Social Marketing Approach to Pollution: Visual Mapping and Bibliometric Analysis

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Abstract – Pollution is one of the most vital problems facing the world. Controlling this growing problem requires the participation of all stakeholders. Therefore, effective strategies should be adopted. In this context, the study aims to present a holistic perspective to social marketing research on pollution with visual mapping and bibliometric analysis method. Thus, 43 studies were identified in the Web of Science database and analysed with the VOSviewer. It can be said that there is an academic interest in the related field, but it is not sufficient. It has been determined that scientists from 23 countries, especially the USA, are studying in this field. It is seen that there is a slight increase in the field over the years. Especially, the number of studies carried out in 2022 represents approximately 12% of the total scientific production.

Keywords – Social Marketing, Pollution, Environmental Pollution, Visual Mapping, Bibliometric Analysis.

I. INTRODUCTION

One of the problems faced by the world is environmental pollution. There are different types of environmental pollution. Pollution has a negative impact on elements such as soil, water, and air. There are different types of pollutants such as heavy metals, pesticides, industrial compounds, personal care products, toxic gases. These pollutants can be mobile and persistent in water, air, soil, and sediments even at low concentrations [1]. Pollution is a critical problem. Effective strategies should be adopted to bring it under control. Therefore, alleviating this problem, which has an increasing momentum, requires the participation of all stakeholders. Environmental pollution is mainly caused by humans and nature. But we can say that the main factor is the activities performed by human. In this context, the marketing discipline plays an active role in social life [2] and helps to change the thoughts and behaviours of the society on social issues [3]. It can be expressed as a social activity beyond commercial products [4]. It is conceptualized with the term social marketing

[5]. The international social marketing association explained social marketing as aiming to bring behaviours that benefit individuals or communities by integrating marketing concepts with other approaches for more significant social benefit [6]. Social marketing, which aims to change behaviour for the better [7], can be expressed as the adoption of thoughts and behaviours that benefit society [8]. Therefore, it is essential to investigate the academic interest in the concept of social marketing on pollution, which is major problems we face. Therefore, the current study focuses on social marketing research on pollution and makes a bibliometric review to explore the information in the field in a holistic way. The current study aims to provide a holistic perspective to studies investigating pollution in the context of social marketing around the world. In this context, studies investigating the pollution issue within the scope of social marketing were determined. It is aimed to find the research themes emerging in the literature. Therefore, the current study tries to answer the question of what is the basic bibliometrics of the

research published in the Web of Science (WoS) on pollution within the scope of social marketing and what are the themes that emerge in the literature.

II. MATERIALS AND METHOD

The bibliometric analysis method, which allows statistical analysis of many articles, refers to quantitative research for a specific theme [9]. This method allows for a better understanding of the knowledge and intellectual framework [10]. For this reason, bibliometric analysis methodology was used to provide quantitative analysis of the publications in the literature and to examine the research questions. Therefore, the research models and topics in the articles published in the WoS database are presented in the study. In this context, common citation analysis and text mining provided by VOSviewer were used to analyse the data in the relevant field.

A. Research Data

Research data were obtained from WoS, the largest multidisciplinary database of scientific literature. To access the relevant literature in the database, the Boolean operator "and" search method, which combines the keywords "pollution" and social marketing, was used. Therefore, the research was limited to the relevant keywords. In addition, no time was determined as a search criterion. After determining pollution (all fields) and "social marketing" (all fields) in the search, 43 studies to be included in the review were reached.

B. Analysis of Data

VOSviewer program was used to perform keyword analysis from visual mapping methods. There are distance and graphic-based map types in scientific mapping techniques. In the distance-based mapping technique, the distance and proximity between the items express the strength of the relationship. Graph-based maps also reveal the relationships of elements. VOSviewer is a comprehensive program that allows to reveal the strength of distance and relationships between elements [11]. For this reason, the bibliometric indicators obtained within the scope of the research were analysed with the related program.

III. RESULTS

Within the scope of the research, data on the origin of the publications were processed according to the information of the first author. Therefore, a descriptive statistical analysis of the number of publications by country was made. In this context, it is seen that there are broadcasts from 23 countries. However, the country with the highest number of publications in the related field was the USA (21). This is followed by South Africa (4), Spain (3), Australia (2), England (2) Mexico (2) and Turkey (1), respectively. The WoS categories and publication numbers of the studies determined in this context are shown in Figure 1.
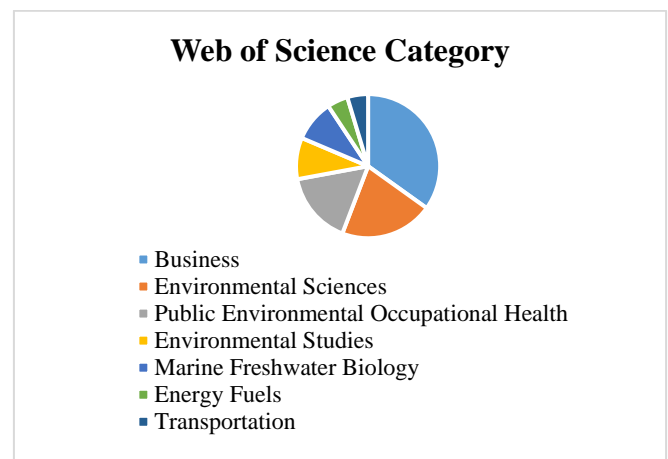

Fig. 1 Web of Science category and Number of publications

Studies investigating the issue of pollution within the scope of social marketing are shown in Figure 1. It is seen that most of these studies are in the business category. This is followed by environmental sciences, public environmental occupational health, environmental studies, marine freshwater biology, energy fuels and transportation, respectively. It has been observed that 1 study has been carried out in other areas. It has been determined that 41 of these publications are in English. The WOS indexes of the studies are shown in Figure 2.
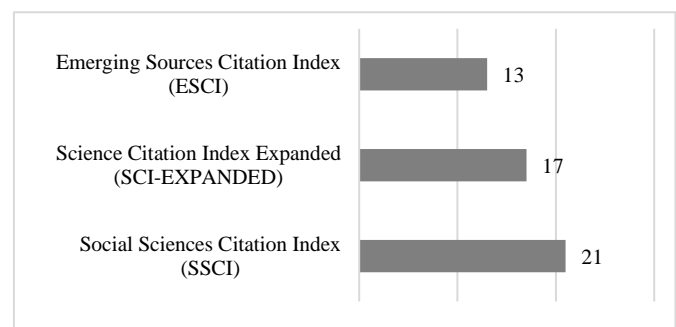

Fig. 2 Web of Science Index

As seen in Figure 2, 21 of the studies are indexed in the "Social Sciences Citation Index" (SSCI), 17

of them "Science Citation Index Expanded (SCI-EXPANDED)" and 13 of them "Emerging Sources Citation Index" (ESCI). The distribution of studies by years is given in Figure 3.
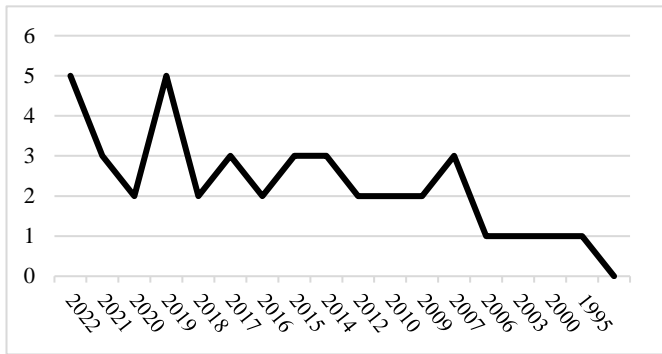

Fig 3. Number of Publications Annually

Figure 3 shows that interest in studies evaluating pollution within the scope of social marketing began in 1995. There has been an increase in studies in the related field every year. Especially the increases in 2019 and 2022 draw attention. The number of studies carried out in 2022 represents approximately 12% of the total scientific production. Pollution is vital issue for humanity to consider. Therefore, it concerns society. Thus, it can be said that social marketing is an area that will help prevent pollution. However, it is seen that sufficient studies have not been carried out. In this context, the distribution showing the publisher groups of the studies in general is shown in Figure 4.
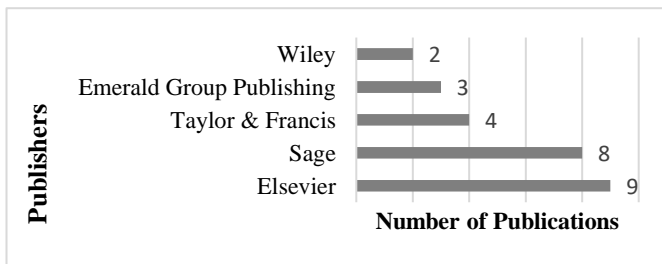

Fig. 4 Publisher and Publication Numbers

Figure 4 shows the groups with the most publications in the relevant field. In this context, "Elsevier" (9) has been identified as the publisher that publishes the most. It is followed by "Sage" (8), "Taylor & Francis" (4), "Emerald Group Publishing" (3) and "Wiley" (2). Other publishers have 1 publication each. The journals in which studies in the related field are published are given in Table 1.

Table 1. Journals and Publication Numbers (n ≥2)

Journal	Publication Number (n)
Social Marketing Quarterly	7
Marine Pollution Bulletin	3
Journal of Social Marketing	2
Transportation Research	2

The journals with the highest number of publications (n≥2) in WoS related to studies dealing with pollution within the scope of social marketing are shown in Table 1. It is seen that the journal in which the studies in the related field are published the most is "Social Marketing Quarterly". The journal is indexed in ESCI. One of the processes that defines the structure of the field and clarifies the studies on the subject is keyword analysis. Within the scope of the research, data visualization technique was used for keyword analysis, which allows the evaluation of studies on social marketing and pollution in terms of their content. In this context, a network structure showing the map of their power and research trends by giving the same colors together in the relationships between the keywords was obtained with VOSviewer. The results are shown in Figure 5.
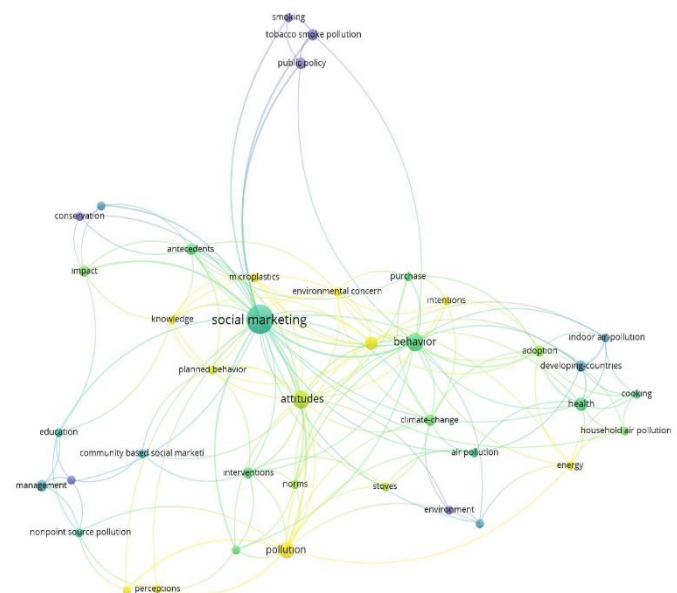

Fig. 5 Keywords Network Visualization

A total of 339 keywords related to the subject were identified. However, to define the structure of the field and to clarify the studies, the minimum number of occurrences of keywords has been determined as 2. Also, country names etc.

keywords have been removed. As a result, 40 keywords were analysed. The size of the circle in Figure 5 shows the most discussed issue. According to the size of the circle and the number of connections, the keywords social marketing, behaviour, attitudes, pollution, adoption, consumption, antecedents, health, climate-change were studied together with other clusters on pollution.

IV. CONCLUSION

Environmental pollution, expressed as soil (solid), water and air pollution, is one of the biggest problems faced by the world. Alleviating this problem requires the participation of all stakeholders. Therefore, effective strategies should be adopted to control this problem. It can be said that one of these strategies is social marketing. It is very important to investigate the academic interest in the concept of social marketing. For this reason, the current study offers a holistic perspective to social marketing research on pollution with visual mapping and bibliometric analysis method. In this context, studies evaluating pollution from the perspective of social marketing were determined among the many studies indexed in the WoS database (43). As a result of the analysis, it can be said that there is an academic interest in the studies in the related field, but it is not sufficient. It has been determined that the country with the highest number of studies in the related field is the USA (21). It can be stated that academics from 23 countries, including Turkey, are interested. It was seen that most of the studies were in the business WoS category. It is also seen that it is indexed in environmental sciences, public environmental occupational health, environmental studies, marine freshwater biology, energy fuels and transportation categories. "Elsevier" and "Sage" are the groups that make the most publications in the related field. As a result of the keyword analysis, it is seen that social marketing, behaviour, attitudes, pollution, adoption, consumption, antecedents, health, climate-change, marine pollution are used. It is seen that there is a slight increase in the studies over the years. In particular, the number of studies carried out in 2022 represents approximately 12% of the total scientific production.

REFERENCES

[1] Özkara, A., & Akyıl, D. (2018). Environmental Pollution and the Effects of the Pollutants on the Ecosystem. Türk Bilimsel Derlemeler Dergisi, 11(2), 11-17.

[2] Ayvaz, İ., & Torlak, Ö. (2016). Social marketing and its moral dimensions. Turkish Journal of Business Ethics, 9(2), 247-281

[3] Bayraktaroğlu, G., & İlter, B. (2007). Sosyal pazarlama: Engeller ve öneriler. Ege Akademik Bakış, 7(1), 117-132.

[4] Wiebe, G. D. (1951). Merchandising commodities and citizenship on television. Public opinion quarterly, 15(4), 679-691.

[5] Kotler, P., & Zaltman, G. (1971). Social marketing: An approach to planned social change. Journal of Marketing, 35(3), 3-12.

[6] ISMA, International Social Marketing Association: https://isocialmarketing.org/ (accessed on 10.07.2023)

[7] Lahtinen, V., Dietrich, T., & Rundle-Thiele, S. (2020). Long live the marketing mix. Testing the effectiveness of the commercial marketing mix in a social marketing context. Journal of Social Marketing, 10(3), 357-375.

[8] Tehci, A. (2022). Attitudes and behaviour towards marine pollution: a social marketing approach. Present Environment & Sustainable Development, 16(2), 25-38.

[9] Zemigala, M. (2019). Tendencies in research on sustainable development in management sciences. Journal of cleaner production, 218, 796-809.

[10] Shafique, M. (2013). Thinking inside the box? Intellectual structure of the knowledge base of innovation research (1988–2008). Strategic Management Journal, 34(1), 62-93.

[11] Van Eck, N., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. scientometrics, 84(2), 523-538.