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GLOBAL RESEARCH PATTERNS IN ORGAN DONATION: A BIBLIOMETRIC PERSPECTIVE

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Abstract:

This bibliometric analysis examines global research trends in organ donation, using data from 813 articles extracted from the Scopus database. Organ donation remains a crucial area of study, involving ethical, cultural, and medical challenges that influence public policy, healthcare practices, and donor participation worldwide. However, despite its significance, there is limited understanding of how research on this topic is distributed globally, particularly regarding collaborative networks and keyword usage. This study addresses that gap by analyzing publication volume, keyword patterns, and country-based co-authorship. Using Scopus Analyzer and VOSviewer software, thematic clusters were identified, highlighting frequent keywords such as "ethics," "organ transplantation," and "informed consent," which collectively reveal a strong focus on ethical and procedural dimensions of organ donation. Analysis of co-authorship patterns revealed that the United States (US) leads in research output and international collaboration, followed by the United Kingdom (UK), Canada, and Germany, each contributing region-specific insights into ethical, cultural, and policy aspects. The high citation rates for countries like the US and the UK suggest these regions are central to shaping global discourse. Overall, the findings emphasize a need for greater global collaboration to

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address the diverse ethical and cultural contexts of organ donation, ultimately aiming to bridge gaps in donor availability and foster equitable healthcare policies worldwide. This bibliometric study offers a comprehensive overview of current research patterns, providing insights that may inform future studies and international initiatives in organ donation research.

Keywords:

Organ Donation; Organ Donor; Bibliometric; Research Trend

Introduction

Global organ donation and transplantation practices exhibit significant variability across different regions, influenced by a multitude of factors, including cultural, legal, and organizational aspects. The Global Observatory on Donation and Transplantation (GODT), a collaborative initiative between the World Health Organization and the Spanish Organización Nacional de Trasplantes, has been instrumental in collecting and analyzing data on these practices since 2007. Accordingly, this comprehensive database aims to ensure transparency, equity, and the monitoring of national transplant systems, providing valuable insights into the distribution and accessibility of organ transplantation worldwide. In 2015, data from 111 member states, covering 82.2% of the global population, revealed that 126,670 solid organ transplants were performed. In particular, kidneys and livers are the most commonly transplanted organs (Carmona et al., 2017; Mahillo et al., 2018).

Despite the advancements in organ transplantation, significant disparities persist in the availability and accessibility of these life-saving procedures. Factors such as socioeconomic status, religious beliefs, and cultural attitudes toward organ donation play crucial roles in shaping these disparities. For instance, studies have demonstrated that individuals from higher socioeconomic backgrounds and with higher education levels are more likely to have positive attitudes toward organ donation and are more willing to donate their organs (Wakefield, Watts, Homewood, Meiser, & Siminoff, 2010). Additionally, healthcare professionals who are pivotal in the organ donation and transplantation process often face ethical dilemmas and conflicts of interest that can impact the availability of suitable organs (Jawoniyi, Gormley, McGleenan, & Noble, 2018). Notably, addressing these multifaceted challenges requires a concerted effort to enhance public awareness, streamline legal frameworks, and improve the coordination of organ donation and transplantation activities globally (Mahillo, Carmona, Álvarez, Noel, & Matesanz, 2013). In conclusion, this paper employs a bibliometric approach to analyze global organ donation and transplantation practices, highlighting key patterns and variations across regions. Accordingly, the findings provide insights into overarching challenges and emphasize the significance of enhancing accessibility and equity in donation systems worldwide.

Literature Review

Organ donation remains a pressing global issue, with diverse factors influencing both public willingness and the effectiveness of donation processes. Recent studies highlight varying motivations, technological developments, and systematic barriers impacting organ donation rates worldwide. (Al-Abdulghani et al. (2024) examined barriers and facilitators within Muslim communities, identifying religious considerations and social dynamics as significant factors shaping attitudes toward deceased donation. Similarly, (Madli et al., 2024) emphasized the role of strategic communication in Malaysia, noting that while social media campaigns by the

Ministry of Health Malaysia (MOH) have attempted to raise awareness, registration rates remain disappointingly low. This highlights a gap in effective outreach strategies. Meanwhile, (T. Wu et al., 2024) analyzed global publication patterns in uterus transplantation (UTx), revealing a surge of interest and advancements primarily in the United States (US) and Sweden. Collectively, these findings underscore the need for improved, context-sensitive strategies in diverse cultural and geographical settings. This suggests that future research could focus on tailoring approaches based on cultural receptiveness and community influence.

In exploring the cultural dimensions of organ donation, religious beliefs emerge as central influencers. (Al-Abdulghani et al., 2024) discovered that in many Muslim communities, religious concerns and social pressures significantly shape decisions around organ donation. This research revealed a tension between individual willingness to donate and community-based reservations related to bodily integrity and religious permissibility. At the same time, (Madli et al., 2024) observed similar trends in Malaysia, where the MOH's social media initiatives have struggled to overcome deep-rooted cultural resistance. These studies underscore a need for culturally aligned campaigns that address community-specific values and dispel misconceptions. Meanwhile, (Akhlaghpasand, Shafikhani, Nejad, & Zarghami, 2024) added insights from Iran, where a case study on uncontrolled donation after circulatory death (uDCD) illuminated medical and ethical challenges associated with preserving organs post-cardiac arrest. It illustrates the procedural and legal complexities in Islamic contexts. Together, these studies suggest the significance of community-centered approaches that respect religious nuances while promoting organ donation.

Technological innovations in organ donation have brought new possibilities and challenges, particularly concerning organoids and uterus transplants. (Bentzen, 2024) reviewed organoid research, noting that stem cell-derived mini-organs could potentially replace animal testing in clinical trials, a development with implications for global organ supply and ethical considerations. Furthermore, (T. Wu et al., 2024) detailed the state of UTx research, emphasizing the growing impact of countries such as the US and Sweden on global academic influence in this area. Both (Bentzen, 2024) and (T. Wu et al., 2024) highlighted the regulatory barriers that limit international collaboration, particularly in jurisdictions with strict biotechnology legislation. These studies call attention to the need for standardized international guidelines to promote collaborative innovation. This is especially true as more countries explore cutting-edge procedures like normothermic regional perfusion for uDCD, as discussed by (Akhlaghpasand et al., 2024). In addition, standardization could expedite technological advancements and make life-saving procedures more widely accessible.

Moreover, public campaigns are crucial for increasing organ donation rates, yet several studies highlight persistent challenges. In Malaysia, (Madli et al., 2024) reported that social media campaigns, while accessible, have limited impact due to low trust in information quality and credibility. Meanwhile, (Al-Abdulghani et al., 2024) argued for community-engagement models, where collective decision-making processes and religious endorsements are leveraged to enhance acceptance. (Desmedt & Carey, 2024) also highlighted post-mortem tissue donation as a complementary strategy, particularly for cancer research, arguing that public awareness of this option could expand tissue availability. These studies collectively indicate that information delivery is as important as the content itself. This suggests that future research should evaluate different mediums and messaging strategies, emphasizing credibility and cultural alignment to improve public receptivity.

Despite extensive research on the cultural, ethical, and procedural dimensions of organ donation, significant gaps remain. (Al-Abdulghani et al., 2024) identified a lack of interventional studies that address uncertainty among Muslim populations, calling for research that could test best-practice models in religiously conservative contexts. Additionally, (Madli et al., 2024) noted a shortage of empirical studies on information quality in social media campaigns for organ donation awareness. (T. Wu et al., 2024) and (Bentzen, 2024) both highlighted the absence of standardized regulatory frameworks that could facilitate international collaboration in UTx and organoid research. Thus, future studies could explore these areas to strengthen organ donation systems globally, focusing on harmonizing legislation, improving campaign efficacy, and tailoring approaches to respect cultural values and ethical standards.

Recent studies indicate that gender disparities significantly influence organ donation practices globally, particularly in transplantation. In particular, (Kute, Chauhan, & Meshram, 2024) discussed how gender roles affect access to medical care, donation practices, and post-transplant care, especially in developing nations. The authors note a higher proportion of female donors, which they attribute to medical, social, cultural, and psychological factors. The review underscores the need for policy changes to address these disparities, specifically concerning spousal donations in under-resourced areas, reflecting a broader trend in the literature toward advocating for equitable access to organ donation across genders and regions. Furthermore, the work by (Wang, 2024) expanded on how cultural and social factors impact organ donation systems. Notably, by comparing incentive models across diverse cities like Beijing, Chicago, Tehran, and Hong Kong, Wang outlines how honor, compensatory, and family incentives vary in effectiveness due to cultural contexts. The emphasis on multicultural perspectives suggests that global research on organ donation increasingly recognizes the need for culturally adaptive models to encourage donations. This proposes that future research refine these models to address cultural sensitivities better and enhance policy effectiveness.

(Griffin, Bowen, Walker, Lynam, & Paul, 2023) contributed another critical perspective by analyzing post-mortem brain donations, specifically for central nervous system (CNS) disease research. The study identified motivators and deterrents to brain donation, including altruistic motivations for scientific advancement and concerns about religious beliefs and family objections. This work aligns with a trend in research focused on understanding donor motivations and addressing psychological and social barriers to enhance consent rates. This is particularly true for brain donations, which are essential for advancing neurological disease research.

The global research corpus on organ donation exhibits considerable strengths, including the increasing integration of multicultural and multidisciplinary approaches. For instance, (Wang, 2024) comparative study illustrated how incentive models in diverse cultural contexts could inform adaptable policies, which is a strength in providing tailored approaches to donation incentives. Additionally, (Kute et al., 2024) examination of gender disparities highlighted the importance of understanding socio-demographic factors in donation patterns, adding depth to policy-oriented research in the field. However, limitations are also evident. Many studies, such as those by (Griffin et al., 2023) on brain donations, tend to rely on regional samples or specific subpopulations, which may not be generalizable globally. Furthermore, there are limited longitudinal data to analyze how donor behaviors and attitudes evolve over time or in response to policy changes. While the current body of research addresses numerous aspects of organ donation, notable gaps remain. For instance, (Al-Abdulghani et al., 2024) identified that

although Muslims have generally lower organ donation rates due to religious and cultural barriers, no systematic review has yet comprehensively synthesized this evidence. This indicates a gap in understanding religious attitudes toward organ donation, which could inform more culturally inclusive policies. Additionally, (Rodger & Cooper, 2023) highlighted the shortage of organs for transplantation despite various governmental interventions. This indicates the need for further research into alternative organ sources, such as xenotransplantation.

In summary, organ donation remains a complex, multifaceted issue impacted by cultural, technological, and ethical factors across the globe. Despite significant progress in understanding the drivers and barriers of organ donation, including religious, social, and gender-related influences, challenges persist in bridging gaps between public awareness and active donor registration. Hence, studies highlight the need for culturally sensitive campaigns, especially in communities where religious beliefs strongly influence decisions. Furthermore, disparities in donor demographics, such as gender and socioeconomic factors, call for more inclusive policies that promote equitable access to organ donation and transplantation services. Moving forward, future research should prioritize developing culturally adaptive models and investigating long-term behavioral trends, ensuring that organ donation initiatives are both effective and respectful of diverse societal values. These efforts could lead to more comprehensive and accessible organ donation systems worldwide. Therefore, based on the discussion in the literature review, despite the importance of organ donation and the factors that shape the organ donation ecosystem, there still exists an unclear picture of research trends in the context of organ donation. Thus, the objective of this study will be to examine the trends in organ donation, and the details of the objectives will be discussed clearly in the next section of this study.

Research Question

- Who are the top 10 authors based on citation by research?
- What are the research trends in organ donation according to the year of publication?
- Who writes the most cited articles? And where do they work?
- What are the popular keywords related to the study?
- What are co-authorship countries' collaboration?

Methodology

Bibliometrics involves gathering, managing, and analyzing bibliographic information from scientific publications (Alves, Borges, & De Nadae, 2021; Assyakur & Rosa, 2022; Verbeek, Debackere, Luwel, & Zimmermann, 2002). This includes basic descriptive statistics, like details on publishing journals, publication years, and main author classifications (Y. C. J. Wu & Wu, 2017), and also uses more advanced methods, such as document co-citation analysis. Note that conducting an effective literature review requires a step-by-step process to identify the right keywords, search relevant literature, and conduct a thorough analysis to create a complete bibliography and obtain reliable results (Fahimnia, Sarkis, & Davarzani, 2015). With this in mind, the study focused on top publications to gain key insights into the theoretical frameworks that are guiding the field's development. Furthermore, to ensure accuracy, data was collected from the Scopus database (Al-Khoury et al., 2022; di Stefano, Peteraf, & Veronay, 2010; Khiste & Paithankar, 2017). Only articles published in rigorously peer-reviewed academic journals were included, intentionally excluding books and lecture notes to maintain high standards (Gu, Li, Wang, Yang, & Yu, 2019). Scopus, known for its broad and

comprehensive coverage, enabled the collection of relevant publications from 2020 through December 2023 for in-depth analysis.

Data Search Strategy

An advanced search strategy in bibliometrics involves using precise keyword selection, Boolean operators, and specialized techniques to retrieve relevant articles and data from large bibliographic databases. By combining keywords with AND, OR, and NOT operators, researchers can narrow or broaden their search (e.g., "digital marketing AND small businesses" or "small businesses OR SMEs") while excluding irrelevant terms if needed. Additionally, field-specific searches enable researchers to target particular sections of an article—like title, abstract, or publication year—refining the dataset to focus on the most relevant and high-quality sources for their analysis. However, for this study, keywords such as in Table 1 were used. In addition, this strategy is essential for creating a robust dataset, helping to ensure that bibliometric insights are drawn from accurately sourced and meaningful articles. Therefore, the following tables are related to the advanced search techniques used in this study.

Table 1: The Search String

Scopus	TITLE (TITLE-ABS-KEY (organ AND donation AND donors) AND PUBYEAR > 2003 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "SOCI"))) AND (LIMIT-TO (LANGUAGE, "English"))
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Table 2: The Selection Criterion Is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2004 – 2024	< 2004
Literature type	Journal (Article) and Proceeding	Book, Review

Data analysis

VOSviewer is a widely used, user-friendly tool for bibliometric analysis developed by Nees Jan van Eck and Ludo Waltman at Leiden University in the Netherlands (van Eck & Waltman, 2010, 2017). Known for its intuitive network visualizations and density maps, VOSviewer allows researchers to explore co-authorship, co-citation, and keyword co-occurrence networks, providing valuable insights into research trends and connections. The software's interactive interface and frequent updates make it accessible for both beginners and experts, enhancing its utility for examining large datasets. Moreover, its customizable features, compatibility with various bibliometric data sources, and capability to calculate metrics and adjust visualizations make VOSviewer indispensable for scholars investigating complex research areas.

One of VOSviewer's standout features is its ability to convert detailed bibliometric data into visually meaningful maps, which makes understanding intricate patterns easier. Hence, researchers can analyze and visualize network clusters and keyword patterns through their clustering and density mapping functions, gaining a comprehensive overview of their research landscapes. Additionally, the ongoing development of VOSviewer ensures that it remains a cutting-edge tool in bibliometric analysis, offering flexibility with different types of data, such as co-authorship and citation networks, and yielding significant insights into research dynamics.

Datasets comprising information on the publication year, title, author name, journal, citation, and keywords in PlainText format were procured from the Scopus database, spanning the period from 2020 to December 2023. These datasets were then analyzed using VOSviewer software version 1.6.19. Through the application of VOS clustering and mapping techniques, this software facilitated the examination and generation of maps. Offering an alternative to the Multidimensional Scaling (MDS) approach, VOSViewer focuses on situating items within low-dimensional spaces, ensuring that the proximity between any two items accurately reflects their relatedness and similarity (van Eck & Waltman, 2010). In this respect, VOSViewer shares a similarity with the MDS approach (Appio, Cesaroni, & Di Minin, 2014). Diverging from MDS, which primarily engages in the computation of similarity metrics like cosine and Jaccard indices, VOS utilizes a more fitting method for normalizing co-occurrence frequencies such as the association strength (AS_{ij}), and it is calculated as (Van Eck & Waltman, 2007):

$$AS_{ij} = C_{ij}/W_{iwj}$$

which is "proportional to the ratio between the observed number of co-occurrences of *i* and *j* and the expected number of co-occurrences of *i* and *j* under the assumption that co-occurrences of *i* and *j* are statistically independent."

Result and Discussion

What Are The Research Trends In Organ Donation According To The Year Of Publication?

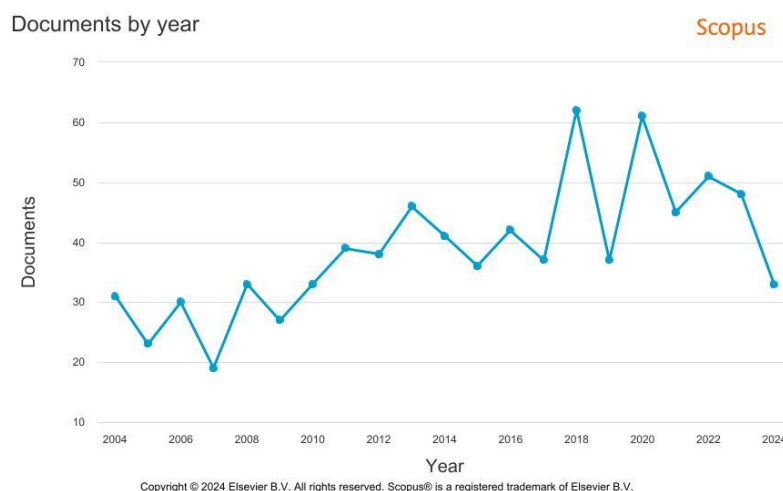


Figure 1: Plotting Document Publication By Years.

The graph provided presents the trend of publications related to organ donation indexed in the Scopus database from 2004 to 2024. The overall trend exhibits a fluctuating pattern in the number of publications over the years. From 2004 to 2010, the number of publications remained relatively low, ranging between 25 and 35 documents per year. However, starting from 2010, there has been a steady increase in the number of publications, reaching a peak in 2018 with nearly 60 documents. This suggests that research interest and scholarly output on the topic of organ donation have increased significantly in the past decade. Notably, the sharp increase in publications during this period could be attributed to various factors. This includes growing awareness, advancements in medical technologies, and the need for more effective organ donation and transplantation strategies.

After the peak in 2018, the number of publications has declined, dropping to around 40 documents in 2022. This trend indicates that the research focus on organ donation may have shifted or experienced a temporary decline in recent years. However, the projected data for 2024 presents a slight increase, suggesting that the research interest in this field may be regaining momentum. Therefore, further analysis of the specific factors driving these trends, such as changes in funding, policy, or collaborations, would provide valuable insights into research dynamics in the organ donation domain.

Who Writes The Most Cited Articles?

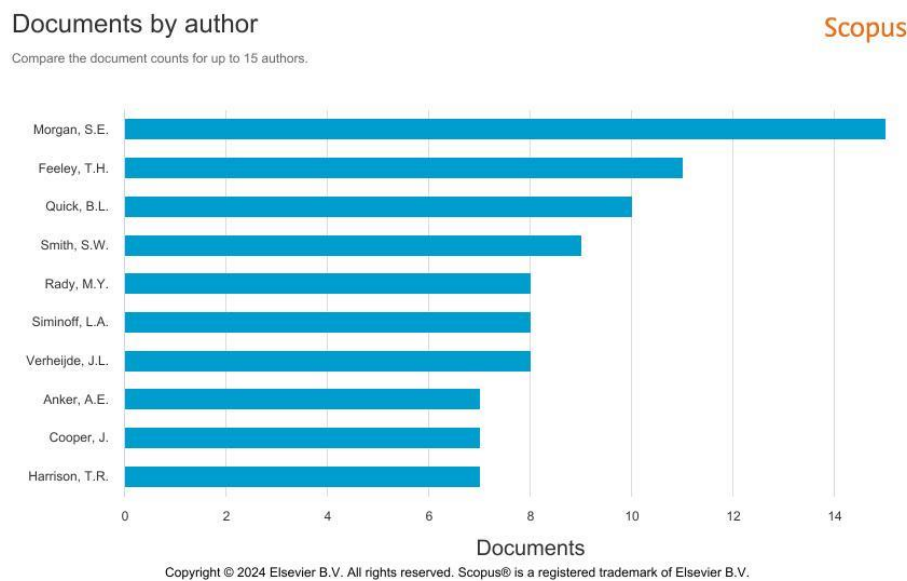


Figure 2: Publications According To Authors

Table 3: Most Influential Authors By SCOPUS

Author name	Number of documents	Percentage (%)
Morgan, S.E.	15	1.85
Feeley, T.H.	11	1.35
Quick, B.L.	10	1.23
Smith, S.W.	9	1.11
Rady, M.Y.	8	0.99
Siminoff, L.A.	8	0.99
Verheijde, J.L.	8	0.99
Anker, A.E.	7	0.86
Cooper, J.	7	0.86
Harrison, T.R.	7	0.86

The image presents the number of documents by different authors related to organ donation research, as indexed in the Scopus database. Particularly, the author with the highest number of publications is S.E. Morgan, with approximately 15 documents. This suggests that S.E. Morgan is a prolific researcher in the field of organ donation and has made significant contributions to the scholarly literature on this topic.

The second-highest author in terms of document count is T.H. Feeley, with around 12 documents. This indicates that Feeley is also an active and influential researcher in the organ donation domain, collaborating with or building on the work of Morgan and other researchers in the field. The remaining authors, including B.L. Quick, S.W. Smith, M.Y. Rady, L.A. Siminoff, J.L. Verhejide, A.E. Anker, J. Cooper, and T.R. Harrison, have produced between five to ten documents each. These authors likely have a substantial presence in the organ donation research community, though to a lesser degree than the top two contributors, Morgan and Feeley. Overall, this data suggests that a core group of researchers have been actively publishing on the topic of organ donation, with Morgan and Feeley being the most prolific among them. Thus, understanding the research interests, collaborations, and methodological approaches of these key authors could provide valuable insights into the current state and future directions of organ donation research.

Who Are The Top 10 Authors Based On Citation By Research?

Table 4: Details of Primary Data For Top 10 Highest Citation

Authors	Title	Year	Journal	Cited by
(Park & Smith, 2007)	Distinctiveness and influence of subjective norms, personal descriptive and injunctive norms, and societal descriptive and injunctive norms on behavioral intent: A case of two behaviors critical to organ donation	2007	Human Communication Research	329
(Morgan, Movius, & Cody, 2009)	The power of narratives: The effect of entertainment television organ donation storylines on the attitudes, knowledge, and behaviors of donors and nondonors	2009	Journal of Communication	139
(Saleem et al., 2009)	Knowledge, attitudes and practices survey on organ donation among a selected adult population of Pakistan	2009	BMC Medical Ethics	126
(Siminoff, Burant, & Youngner, 2004b)	Death and organ procurement: Public beliefs and attitudes	2004	Social Science and Medicine	124
(Morgan, Harrison, Afifi, Long, & Stephenson, 2008)	In their own words: The reasons why people will (not) sign an organ donor card	2008	Health Communication	113
(Siminoff, Burant, & Youngner, 2004a)	Death and organ procurement: public beliefs and attitudes.	2004	Kennedy Institute of Ethics journal	109
(Afifi et al., 2006)	Examining the decision to talk with family about organ donation: Applying	2006	Communication Monographs	105

	the theory of motivated information management			
(Quick, Kam, Morgan, Montero Libersona, & Smith, 2015)	Prospect theory, discrete emotions, and freedom threats: An extension of psychological reactance theory	2015	Journal of Communication	93
(Marquis, 2010)	Are DCD donors dead?	2010	Hastings Center Report	90
(Kim, Shen, & Morgan, 2011)	Information behaviors and problem chain recognition effect: Applying situational theory of problem solving in organ donation issues	2011	Health Communication	86

The bibliometric data on the most cited authors in global organ donation research from 2004 to 2024 highlights influential contributors and pivotal topics in the field. Accordingly, Park H.S. and Smith S.W. top the list with their 2007 publication in *Human Communication Research*, cited 329 times. Note that this high citation count suggests their work addresses significant and widely relevant communication issues within organ donation. Similarly, Morgan S.E.'s various contributions, including those co-authored with Movius and Cody in 2009, explore the persuasive power of communication in the *Journal of Communication*. With 139 citations, this work emphasizes the impact of communication on public attitudes toward organ donation, indicating a strong academic and practical interest in understanding how communication strategies can influence donation decisions.

The list also includes studies on ethical and cultural perspectives, exemplified by the work of Siminoff et al. in 2004, published in *Social Science and Medicine*, and later studies by Morgan, Harrison, and colleagues. Siminoff's research, cited 124 times, delves into the ethical dilemmas surrounding organ donation, highlighting how social and cultural factors affect decision-making. Another significant contribution by Morgan et al. in 2008, cited 113 times, discusses the role of personal narratives in health communication. This indicates that exploring the intersection of ethics, culture, and personal stories in organ donation is critical for advancing public engagement and understanding of the subject. These studies collectively underscore the need to address the complex interplay of ethics and communication in organ donation, especially in culturally diverse contexts.

Finally, this citation analysis reveals an emerging interest in specific types of donation practices, such as donation after circulatory death (DCD). Marquis's 2010 article in the *Hastings Center Report*, with 90 citations, is a notable example, reflecting the growing attention to ethical and procedural aspects of DCD. This focus aligns with the increasing academic exploration of medical and legal challenges in organ donation practices globally. In addition, the citation patterns suggest that while foundational communication and ethical frameworks dominate earlier research, recent studies are expanding to address specialized procedures and regulatory concerns. Accordingly, this trend signifies a shift towards exploring more nuanced and practical aspects of organ donation, providing a comprehensive understanding of the evolving landscape in this field.

What Are The Popular Keywords Related To The Study?

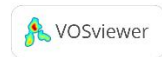


Figure 3: Network Visualization Map Of Keywords' Co-Occurrence

The global research landscape on organ donation reveals diverse thematic clusters through frequently occurring keywords, each highlighting essential aspects of the field. The keyword with the highest occurrence, organ donation (234 occurrences), serves as the focal point, with a total link strength of 311. This indicates that it is central to discussions across various dimensions. Following closely is ethics, with 36 occurrences and a link strength of 69, pointing to significant engagement with ethical considerations in organ donation. The emphasis on ethics highlights common concerns in the literature regarding moral questions tied to donation practices, the rights of donors and recipients, and fairness within organ allocation systems. Meanwhile, other high-occurrence terms, such as bioethics (20 occurrences, link strength 41) and informed consent (21 occurrences, link strength 39), reinforce the prevalence of ethical discourse and the significance of consent in this research area.

Another key aspect is the attention to cultural, religious, and social influences on organ donation, evident from terms like Islam (10 occurrences, link strength 26), culture (6 occurrences, link strength 22), and ethnicity (7 occurrences, link strength 23). These keywords suggest an increasing recognition of the role that cultural beliefs and religious values play in shaping individuals' decisions and attitudes toward organ donation, particularly in regions where such factors significantly impact health choices. The keyword Islam, for example, points to a focus on Islamic bioethics, reflecting the nuances of donation in Islamic contexts, including discussions on permissibility and religious teachings. Additionally, presumed consent (17 occurrences, link strength 29) and opt-out (6 occurrences, link strength 12) highlight debates around consent models, often influenced by cultural and religious contexts that affect public acceptance and policy formation globally.

The focus on medical and procedural aspects of organ donation is further evidenced by keywords like organ transplantation (55 occurrences, link strength 85), organ procurement (18 occurrences, link strength 42), and brain death (32 occurrences, link strength 65). These terms reflect the logistical and medical complexities in organ donation and transplantation, including criteria for organ eligibility and protocols for DCD (12 occurrences, link strength 27). Notably, the concept of brain death as a pivotal medical criterion for determining eligibility illustrates

the ongoing research and ethical dialogue surrounding end-of-life care, donor eligibility, and the medical criteria guiding donation processes. Meanwhile, keywords related to specific organs, such as kidney transplants, further indicate focused research into specific types of transplants and the unique medical challenges associated with each.

Overall, the bibliometric analysis underscores that organ donation research is deeply interdisciplinary, with robust attention to ethical frameworks, cultural influences, and medical procedures. The prominence of themes like ethics, consent, and religious considerations reflects ongoing efforts to balance personal autonomy with societal needs. At the same time, the recurring focus on specific medical aspects highlights advancements in transplantation science. Together, these interconnected keywords reveal the comprehensive scope of organ donation research, where ethical, cultural, and medical considerations converge to advance the field and address global challenges in organ availability and donor participation.

What Are Co-Authorship Countries' Collaboration?

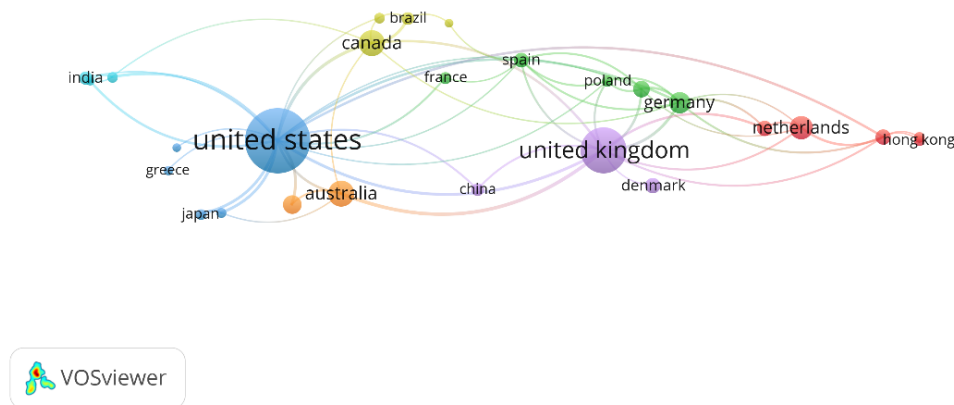


Figure 4: Shows The Countries Whose Authors Collaborate On Organ Donation

The global research patterns in organ donation reveal that the US leads in publication volume and citations, with 277 documents and a staggering 4,918 citations, along with a total link strength of 48. This high output reflects the extensive research investment and collaboration within the US, likely due to its robust healthcare research funding, advanced medical infrastructure, and numerous research institutions. The strength of the link further suggests that the US research network is highly interconnected, indicating substantial collaboration and influence across the international research landscape. Moreover, research from the US tends to focus on various themes in organ donation, including ethical frameworks, medical advancements, and public health approaches to increase donor participation.

The United Kingdom (UK) follows as another leading contributor, with 139 documents, 1,647 citations, and a total link strength of 34. The UK's substantial presence in organ donation research can be attributed to its emphasis on addressing ethical, social, and cultural aspects within its healthcare policies. Note that high citation counts indicate that the UK's research outputs are influential and widely referenced, suggesting that UK studies contribute valuable insights to global discourse, particularly in ethical considerations, public policies (such as presumed consent systems), and public health initiatives aimed at boosting organ donation rates. Additionally, Germany, with 30 documents and 286 citations, has a notable link strength of 20, reflecting its focus on ethical and procedural aspects of organ transplantation, which are

pertinent to ongoing discussions in the European context, particularly within its healthcare policy framework.

Other countries with significant contributions include Canada, with 44 documents, 473 citations, and a link strength of 16, and Australia, with 45 documents, 595 citations, and a link strength of 13. In particular, Canada's research often emphasizes the ethical and policy-related facets of organ donation, aligning with the national emphasis on universal healthcare and equitable access to resources. However, Australian research, with a high citation rate relative to its document count, suggests impactful contributions, possibly due to its focus on both clinical and public health approaches to organ donation. Additionally, European countries like the Netherlands (37 documents and 661 citations) and Switzerland (16 documents and 194 citations) also contribute substantially, though with more targeted research, often focusing on ethics and innovations in transplant technology within their specific health systems.

The global landscape of organ donation research highlights the US, UK, Canada, and several European nations as key players in advancing the field, each contributing unique perspectives based on regional healthcare policies, ethical frameworks, and public health initiatives. High-link strengths in these countries indicate strong international collaboration and influence, underscoring the interconnected nature of organ donation research. Together, these contributions foster a well-rounded understanding of organ donation, addressing the worldwide medical, ethical, and policy challenges.

Conclusion

The global patterns in organ donation research illustrate a dynamic field marked by shifting research focus and evolving thematic areas. Trends in publication volume reveal an initial period of lower output, followed by notable growth from 2010 to 2018. This reflects heightened academic interest, possibly influenced by advancements in medical technology, global awareness campaigns, and evolving policies in organ donation practices. Furthermore, this substantial increase in research activity aligns with global efforts to address the ethical, cultural, and logistical complexities associated with organ donation and transplantation. Following a slight decline post-2018, projections for 2024 suggest a renewed upward trend, indicating that recent developments or emerging practices in the field may be reinvigorating research interest. The analysis of citation patterns reveals that early influential studies focused on the intersection of organ donation with communication strategies, ethical frameworks, and cultural considerations. Moreover, many widely cited works discuss the persuasive impact of health communication on public attitudes and how social and ethical factors shape decision-making around organ donation. Furthermore, foundational research on topics such as informed consent, donor ethics, and cultural perceptions has remained central to the discourse. That is, more recent research trends have expanded towards procedural and regulatory topics, like DCD, reflecting a growing interest in the nuanced and practical aspects of organ procurement.

These research trends underscore a sustained and adaptive commitment to advancing the understanding of organ donation through a multidisciplinary lens. At the same time, the body of research combines ethical analysis, cultural studies, and procedural inquiries, revealing a comprehensive and evolving approach to organ donation and transplantation. As newer themes like regulatory procedures and specialized donation methods gain attention, the field demonstrates an ongoing response to both medical advancements and social challenges. As a result, this contributes to more informed and culturally sensitive organ donation practices worldwide.

Meanwhile, the bibliometric analysis of global organ donation research demonstrates a multifaceted field with diverse thematic concentrations. Key keywords emphasize ethical considerations, cultural and religious factors, and the procedural aspects of organ donation. In particular, the terms "organ donation," "ethics," and "informed consent" stand out. This emphasizes significant engagement with the moral dimensions and decision-making processes that define this area. The impact of cultural and religious beliefs, particularly in regions where these factors strongly shape health-related choices, is underscored by the presence of terms such as "Islam" and "ethnicity." Additionally, procedural keywords like "organ transplantation," "organ procurement," and "brain death" highlight medical complexities and criteria central to organ donation. Together, these findings underscore the interdisciplinary approach of organ donation research, which seeks to balance ethical considerations, individual beliefs, and medical advancements.

Global research collaboration in organ donation is led by the US, with notable contributions from the UK, Canada, Germany, and several European countries, each offering unique perspectives shaped by their healthcare policies and ethical frameworks. Particularly, the US emerges as a central figure, with extensive contributions across various themes, while the UK provides influential work on ethical and policy aspects. Contributions from Canada, Australia, and European nations further enrich the discourse, focusing on equitable healthcare access, procedural innovations, and public health strategies. Nevertheless, the interconnected research network across these regions reflects strong international collaboration, which collectively drives forward a comprehensive understanding of organ donation, addressing global challenges of donor availability, cultural sensitivity, and ethical considerations.

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