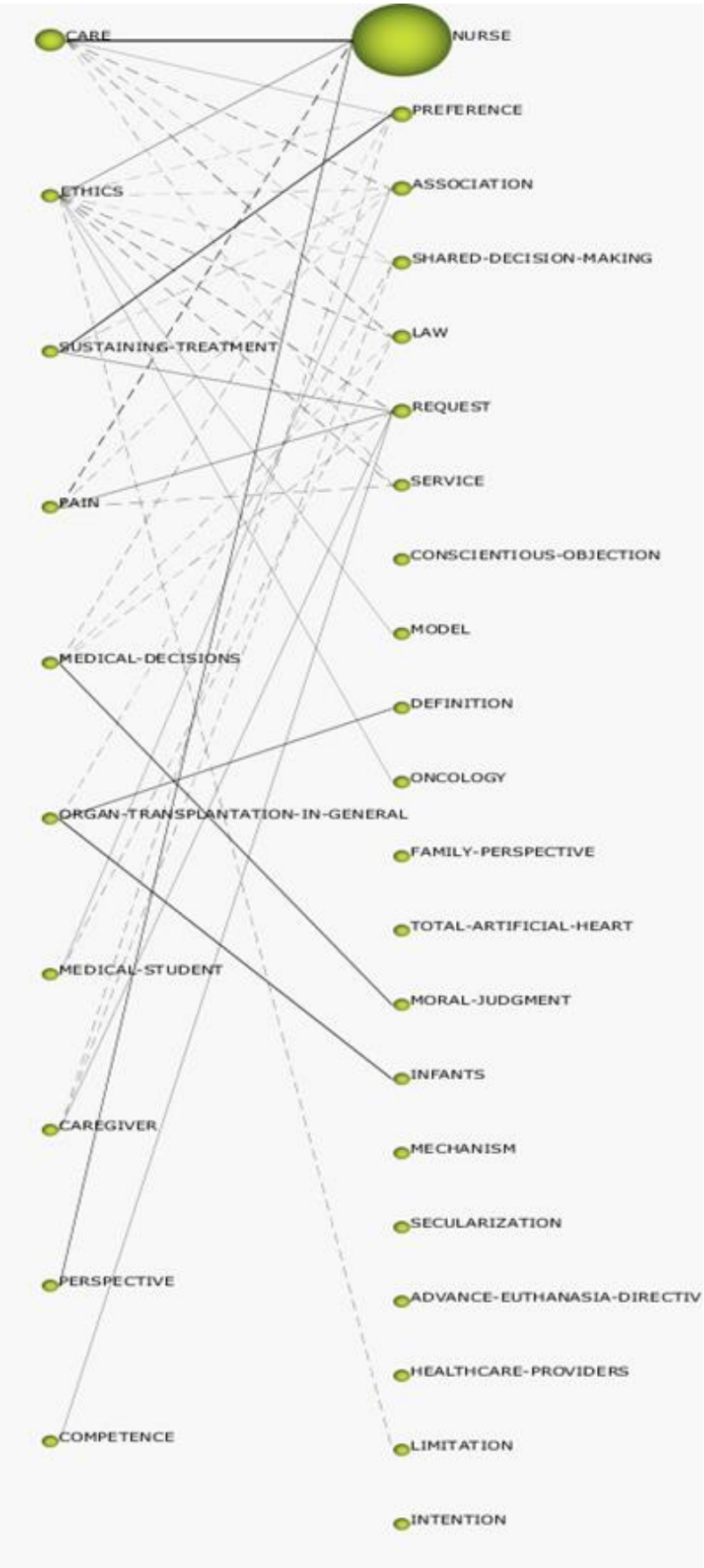

Figure 16. Longitudinal analysis related to themes of the periods

The increased focus on the nurse theme in the second period indicates a rise in studies addressing euthanasia's role in nursing care and nurses' attitudes and behaviors regarding this issue.

Discussion

In this study, bibliometric analysis and scientific mapping methods were employed to summarize all research on euthanasia published in the Web of Science, without any time restrictions. The analyses revealed publication performance and the most commonly addressed themes.

When analyzing the performance of publications, it is evident that the USA has the highest number of publications by a significant margin. It is followed by the Netherlands, Canada, Belgium, the UK, and Australia. With the exception of the UK, a common feature among these countries is that euthanasia is either legalized and practiced nationwide or in specific states. The Netherlands and Belgium were among the first countries to legally recognize euthanasia [6]. In countries where euthanasia is practiced, there tends to be a greater volume of publications on the subject.

The most commonly used keywords are euthanasia, palliative care, and ethics. Traditionally, euthanasia is linked to the right of patients suffering from incurable diseases to die with dignity, which is closely related to palliative care. This connection explains the frequent use of the term palliative care. Recently, however, the scope of euthanasia has expanded in some countries. For instance, in the Netherlands, Belgium, and Canada, requests for euthanasia from individuals dealing with multiple health issues related to old age are now being considered [21]. Additionally, in some countries, psychiatric patients suffering from conditions such as depression, autism, and anorexia nervosa can also seek euthanasia [22]. This broader interpretation of euthanasia has led to a more comprehensive exploration of the topic and a richer variety of associated keywords.

In the strategic diagram of the first period analyzed (1980-2001), the themes of care and ethics emerge prominently. While euthanasia intersects with various subjects such as philosophy, law, religion, and culture, the ethical aspect is the most frequently examined. Ethical discussions surrounding end-of-life decisions are closely tied to four key principles of medical ethics: autonomy, beneficence, non-maleficence, and justice. The right to end one's own life is seen as an extension of the principle of autonomy. However, some argue that euthanasia conflicts with the principle of non-maleficence, which is a fundamental responsibility of physicians. According to the principle of beneficence, healthcare professionals should strive to achieve the best possible outcomes for their patients. This raises an important debate about whether euthanasia might be considered the best option for a patient who is suffering significantly. Lastly, it is essential to find a fair balance between protecting an individual's right to choose life or death and ensuring the efficient allocation of resources for access to effective treatments [23].

Another issue that has gained attention during this period is organ transplantation. Organ donation after euthanasia is legally permitted in Belgium, the Netherlands, Canada, and Spain. However, most patients who request euthanasia due to malignancy are not eligible to donate organs. It is estimated that only 10% of patients who undergo euthanasia are medically suitable for organ donation [24]. In recent years, the acceptance of euthanasia requests from patients with mental disorders or psychiatric illnesses that significantly affect their quality of life may lead to an increase in organ donations following euthanasia.

In the second period (2002-2024), the themes of nursing and shared decision-making become more prominent. End-of-life decisions involve medical and ethical choices made during the final stages of a patient's life. Nurses play a critical role in this process as they respond directly to the physical, emotional, and psychosocial needs of patients. They also guide patients and their families through their decision-making processes. Throughout this journey, nurses consistently interact with patients and families to ensure that they understand their treatment options, address any concerns, and help them articulate their needs [6,25].

The attitudes and roles of nurses regarding euthanasia differ across countries and cultures [8]. While physicians typically take the lead in the euthanasia process, nurses also play various roles. Unfortunately, these roles are often not clearly defined. Nurses are frequently the first to identify a patient's or family's need for information and may receive requests for euthanasia. They actively participate in the decision-making process, assess emotional needs, prepare informational materials, administer medications, and support families through the grieving process. Historically, nursing roles were often behind the scenes, but they are becoming increasingly significant and well-defined. Canada is the first country to officially recognize the primary role of nurses in the euthanasia process [6,26].

This bibliometric analysis indicates that research on this topic began in 1980. However, a significant increase in the number of studies was observed starting in the late 1990s. The peak occurred in 2021, with a total of 149 publications. Notably, there has been a decline in the number of publications on this subject since then.

Limitations

This study utilized data exclusively from the Web of Science database. Its focus is limited to articles published in English, which means that related studies published in other formats, languages, or in different databases may have been overlooked. Future research should consider a broader search scope to enhance the literature on this topic.

Conclusion

Euthanasia has been one of the most controversial issues in medical history for centuries. It has frequently been the subject of scientific studies that explore its philosophical, ethical, religious, and legal aspects. After becoming the first country to legalize euthanasia, the Netherlands has influenced the acceptance and implementation of this practice in several other countries over the years. The scope of euthanasia can vary from one country to another; for example, in the Netherlands and Belgium, health problems and mental illnesses related to old age can also be considered valid requests for euthanasia.

Euthanasia is often discussed within the framework of medical ethics, particularly focusing on four key principles: autonomy, beneficence, non-maleficence, and justice. Research in this area primarily examines the roles of physicians and nurses involved in the process, as well as the patient's end-of-life decisions. Recently, Canada became the first country to formally define the role of nurses in the euthanasia process.

The expanding definition of euthanasia over the years has highlighted the need for scientific studies to understand this evolving situation. Additionally, it is essential to establish protocols that define the duties and responsibilities of healthcare professionals, particularly nurses, who play a crucial role in the end-of-life process for patients. Conducting studies on these matters is necessary.

Conflict of interest: The author declares that there is no conflict of interest.

Author Contributions		Author Initials
SCD	Study Conception and Design	OG
AD	Acquisition of Data	OG
AID	Analysis and Interpretation of Data	OG
DM	Drafting of Manuscript	OG
CR	Critical Revision	OG

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