Original Research

Academic and Online Attention to Palliative Care: A Bibliometric and Altmetric Perspective

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ABSTRACT

Objective: With a combined bibliometric and altmetric study, we aimed to provide a visually detailed perspective on palliative care, which is attracting increasing attention from academia and society. We also evaluated the relationship between supporting and contrasting citation counts and the altmetric attention score (AAS) for the first time in the literature.

Methods: Web of Science (WoS) database and Altmetric.com website was used to create Top100 (T100) citation and altmetric lists. Supporting and contrasting citations were found using Scite.ai database. Articles in both lists, published between 1975-2021, were analyzed in terms of study type, topic, first author, publication year, citation count, AAS, Scite score, and supporting and contrasting citation counts. Impact factor (IF), quartile of journal and journal citation indicator (JCI) were also examined.

Results: A search of "Palliative care" in WoS yielded a total of 50.674 articles. A significant correlation was found between AAS and citation counts (p=0.001, r=0.328) in T100 citation list, and AAS and contrasting citations in T100 altmetric list (p=0,024, r=0,225). There was no statistically significant difference between IF, JCI and Q categories in both lists. The topic "PC for non-oncological diseases" were at the top of both lists. The USA, UK and Canada were countries with the most articles in T100 citation list.

Conclusions: Palliative care articles that attract the attention of the academia also resonate on social media. Since AAS can be manipulated, it would be beneficial to use altmetric analysis in combination with bibliometric analysis rather than alone to formulate new policies on palliative care.

Keywords : Palliative care, bibliometric analysis, altmetric analysis, Scite

INTRODUCTION

Palliative care is specialized medical care aimed at reducing symptoms such as pain and improving quality of life in patients suffering from cancer, major organ failure, end-stage chronic diseases, severe burns and extreme frailty of old age. The World Health Organization (WHO) reported that palliative care may be needed at all levels of care and 40 million people need palliative care each year [1]. Palliative care is carried out by a team formed by doctors, nurses and other health professionals about the patient's health problems and the care process is planned by the needs of the patient. In addition to the benefits for patients and caregivers, the benefits for the government due to cost savings

have made palliative care one of the most rapidly growing fields of health care [2]. This is not surprising because of the aging world, the prolongation of life expectancy with treatments for various diseases, changes in health policies and the awareness of societies. A better understanding of current research trends can further reveal global approaches, needs and challenges in palliative care.

Bibliometric analysis uses citation rates to evaluate the performance of a scientific output. This method enables researchers to access valuable articles that shed light on science in their field [3]. There are many studies on this analysis in medicine [4-6]. Today, in addition to bibliometric analyzes that show the place of articles in academia, altmetric analyses that show their place in social media are also frequently encountered. The altmetric attention score (AAS) represents the power of the articles in social media [7]. Considering how big a place social media occupies in our lives, it should come as no surprise that the popularity of altmetric analysis is increasing day by day.

The concept of citation markers, first discussed by Eugene Garfield [8] in 1964, was developed by Josh Nicholson and Yuri Lazebnik [9], and the Scite.ai database was created in 2014 [8,9]. Scite is a deep learning platform that helps researchers better evaluate scientific articles. In addition to the citation counts, Scite shows how an article is cited by analyzing whether it provides evidence that supports or contradicts the cited claim [10].

In this study, scientific outputs related to palliative care at the global level were evaluated, bibliometric and altmetric analysis of publications was performed with the aim of policy-making, providing useful information for new research topics and reviewing scientific research trends of both academia and society. In addition, we aimed to evaluate the relationship between bibliometric analysis and altmetric analysis, and also the relationship between supporting and contrasting citation statements and altmetric attention score in our study.

MATERIALS AND METHODS

We searched all the articles, published between 1975-2021, related to the keyword "Palliative care" from Thomson Reuters Web of Science (WoS) in all databases (Philadelphia, Pennsylvania, USA) on March 4, 2021. WoS database shows all articles containing the keyword in title, abstract or keywords. The T100 citation list was created by two researchers by reading all articles and excluding articles not primarily related to palliative care. The T100 citation list was prepared according to the topic of the article, type of the article, the first author, year of publication, the number of citations, average citations per year (AcPY). Impact factor (IF), Quartile (Q) rankings and journal citation indicator (JCI) values of the journals for the year 2021 were used. JCI value is a new journal citation impact measurement that shows the average category-normalized citation effect of articles published in the last 3 years in line with data from the Web of Science [11]. In addition, a network visualization map was used for the keywords, countries and institutions of the T100 citation list.

On the same day with the WoS scan, a search for "Palliative care" was performed on Altmetric.com website and 100 articles with the highest altmetric attention score (AAS) were noted. AAS is the quantity of attention that an article has received. AAS is presented in the center of the altmetric donut. The colors of the donut represent sources of attention and the area of colors shows the contribution of the source to the AAS. News (has the highest coefficient), blogs, public policy documents, patents, post-publication peer-review platforms, Open Syllabus Project, research highlights, Wikipedia, Twitter, Facebook, Google+, Linkedln, Q&A, Reddit, Sin Weibo, Syllabi, Youtube and Pinterest are the contributors of the AAS [12, 13]. In addition, the AAS of the T100 cited articles were obtained from Altmetric.com website, and citation counts of the T100 altmetric list were obtained from the WoS website on the same date. The AAS value of articles that could not be found on the Altmetric.com website was assumed to be zero.

Apart from these, we scanned all articles in both the T100 bibliometric and T100 altmetric lists in the Scite.ai website for March 2021. We recorded the total scite score, supporting and contrasting citation statements for each article. Scite AI is

Main Points;

- Although citation count and Altmetric attention score are different concepts, valuable articles on palliative care in academia also resonate on social media.

- The article titled 'Early palliative care in patients with metastatic non-small cell lung cancer' attracted the most attention from both the academic community and the public.

- The countries with the highest number of articles on palliative care were the USA, England and Canada.

a Brooklyn-based startup designed to make a difference in the way researchers discover scientific papers. The Smart Citations feature shows whether citations to the article provide supporting or contrasting evidence. This allows us to approach the article from a more objective point of view. It also provides appropriate references and data when drafting articles. There are also some limitations to the application. There may be a small number of journals or publications that it does not cover. Also, over-reliance on the database to categorize supporting or opposing evidence can lead to bias. Nevertheless, despite all this, the qualitative analysis it provides is a great convenience for researchers.

Statistical Analysis

Categorical variables were defined as median (minimum-maximum). Since the data was not normally distributed, Mann-Whitney U test was used to compare the differences between two groups; and Kruskal-Wallis test was used to compare three or more groups. Spearman correlation analysis was performed to evaluate the correlation between citation count, AAS, supporting and contrasting citation statements in T100 citation and altmetric lists. $p<0.05$ was considered statistically significant. All statistical analyses were performed using SPSS Statistics Version 25.0 software (IBM, Chicago, IL).

RESULTS

We found 50.674 articles by searching "Palliative care" in the Web of Science database. Top cited 100 articles about palliative care is given in Supplement 1; with the number of citations, AcPY, AAS, altmetric score donut, scite score, supporting and contrasting citation statement count, first author and year of publication. The median citation count of the top 100 cited articles was 422,5 (IQR, 339,2-585,5), while the median Scite score was 500 (IQR, 423-723,5) and AAS was 28 (IQR, 10-90). The article titled "Early palliative care in patients with metastatic non-small cell lung cancer" by Temel JS [14] was at the top of both lists (n=3724, AAS=1401) (rank 1 in Supplement 1 and Supplement 2). The article also had the highest scite score with 4407 in both lists, and there were 66 supporting and 12 contrasting citation statements [14]. The highest altmetric score (n=1461) in the T100 citation list belonged to the fourth most cited article (n=2324) entitled "CDC guideline for prescribing opioids for chronic pain-United States 2016" by Dowell D et al (rank 4 in Supplement 1) [15]. The Spearman correlation analysis was used to define the correlation between citation count, AAS and scite scores (supporting, contrasting) of the T100 citation and T100 altmetric articles. While a significant correlation was found

between AAS and citation (p=0.001, r=0.328) in addition to the significant correlation between AAS and supporting citation statement count on scite (p=0.011, r=0.255), no statistically significant correlation was found between AAS and contrasting citation statements in T100 citation list (p=0.347, r=0.96). For T100 altmetric list, no significant correlation was found in terms of AAS and citation counts (p=0.110, r=0.161), and AAS and supporting citation statements (p=0.888, r=0.014) but there was a significant correlation between AAS and contrasting citation statement counts (p=0.024, r=0.025). In terms of AcPY, there was a significant correlation between AcPY and citation count and AAS (p<0.001, r=0.607; p<0.001, r=0.747; respectively).

Top100 altmetric list is given in Supplement 2 including 100 articles about palliative care with the highest AAS, as well as altmetric score donut, the number of citations, scite score, supporting and contrasting citation statement count, first author and year of publication of the articles. The median citation count of the T100 altmetric articles was 44,5 (IQR 6.-95,7), the median for the scite score was 52 (IQR, 10-132) and AAS was 229,5 (IQR 183,2-391). The article "Early palliative care for patients with advanced cancer: a cluster-randomized controlled trial" published in the Lancet in 2014, ranked 48th in the T100 altmetric list with 241 AAS, was in the second rank in terms of citation and scite scores (n=750, n=1056; respectively) [16]. This article was ranked 11 in the T100 citation list. No correlation was found between the citation count, supporting citation statements and AAS of the T100 altmetric articles, according to Spearman correlation analysis (p=0.110, r=0.161; p=0.888, r=0.14; respectively) while there was a significant correlation between AAS and contrasting citation statements (p=0.024, r=0.225).

Journal of Clinical Oncology (n=11), JAMA-Journal of the American Medical Association (n=9) and Journal of Pain & Symptom Management (n=6) were the journals with the highest number of articles in the T100 citation list. In the T100 altmetric list, the journals with the highest number of articles were Palliative Medicine (n=15), JAMA-Journal of the American Medical Association (n=8) and British Medical Journal (n=7). The median IF and JCI values of the journals in which the articles in the top 100 citation list were published were 21.25 (IQR 6.5-69.5) and 3.77 (IQR 1.36-8.23), while those in the top 100 altmetric list were 10.42 (IQR 5.57-85.77) and 2,07 (IQR 1.24-7.45), respectively. IF and JCI values of journals were summed up for each list and divided by the number of articles.

There was no statistically significant difference between IF, JCI and Q categories in both lists (p=0.079; p=0.131 and p=0.574; respectively). Interestingly 'Journal of palliative care', which is Q4 according to the Scimago Journal and Country Rank category, was one of the journals in the T100 citation list. Journals with two or more articles in both lists, article counts, IF, JCI values and Q categories are given in Table 1.

Table 1. Journals with two or more articles in T100 citation and altmetric lists

Rank and Journal	The Number of Articles	Impact Factor*	Quartile in Category**	Journal Citation Indicator***
Top 100 citation list				
1.Journal of Clinical Oncology	11	50.739	Q1	5.64
2. JAMA-Journal of the American Medical Association	9	157.375	Q1	10.46
3. Journal of Pain&Symptom Management	6	5.576	Q1	1.42
4. New England Journal of Medicine	5	176.082	Q1	22.47
5. British Medical Journal	5	96.216	Q1	7.45
6. Lancet Oncology	4	54.433	Q1	8.50
7. Archives of Internal Medicine	4	17.333	Q1	
8. Palliative Medicine	4	5.713	Q1	1.24
9. Lancet	3	202.731	Q1	21.87
10. CA-A Cancer Journal for Clinicians	2	286.13	Q1	68.74
11. Annals of Internal Medicine	2	51.598	Q1	6.01
12. Circulation	2	39.922	Q1	6.31
13. Cochrane Database of Systematic Reviews	2	11.874	Q1	1.33
14. Critical Care Medicine	2	9.296	Q1	1.47
15. British Journal of Cancer	2	9.082	Q1	1.41
16. Pain	2	7.926	Q1	1.77
17. Journal of the American Geriatrics Society	2	7.538	Q1	1.62
18. Journal of Palliative Medicine	2	2.947	Q3	0.76
Top 100 altmetric list				
1. Palliative Medicine	15	5.713	Q1	1.24
2. JAMA-Journal of the American Medical Association	8	157.375	Q1	10.46
3. British Medical Journal	7	96.216	Q1	7.45
4. JAMA Oncology	6	33.012	Q1	5.20
5. Journal of Pain&Symptom Management	6	5.576	Q1	1.42
6. BMJ Supportive & Palliative Care	6	4.633	Q1	0.89
7. Lancet	5	202.731	Q1	21.87
8. Journal of Palliative Medicine	5	2.947	Q3	0.76
9. New England Journal of Medicine	4	176.082	Q1	22.47
10. Journal of Clinical Oncology	4	50.739	Q1	5.64
11. Lancet Oncology	3	54.433	Q1	8.50
12. Canadian Medical Association Journal	3	16.876	Q1	2.07
13. Health Affairs	3	9.048	Q1	2.77
14. JAMA Internal Medicine	2	44.424	Q1	4.86
15. Cochrane Database of Systematic Reviews	2	11.874	Q1	1.33
16. Annals of Emergency Medicine	2	6.762	Q1	2.60
17. Oncologist	2	5.837	Q2	1.03
18. American Journal of Hospice & Palliative Care	2	2.09	Q4	0.64

* 2021 Journal Citation Reports (Clarivate Analytics)
** 2021 Scimago Journal and Country Rank
***2021 Clarivate Analytics

Most frequent year of publication of articles in T 100 citation list was 2007 with 8 articles, and it was seen that there were articles belonging to almost every year between 1992 and 2017. While 2016 was the year in which the most articles were published in T100 altmetric list with 19 articles, 2017 and 2018 followed it with 17 articles each.

When we grouped the articles according to study types, we found that the most common study type was original article in both lists (n=43, n=55; respectively). According to article types;

while there was no difference between citation counts in the T100 citation list (p=0.486), there was a significant difference between AAS, supporting citation statements and contrasting citation statements (p=0.028, p=0.001, p<0.001). On the other hand, there was no significant difference between the number of citations, AAS, supporting and contrasting citation statement counts according to article types in the T100 altmetric list (p = 0.611, p=0.382, p=0.361, p=0.356; respectively). Study types of the lists and statistical analyzes are given in Table 2.

Table 2. Study types of the articles in top 100 citation and altmetric list

Study Type	Number of articles	Citations, median (IQR)	p value	AAS, median (IQR)	p value	Scite Supporting, median (IQR)	p value	Scite contrasting, median (IQR)	p value
Top 100 citation list	100	422 (339-585)		28 (10-90)					
Original scientific paper	43	423 (334-553)	0.486	19 (4-62)	**0.028**	12 (5-19)	1	3 (1-4)	**<0.001**
Review	26	483 (337-629)		28 (16-176)		6 (2-10)		0 (0-0)	
Guidelines and advisory documents	18	411 (345-601)		32 (17-85)		5 (4-7)		0 (0-0)	
Systematic reviews and meta-analyses	13	449 (374-774)		69 (23-413)		15 (7-23)		3 (1-4)	
Top 100 altmetric list	**100**	44 (6-95)		229 (183-391)					
Original scientific paper	55	38 (6-97)	0.611	224 (176-358)	0.382	1 (0-4)	0.361	0 (0-1)	0.356
Review	28	48 (9-129)		245 (192-427)		0 (0-0)		0 (0-0)	
Systematic reviews and meta-analyses	11	24 (4-71)		204 (179-381)		1 (0-3)		0 (0-0)	
Guidelines and advisory documents	6	81 (20-348)		339 (185-665)		1 (1-5)		0 (0-0)	

AAS, Altmetric Attention Score

The articles in both lists were divided into 6 groups according to their topics: palliative care for oncology patients, palliative care for non-oncological diseases, pain, cost, healthcare workers-caregivers and Covid-19. The most common topic was 'palliative care for non-oncological diseases' in T100 citation and altmetric lists (n=39, n = 49; respectively) and the second was 'palliative care for oncology patients' in both lists (n =36, n=24; respectively). According to the article topics, there was no difference between the groups in terms of the citation counts, AAS and supporting citation statement counts in the T100 citation list (p=0.063, p=0.772, p=0.192; respectively), but there was a statistically significant difference in contrasting citation statement counts (p=0.003). For T100 altmetric list no statistically significant difference was found in terms of both AAS and contrasting citation statement counts (p=0.263, p=0.080; respectively) but there was a statistically significant difference in citation and supporting citation statement counts

(p=0.014, p<0.001; respectively). See Table 3 for the topics of articles in both lists and statistical analyzes. In addition, while there are 4 articles about children in the T100 citation list, no articles for that age group were found in the T100 altmetric list.

The most commonly used keywords in the T100 citation list were found to be palliative care, terminal care and cancer. A network visualization cluster map for keyword analysis about palliative care for the top 100 cited articles is given in Figure 1. The majority of publications in the T100 citation list have come from the United States, England and Canada. Countries of the authors and network of countries are given in Figure 2. The most contributing institutions in T100 citation list were Harvard University, Memorial Sloan Kettering Cancer Center, University of Washington and King's College London, respectively. For the correlation and clusters of contributing institutions in the T100 citation list see Figure 3.

Table 3. Topics of the top 100 citation and altmetric list

Topic	Number of articles	Citations, median (IQR)	P value	AAS, median (IQR)	P value	Scite supporting, median (IQR)	P value	Scite contrasting, median (IQR)	p value
Top 100 citation list	100	422 (339-585)		28 (10-90)		8 (4-16)		1 (0-3)	
PC for non-oncological diseases	39	378 (334-487)	0.063	27 (12-62)	0.772	7 (4-15)	0,192	0 (0-2)	**0.003**
PC for oncology patients	36	516 (354-692)		40 (9-93)		10 (4-24)		2 (1-4)	
Pain	13	389 (339-774)		25 (4-281)		6 (2-8)		0 (0-2)	
Healthcare workers, care givers	10	453 (376-549)		19 (9-220)		10 (5-22)		3 (1-5)	
Cost	2	488 (484-)		72 (70-)		16 (14-)		3 (0-)	
Top 100 altmetric list	100	44 (6-96)		229 (183-391)		1 (0-3)		0 (0-0)	
PC for non-oncological diseases	49	20 (6-64)	**0.014**	225 (181-391)	0.263	0 (0-1)	<0.001	0 (0-0)	0.080
PC for oncology patients	24	89 (13-200)		212 (182-293)		2 (0-9)		0 (0-0)	
Healthcare workers, care givers	11	97 (6-209)		184 (170-358)		2 (1-8)		0 (0-1)	
Pain	6	3 (2-70)		387 (245-582)		0 (0-1)		0 (0-0)	
Covid-19	6	22 (13-50)		324 (194-485)		0 (0-0)		0 (0-2)	
Cost	4	103 (65-196)		205 (179-806)		4 (2-5)		1 (0-2)	

IQR, Interquartile intervals; **AAS,** Altmetric Attention Score; **PC,** Palliative care
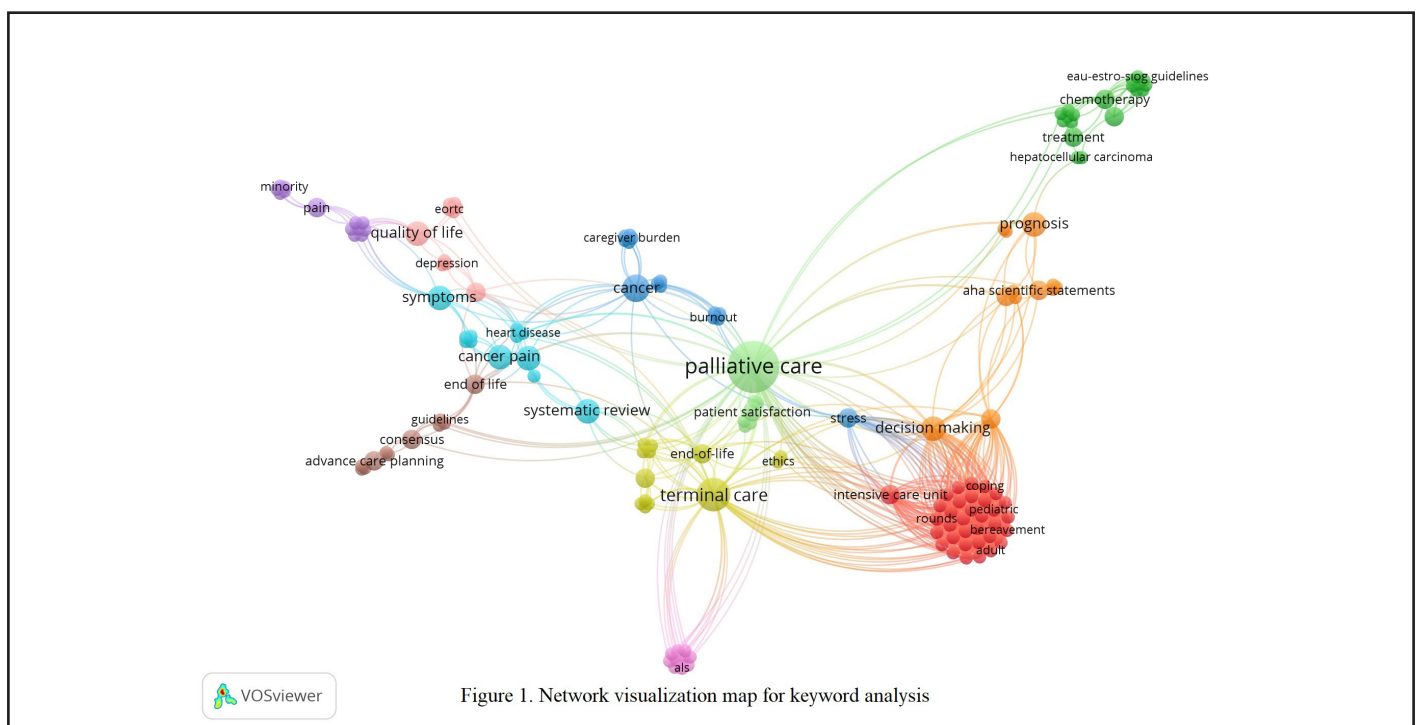

Figure 1. Network visualization map for keyword analysis

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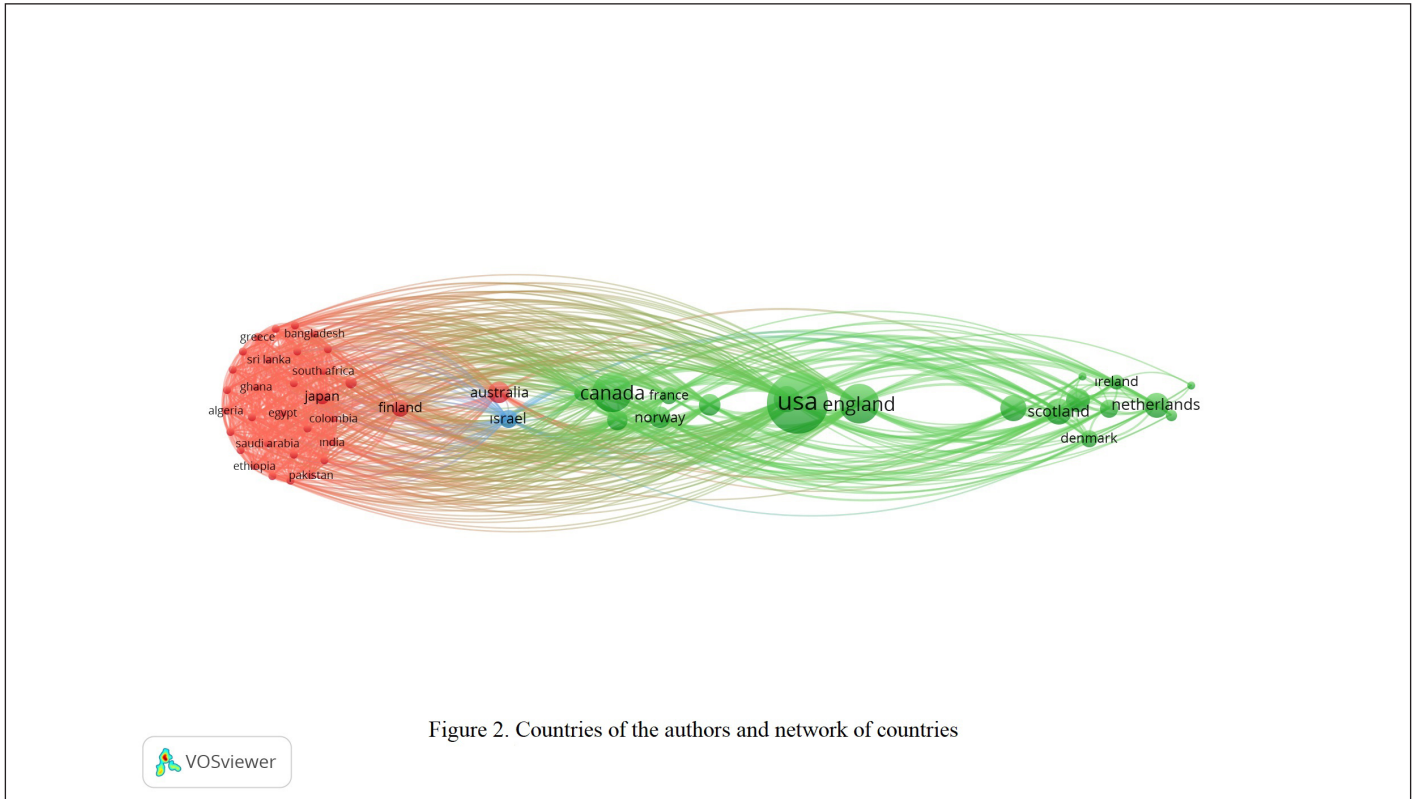
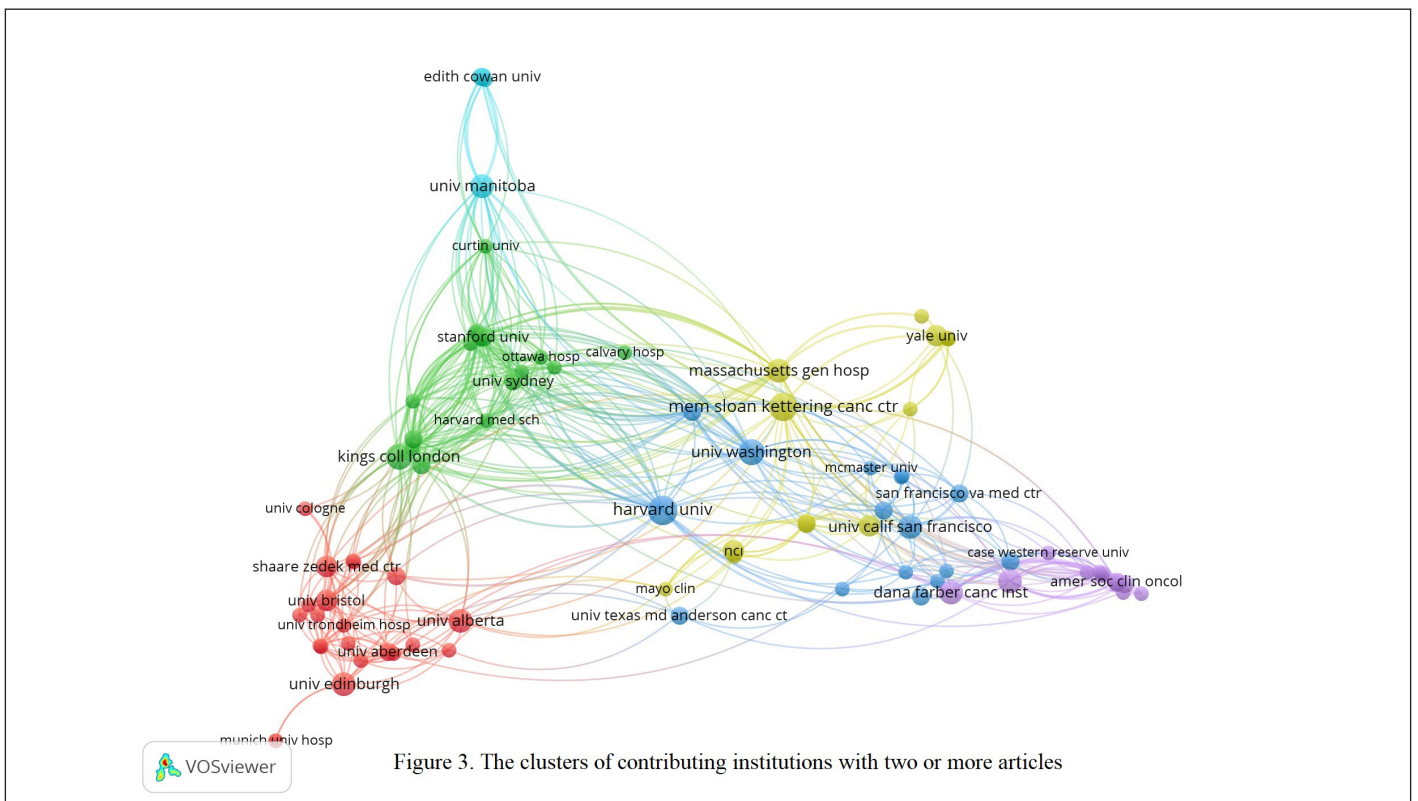Figure 2. Countries of the authors and network of countries

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Figure 3. The clusters of contributing institutions with two or more articles

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DISCUSSION

There are bibliometric studies on palliative care in the literature. However, as far as we know, our study is the first and only study to date that compares bibliometric analysis and altmetric analysis in this field, and also evaluates these three axes together by examining the relationship between supporting and contrasting citation counts and altmetric attention score. Our study investigated the 100 most cited articles in the academic community and the 100 most discussed articles on social media about palliative care, and revealed that although the number of citations and AAS are different concepts, the articles that have an important place in the academy also aroused some repercussions in the social media. Unlike existing studies, our study, in which we included the concept of JCI in addition to scite scores, is the most comprehensive study in this field.

"Early palliative care in patients with metastatic non-small cell lung cancer", the article at the top of both the T100 citation and T100 altmetric lists, was a randomized controlled trial examining the impact of initiating palliative care early after diagnosis on self-reported outcomes and end-of-life care in patients with newly diagnosed disease The study showed that early palliative care in patients with non-small cell metastatic lung cancer leads to significant improvements in both quality of life and mood, in addition, patients who receive early palliative care need less aggressive care at the end of their lives and have a longer survival [14]. "Definition and classification of cancer cachexia: an international consensus", which was ranked second in the T100 citation list with 2020 citations and 2385 scite score (43 supporting and 4 contrasting citation statements) had only 47 AAS. In this consensus report for experts, cancer cachexia was defined and its pathophysiology, classification and clinical management were described. Cancer cachexia has been defined as a multifactorial syndrome characterized by loss of skeletal muscle mass leading to progressive functional impairment. The accepted diagnostic criteria for cachexia was weight loss greater than 5% or weight loss greater than 2% in individuals already showing depletion according to current body mass index or skeletal muscle mass [17]. "CDC guideline for prescribing opioids for chronic pain-United States, 2016", which has the highest AAS (n=2324) of the T100 citation list, was an update of a 2014 systematic review on effectiveness and risks of opioids and a supplemental review on benefits, harms, values, preferences and costs. Chronic pain, the use of feared and avoided opioids, and the risks associated with long-term opioid use in chronic pain have attracted the attention of public. This

article has been cited 1461 times with a scite score of 1850, with 5 supporting citation statements and no contrasting statements [15]. The article "Complete biosynthesis of opioids in yeast," in which interestingly yeast was designed starting from sugar to produce selected opioid compounds, published in Science in 2015, had one of the highest AASs (n=623) despite being middle of the T100 citation list [18] (Supplement 1, rank 57).

Scite total scores of the articles are lower than the number of citations. While this may seem like a discrepancy, the explanation is actually very simple. While citation counts are based on Web of Science, Scite has a wider network of data. Scite pulls information from major publishers such as Wiley, Sage, British Medical Journal, as well as some smaller publishers and open access publishers' websites, university repositories and preprint repositories that provide access to open access articles.
We found a significant weak correlation between citation count and AAS in T100 citation list (p=0.001, r=0.328) but no correlation was found between them in T100 altmetric list (p=0.11, r=0.161). This result showed us that although citation count and AAS are different concepts, valuable articles in the academy resonate with social media, on the other hand, articles popularized by the public are not of the same importance for the academy. In addition, there was a significant correlation between AAS and contrasting citation statement counts (p=0.024, r=0.025) in T100 altmetric list. This result made us think that altmetric attention scores may be open to manipulation and these articles may be scientifically controversial, as there are many contrasting statements about them.

In a study in which a bibliometric analysis of 217 articles on cancer palliative care was performed, The United States and UK were the countries with the largest number of articles (n=101, n=18, respectively) and this was attributed to the long-term practice of palliative care in these countries. Similarly, the countries with the highest number of articles in our study were the USA, England and Canada (n=53, n=22, n=22, respectively) [19].

It was observed that at least one article was published almost every year between 1992 and 2017 in the T100 citation list, whereas the articles in the T100 altmetric list focused on 2013 and later. This can be attributed to the fact that the place occupied by social media in our lives has increased over the years. The fact that the distribution of the articles in top 100 citation list by year is different from the top 100 altmetric list, and the fact that there

are no articles after 2017 in the T100 citation list, once again shows that the concepts of AAS and citation, and the interest of the academy and the society are different from each other. The publication year of the articles in both the T100 citation and T100 altmetric lists focused on the 2000s. The number of articles published between 2000-2017 in the T100 citation list (n=91) is 9 times the number of articles published between 1975-1999 (n=9). While there was only 1 article published between 1975-1999 in the T100 altmetric list, there were 99 articles published between 2000-2021.This has clearly shown us that the interest in palliative care has increased in the 2000s. The fact that the WHO expanded and renewed the definition of palliative care in 2002 may have been effective in this [20]. In addition, the increasing interest and need for palliative care over the years can be shown as another reason.

Since the approach of palliative care is focused both on the patient and their family, caregivers are also curious about palliative care. For this reason, there are many articles on both the T100 bibliometric (n=10) and the T100 altmetric list (n=11) about caregivers and healthcare professionals interested in palliative care. While there were 6 articles on Covid-19 in T100 altmetric list, no articles were found in the T100 citation list. The Covid 19 pandemic has given all individuals, from academics to the public, a period of restrictions. It has become extremely difficult for patients to access health services and establish contact with healthcare professionals. This situation has tied the hands of terminally ill patients who are at heightened risk from COVID-19 and their caregivers. Patients and caregivers, who did not know what to do and could not reach health professionals, frequently used social media in this period to reach and disseminate information about palliative care. The article "Palliative care for patients with severe covid-19", describes the management of symptoms such as breathlessness, agitation, and anxiety in patients with severe Covid-19, communication with patients and families, and preparing an urgent care plan in case of deterioration and death attracted much attention of society and ranked 4th in the T100 altmetric list with 696 AAS [21]. During the pandemic, the academic community focused more on the etiopathogenesis, prevention and treatment of Covid-19, while WHO provided guidance on how to maintain essential health services, but did not mention palliative care. Based on these, unfortunately, we can say that palliative care services are somewhat neglected during the pandemic by academia [22]. The fact that there are no articles on this subject in the T100 citation list also supports this.

Limitations

Since the citation counts of the articles in the T100 lists were scanned from WoS database, articles not available in this database were not analyzed. The second limitation is that since we searched for the term 'palliative care', articles written as 'end-of-life care' were not included in the study, although it concerns palliative care.

CONCLUSIONS

The article "Early palliative care in patients with metastatic non-small cell lung cancer", written by Temel JS and published in the New England Journal of Medicine, was the article that attracted the most attention of both the academic community and the public in the field of palliative care. Journal of Clinical Oncology was the journal with the highest number of articles in the T100 citation list. Our study revealed the overview of the academy and society on palliative care with a bibliometric and altmetric approach. We showed that the articles that attract the attention of the scientific world also arouse repercussions in social media, while the articles that society is interested in do not arouse much curiosity in the academic community. Although AAS is open to manipulation, it would be beneficial to use altmetric analysis together with bibliometric analysis, as it gives an idea about the topics that the society is curious about. The combined use of bibliometric analysis and altmetric analysis will provide benefits to raise awareness in the society about palliative care and to create new policies.

Conflict of Interest: No conflict of interest has been declared by the author.

Ethical Statement: This study does not require ethics committee approval as data (existing published articles) was collected from a public network platform and analyzed, and did not include human subjects.

Author Contributions: Conception: BBK- Design: BBK- Supervision: BBK- Materials: BBK- Data collection and processing: BBK- Analysis: BBK- Literature: BBK- Review: BBK- Writing: BBK.

REFERENCES

[1] Atreya S, Datta S, Salins N (2022) Public Health Perspective of Primary Palliative Care: A Review through the Lenses of General Practitioners. Indian J Palliat Care. 28(3):229-235. https://doi.org/10.25259/IJPC_9_2022

[2] Hughes MT, Smith TJ (2014) The growth of palliative care in the United States. Annu Rev Public Health. 35:459-475. https://doi.org/10.1146/annurev-publhealth-032013-182406

[3] Garner RM, Hirsch JA, Albuquerque FC, Fargen KM (2018) Bibliometric indices: defining academic productivity and citation rates of researchers, departments and journals. J Neurointerv Surg. 10(2):102-106. https://doi.org/10.1136/neurintsurg-2017-013265

[4] Akkan Suzan A (2022) A bibliometric and altmetric analysis of Alzheimer's disease: Top 100 articles. Turk J Geriatr.25 (3):422-431. https://doi.org/10.31086/tjgeri.2022.301

[5] Suzan V, Unal D (2021) Comparison of attention for malnutrition research on social media versus academia: Altmetric score analysis Nutrition. 82:111060. https://doi.org/10.1016/j.nut.2020.111060

[6] Ulugerger Avci G (2023) A bibliometric perspective to the most cited diabetes articles. J Diabetes Metab Disord https://doi.org/10.1007/s40200-023-01199-0

[7] Kolahi J, Khazaei S, Iranmanesh P, Kim J, Bang H, Khademi A (2021) Meta-Analysis of Correlations between Altmetric Attention Score and Citations in Health Sciences. Biomed Res Int. 2021:6680764. https://doi.org/10.1155/2021/6680764

[8] Bordignon F (2022) Critical citations in knowledge construction and citation analysis: from paradox to definition. Scientometrics 127, 959–972. https://doi.org/10.1007/s11192-021-04226-0

[9] Brody S (2021) Scite. J Med Libr Assoc. 109(4):707-710. https://doi.org/10.5195/jmla.2021.1331

[10] Khamsi R (2020). Coronavirus in context: Scite.ai tracks positive and negative citations for COVID-19 literature. Nature. https://doi.org/10.1038/d41586-020-01324-6

[11] Szomszor M (2021) Introducing the Journal Citation Indicator: a new, field-normalized measurement of journal citation impact. Available from: https://clarivate.com/blog/introducing-the-journal-citation-indicator-a-new-field-normalized-measurement-of-journal-citation-İmpact/ Accessed 1 January 2022

[12] The donut and Altmetric Attention Score. Available from https://www.altmetric.com/about-our-data/the-donut-and-score/ Accessed 1 January 2022

[13] Altmetric attention score calculation. Available from https://help.altmetric.com/support/solutions/articles/6000233311-how-is-thealtmetric-attention-score-calculated Accessed 1 January 2022

[14] Temel JS, Greer JA, Muzikansky A, Gallagher ER, Admane S, Jackson VA, Dahlin CM, Blinderman CD, Jacobsen J, Pirl WF, Billings JA, Lynch TJ (2010) Early palliative care for patients with metastatic non-small-cell lung cancer. N Engl J Med. 363(8):733-42. https://doi.org/10.1056/NEJMoa1000678

[15] Dowell D, Haegerich TM, Chou R (2016) CDC Guideline for Prescribing Opioids for Chronic Pain--United States, 2016. JAMA. 315(15):1624-1645. https://doi.org/10.1001/jama.2016.1464

[16] Zimmermann C, Swami N, Krzyzanowska M, Hannon B, Leighl N, Oza A, Moore M, Rydall A, Rodin G, Tannock I, Donner A, Lo C (2014) Early palliative care for patients with advanced cancer: a cluster-randomised controlled trial. Lancet. 17;383(9930):1721-30. https://doi.org/10.1016/S0140-6736(13)62416-2

[17] Fearon K, Strasser F, Anker SD, Bosaeus I, Bruera E, Fainsinger RL, Jatoi A, Loprinzi C, MacDonald N, Mantovani G, Davis M, Muscaritoli M, Ottery F, Radbruch L, Ravasco P, Walsh D, Wilcock A, Kaasa S, Baracos VE (2011) Definition and classification of cancer cachexia: an international consensus. Lancet Oncol. 12(5):489-95. https://doi.org/10.1016/S1470-2045(10)70218-7

[18] Galanie S, Thodey K, Trenchard IJ, Filsinger Interrante M, Smolke CD (2015) Complete biosynthesis of opioids in yeast. Science. 349(6252):1095-1100. https://doi.org/10.1126/science.aac9373

[19] Santos Neto MFD, Paiva CE, de Lima C, Ribeiro AG, Paiva BSR (2021) Oncology palliative care: access barriers: bibliometric study. BMJ Support Palliat

Care.   bmjspcare-2021-003387.   https://doi.org/10.1136/bmjspcare-2021-003387

[20] Sepúlveda C, Marlin A, Yoshida T, Ullrich A (2002) Palliative Care: The World Health Organization's global perspective. J Pain Symptom Manage. 24(2):91-96. https://doi.org/10.1016/s0885-3924(02)00440-2

[21] Ting R, Edmonds P, Higginson IJ, Sleeman KE (2020) Palliative care for patients with severe covid-19. BMJ. 370:m2710. https://doi.org/10.1136/bmj.m2710

[22] The Lancet (2020). Palliative care and the COVID-19 pandemic. Lancet. 395(10231):1168. https://doi.org/10.1016/S0140-6736(20)30822-9