Ethical Climate: Exploring the Knowledge Base

Konuralp Sezgili
Assistant Professor
Faculty of Political Sciences,
Department of Public Administration
Adana Alparslan Türkeş Science and Technology University
Adana, Turkey

Abstract

The ethical climate concept has emerged as an influential paradigm in the 1990s, following the study of business ethics centered on corporate scandals. Extensive studies and reviews have been fueled by thirty years of knowledge accumulation. However, few bibliometric studies are conducted, and none focus on the knowledge base.Using bibliometric analyses, this study aims to investigate knowledge base for ethical climate from 1988 to 2022.Authors, journals, and documents were initially examined in terms of production, citation, and co-citation analyses using an integrated thematic approach.Next, the conceptual patterns through co-occurrence analyses and the structure of international collaboration were investigated. Bibliometric analyses show that the rapidly growing body of literature in the 2000s has shifted its focus to areas like sales and marketing and, particularly, the nursing environment.The study provides readers with a roadmap and recommendations for further study.

Keywords: Ethical Climate, Organizational Climate, Performance Analysis, Science Mapping, Bibliometric Review.

Introduction

Organizational and business ethics, while rooted in human existence, is a relatively recent field that emerged from the studies of moral philosophers in the 1970s and 1980s (Marcoux, 2016). Moreover, research into how an organizational climate influences the decision-making criteria of its members is a relatively new area of study in organizational research. In particular, the 1980s marked a shift in the emphasis placed on investigating and learning from corporate scandals, and scholars have focused their attention on unethical behavior(Kish-Gephart et al., 2010), which is supposed to be enabled by the ethical environment, as in the famous cases of AIG, Lehman Brothers, Enron, Tyco, etc. (Arnaud &Schminke, 2012).

The studies conducted by Victor and Cullen in the late 1980s are considered as the milestone of ethical climate research. They used

sociological and philosophical viewpoints as the theoretical foundation for developing a measure of ethical climate (Mayer, 2014).In their 1987 study, "A theory and measurement of ethical climate in organizations," the authors defined ethical climate as the common perspective of what constitutes appropriate behavior in an organization and how ethical issues should be addressed.In other words, organization members—or members of a subset of the organization—believe that specific types of ethical reasoning or behavior are expected standards or norms for decision-making; in this scenario, the ethical climate encompasses shared perceptions regarding the answer to the question "what constitutes right behavior" (Martin & Cullen, 2006: 177).Following the development of the measurement tool, early research established the conceptual framework and investigated the connections between the ethical climate and employee attitudes, particularly organizational commitment.In addition to placing a strong emphasis on consequences, which is still dominant, ethical climate literature started to incorporate antecedents during the middle of the 2000s(Newman et al., 2017).Since then, the volume of research has expanded significantly, and ethical climate has emerged as a key subject of organizational climate studies with several research components and extensive knowledge.

Using bibliometric methods, this study aims to shed light on the knowledge base including intellectual, conceptual, and social structure of ethical climate research. Given the extensive research conducted on the subject, it is apparent that there exist a number of recognized reviews.For example, Appelbaum and colleagues (2005)reviewed the literature with an emphasis on unethical and deviant behavior and drawn the conclusion that organizations must foster a strong, positive ethical culture.The 2006 meta-analytic study by Martin and Cullen is unquestionably the most remarkable review. They focused on the consequences (i.e., job satisfaction, organizational commitment, dysfunctional behavior) of ethical climate employing Victor and Cullen's (1997,1998) conception; yet, as mentioned, they also marked a trend in which antecedents and moderators were integrated in ethical climate research. Kish-Gephart and colleagues (2010) conducted another meta-analysis focusing exclusively on antecedents of unethical behaviors. These two meta-analyses revealed statistically significant relationships between ethical climate and ethical culture with unethical intentions and behavior (Mayer, 2014: 416). These were followed by qualitative systematic reviews. For instance, Simha and Cullen (2012) carried out a literature review that focused on the consequences. Mayer (2014) drew on the findings of the two previous meta-analyses and placed a particular focus on the ethical culture and climate research. More recently, Newman and collegues (2017) investigated the antecedents and outcomes of ethical climates, as well as moderators in the link between ethical climate and other variables. Similar efforts have also been made in the healthcare setting, with Koskenvouri and collegues (2019) rewieving ethical climate research in nursing context.In addition, reviews on the ethical climate may be found, although in a limited number, in the form of bibliometric studies. Even while few previous works have focused on ethical climate-related variables (e.g., leadership:Gamarra et al., 2022; entrepreneurship: Vallaster et al., 2019), one study, Razak and Mustamil (2020), has undertaken a bibliometric analysis exclusively on the topic of ethical climate.However, their research on ethical climate literature was limited to performance assessments of the relevant components of publications; science mapping was not included. While performance analysis indicates the context of the research area, science mapping is performed to understand the content of the literature (Emich et al., 2020). In this regard, this study addresses the following research questions:

- RQ1. What are the overall volume and trends of ethical climate research?
- RQ2. What authors, journals, documents, and countries have had the greatest influence on ethical climate research?
- RQ3.What is the intellectual structure of the knowledge base that ethical climate theory and research are built on?

This study may contribute in several respects. First, co-citation and performance analyses were conducted in order

to completely comprehend the knowledge base of the ethical climate research.In accordance with this and secondly, both network analysis and temporal analysis were used to reveal the conceptual framework. Third, patterns of social and academic collaboration were identified. These explanations are essential for grasping the multiple research aspects. Furthermore, for novice researchers, this paper gives an introduction and a recommended reading list, while for experienced researchers, it provides indications about the field's progress.The article is organized as follows: Following a description of the methodology, the results of the analysis, including performance and citation metrics and co-citation analyses, are presented in topical subsections. Next, conceptual structure and academic collaboration patterns were presented.The study concludes with a discussion and recommendations for future research.

Method

Bibliometric analysis offers a visual-spatial picture of the intellectual structure of knowledge bases (White & McCain, 1998). This research employed performance analysis and scientific mapping, the two primary functions of bibliometric analysis.Performance analysis examines variables linked to publication output and citations to evaluate the performance of studies published on a particular topic (of individuals, journals, institutions and countries). The purpose of scientific mapping, on the other hand, is to reveal the conceptual, intellectual, and social structure of the research area (Zupic&Čater, 2015). Using the appropriate research strategy is essential in bibliometrics, as it is in other fields of study. The following steps of bibliometric research strategy is implemented, as outlined by Zupic and Čater (2015: 433):

Table 1. Bibliometric research strategy

Research design	1. 2.	Definition of the objective of the study Selection of the appropriate bibliometric methods
Collecting bibliometric data	3. 4.	Selection of the database Refinement and exporting the database
Analysis	5. 6. 7.	Selection of appropriate bibliometric software Data cleaning Identifying the sub-fields
Visualization	8. 9.	Selection of visualization method Selection of appropriate software to visualize the analysis
Interpretation	10.	Description and interpretation of findings

Based on the purpose and scope of the research, several bibliometric methods were utilized. First, citation metrics (i.e., total citation, local citation, number of documents) and other indexes (i.e., h_index, g_index, m_index) wereutilized to present a descriptive assessment ofthe influence of journals, authors and references.Various bibliometric tools were employed to address the remaining research questions.To identify the knowledge base of ethical climate research, co-citation analyses (Small, 1973) were used to establish connections between references and sources based on their joint appearances in references.That is, if two references or authors appear in the same bibliography, co-citation, the measure of content similarity between two authors or references, is regarded to exist (Gmür, 2003). This technique is useful in identifying active areas within scientific disciplines (Small & Crane, 1979), which also enables to map the knowledge and understand intellectual patterns.In constructing the co-citation networks, fractional counting instead of full counting was used, which is suggested to create more sound results (Perianes-Rodriguez et al., 2016). Next, a co-occurance (co-word) analysis was performed. Co-occurancerefers to the statistical relationships between keywords that appear in the same document; in the form of a network map, a keyword co-occurrence network depicts the link between these keywords (Huang et al., 2020).Finally, collaboration profiles of countries are depicted.Bibliographic coupling, another well-established bibliometric technique, was not

used assome studies (i.e., Klavans&Boyack, 2017) suggest that performance analysis produces more accurate results for understanding the research front.

During the data retrieval process, Web of Science was used instead of SCOPUS to construct the database. Web of Science is identified as a reliable bibliographic data source (Zupic&Čater, 2015).Google Scholar was not selected as an alternative since it provides limited exporting options for bibliometric software.In source types, SSCI and ESCI databases selected to identify relevant literature. Given the exploratory purpose of this study, <ethic*climate> was searched for in the titles, keywords, and abstracts of the articles. Since the ethical climate concept is a highly popular conceptual framework, it was inevitable to come across numerous unrelated or indirectly related articles. At this point, the use of experimentations by researcher is crucial to create an accurate database. In this regard, among the 792 papers retrieved from the Web of Science database, a rigorous ex-anteselection was made, and it was ensured that the studies to be added to the data set included ethical climate as a component of the study model. The final dataset consisted of 513 documents published between 1989 and 2022, spanning 33 years.The number of papers required for bibliometric analytics to produce appropriate results is thought to be at least 500 (Zupic&Čater, 2015). In visualizing the bibliometric analyses, Bibliometrix (Aria &Cuccurullo, 2017) using RStudio (RStudio Team, 2019) and the Shiny package (Chang et al., 2018) was used to calculate performance statistics. Second, for co-citation and co-occurrence analysis, VOSviewer (Van Eck & Waltman, 2010) was utilized, which provides efficient access to bibliometric mapping using databases like Web of Science (Williams, 2020).

Results

This section begins with a review of the performance and trends of scientific production.Then, performance, citation, and co-citation analyses are reported for thematic topics (journal, author, reference).Next, a co-occurance analysis of the conceptual structure and a temporal perspective of this network are provided. Finally, academic collaboration performance across nations is presented.

Scientific Production

Examining the distribution of the dataset according to WOS categories indicates that the ethical climate literature is primarily concerned with ethics, accounting for 34.4% of all articles, followed by business (33.3%), management (18.5%) and nursing (16.3%). Studies on ethical climate may also be found in the domains of psychology, education,

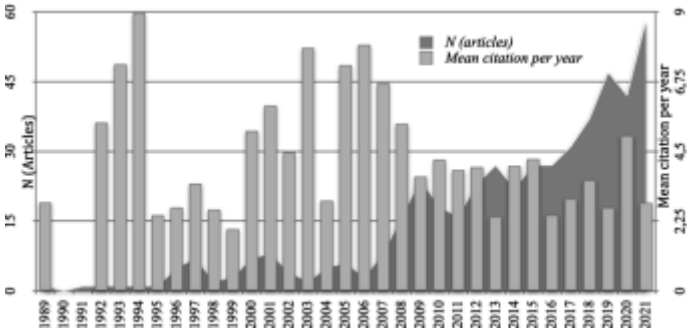

Figure 1. Publication and citation statistics

A descriptive analysis of the trend of publishing patterns from 1989 reveals a rise, with a notable increase since 2008.Figure 1 displays the number of articles and total citation per year over time. As outlined in the previous section, it is evident that the academic interest sparked by a series of research conducted by Victor and Cullen created in the late 1980s has resulted in further publications (e.g., Cullen et al., 1989, 1993;Whimbsuh& Shepherd, 1994; Desphande, 1996). It is plausible that Martin and Cullen's 2006 study influenced the increase in publications.In fact, some scholars believe that this study has broadened the breadth of the field (e.g., Newman et al, 2017) and may mark a turning point.Since 2008, there has been a substantial growth in the number of publications from a variety of perspectives. However, as shown by citation rates, this growth has not been followed by a similarrise in quality.

Knowledge Base: Sources, Authors, and References :

The knowledge base identifies the research elements that serve as its primary impetus.Despite the fact that citation analysis gives a picture in this regard, co-citation analysis typically provides hints for identifying the research streamsof the subject.

Sources

A total of 513 articles on ethical climate were published in 237 journals. Journal of Business Ethics, with 101 publications and 6910 citations is by far the most productive.Table 2 displays the source impact of the core journals determined by Bradford's law. Journal of Business Ethics scores top in all impact values and holds a leading position in the ethical climate literature. The second most prominent source of ethical climate research is Nursing Ethics. Other core journals have a moderate effect on the literature on ethical climate.

Table 2. Source Impact

Journal	*h*	*g*	*m*	*TC*	*N*
Journal of Business Ethics	52	81	1.68	6910	101
Nursing Ethics	18	33	1.20	1260	33
Journal of Personal Selling & Sales Management	13	13	0.76	763	13
Journal of Business Research	8	8	0.36	662	8
Ethics & Behavior	4	6	-	47	7

h: h_index; g: g_index; m: m_index. TC: Total citations; N: Number of publications.

A journal co-citation analysis was then conducted in order to identify clusters of journals.Two clusters are positioned in the center of the network map; the red cluster consists of journals that are primarily focused on the field of general business and ethics (e.g., Journal of Business Ethics, Administrative Science Quarterly, Academy of Management Journal, Academy of Management Review), whereas the green cluster represents journals that are primarily concerned with leadership and behavioral studies in organizations (e.g., Leadership Quarterly, Journal of Organizational Behavior, Journal of Applied Psychology).The yellow and blue clusters were more specialized, with the yellow cluster predominantly containing marketing and sales journals (e.g., Journal of Personal Selling and Sales Management, Journal of Marketing, Journal of the Academy of Marketing Science), and the blue cluster mainly featuring nursing journals (e.g., Nursing Ethics, Journal of Advanced Nursing, The Journal of Nursing).

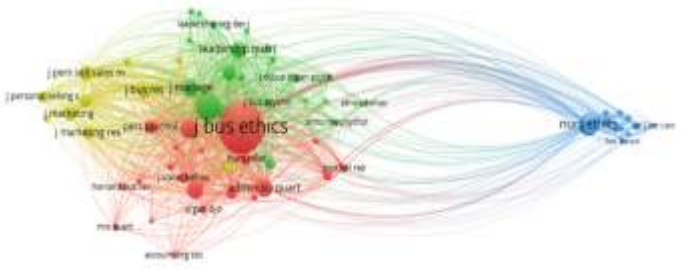

Figure 2. Journal co-citation network

Overall, business management and ethics journals constitute the central positions, and marketing and sales journals and nursing journals, on the other hand, are positioned as separate, with the latter being more peripheral.

Authors

Articles were predominantly produced in collaboration (2.86 authors per article). There were a total of 1177 writers, with only72articles by a single author.The number of articles per author is 0.44. The most local cited authors in the database were: Cullen with 266 local citations, Victor with 263 local citations, Shephard and Wimbush with 175 local citations Parboteeah with 171 citations, and Desphande with 124 local citations. Table 3 depicts the influence of top ten authors in ethical climate literature.

Tablo 3. Author Impact

Author	*h*	*g*	*m*	*TC*	*N*
Cullen J.B.	5	6	0,147	750	6
SchwepkerC.H.	6	6	0,231	616	6
Victor B.	3	3	0,088	601	3
Deshpande S.P.	9	9	0,333	582	9
SchminkeM.	4	4	0,211	508	4
Jaramillo F.	7	7	0,412	491	7
Shepard J.M.	3	3	0,103	438	3
Wimbush J.C.	3	3	0,103	438	3
ParboteeahK.P.	4	4	0,200	418	4
ChonkoL.B.	3	3	0,136	415	3
h: h_index; g: g_index; m: m_index. TC: total citations; N: number of publications.					

Understanding whether a small number of authors dominate a field is a critical indicator. According tothe frequency distribution of scientific productivity of authors, the number of "occasional authors" who produced only one article on ethical climate is 1008 and constitutes 85.6% of the total number of authors. The number of authors who produced two articles was 105 and the rate was 8.9%.The core group consists of authors with at least three published works; 64 authors (5.6%) fall into this category. These data indicate that the field is not dominated by a select few authors.

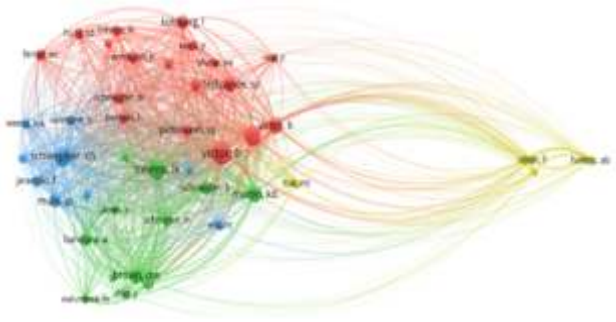

Figure 3. Author co-citation network

Regarding authors, the field-based pattern of journal co-citations was once again seen (Fig 3).The authors grouped in the red cluster in the center represent the theoretical foundations. In addition, the authors of relatively more recent publications, which are presented as theoretical extensions in the section that follows, are grouped together in the green cluster. Similar to the pattern of journal co-citation analysis, the pattern of author co-citation indicates distinct fields, such as the field of sales and marketing and the field of nursing.

References

The average citation per document is 31.16, and the average citation per year per document is 2.98. The documents authored by the field's pioneers are listed first in the citation (see total citation column in Table 4). The most prominent works in the subject are those by Victor and Cullen (1987, 1988), Martin and Cullen (2006), Cullen and colleagues (2003), and Schwepker (2001).In addition to the original construct and related studies on ethical climate, the most influential works also includes other streams of research such as ethical culture (Treviño et al., 1998), ethical leadership (Brown et al., 2005), and alternative measurements of ethical climate (Olson, 1998). To yield a better understanding, papers on research methods (e.g.,Fornell&Larcker, 1981; Podsakoff et al., 2003) have been excluded from the list.

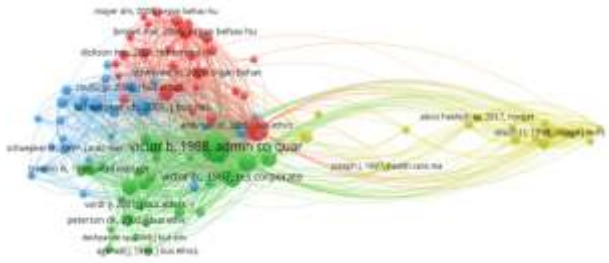

Figure 4. Reference co-citation network

Second, a co-citation analysis for top hundred cited documents is conducted (Fig 4). This analysis reveals a four-cluster structure. Co-citation cluster 1 (green), the most central cluster, is made up of theoretical works that provide the conceptual framework of the discipline (e.g.,Wimbush and Shephard 1994;Victor & Cullen, 1997, 1998; Cullen et al., 2003; Martin & Cullen, 2006).

Tablo 3. Author Impact

Cluster	Rank	Document	TC	TLS
Theoretical foundation	1	Victor, B., & Cullen, J. B. (1988). The organizational bases of ethical work climates. *Administrative science quarterly*, 33(1), 101-125.	309	306
	2	Victor, B., & Cullen, J. B. (198 7). 'A Theory and Measure of Ethical Climate in Organizations', in W. C. Frederick (ed.), Research in Corporate Social Performance (JAI Press, Greenwich, CT), pp. 57–71.	134	133
	3	Cullen, J. B., Parboteeah, K. P., & Victor, B. (2003). The effects of ethical climates on organizational commitment: A two -study analysis. Journal of business ethics, 46(2), 127-141.	123	123
	4	Wimbush, J. C., &Shepard, J. M. (1994). Toward an understanding of ethicalclimate: Itsrelationshiptoethical behavior andsupervisoryinfluence. *Journal of Business ethics*, *13*(8), 637-647.	94	94
	5	Cullen, J. B., Victor, B., & Bronson, J. W. (1993). The ethical climate questionnaire: An assessment of its development and validity. Psychological reports, 73(2), 667 -674.	93	90

Cluster	Rank	Document	TC	TLS
Theoretical extension	1	Martin, K. D., & Cullen, J. B. (2006). Continuities and extensions of ethical climate theory: A meta-analytic review. *Journal of business ethics*, *69*(2), 175-194.	181	179
	2	Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. Organizational behavior and human decision processes, 97(2), 117-134.	78	77
	3	Brown, M. E., & Treviño, L. K. (2006). Ethicalleadership: A reviewandfuturedirections. *Theleadershipquarterly*, *17*(6), 595-616.	59	59
	4	Schminke, M., Ambrose, M. L., &Neubaum, D. O. (2005). Theeffect of leader moral development on ethicalclimateandemployeeattitudes. *Organizational behavior andhumandecisionprocesses*, *97*(2), 135-151.	56	56
	5	Mayer, D. M., Kuenzi, M., &Greenbaum, R. L. (2010). Examiningthe link betweenethicalleadershipandemployeemisconduct: Themediating role of ethicalclimate. *Journal of businessethics*, *95*(1), 7-16.	53	53
Sales and performance	1	SchwepkerJr, C. H. (2001). Ethicalclimate'srelationshiptojobsatisfaction, organizationalcommitment, andturnoverintention in thesalesforce. *Journal of businessresearch*, *54*(1), 39-52.	99	99
	2	Babin, B. J., Boles, J. S., &Robin, D. P. (2000). Representingtheperceivedethicalworkclimateamong marketing employees. *Journal of the Academy of Marketing Science*, *28*(3), 345-358.	50	50
	3	Elçi, M., & Alpkan, L. (2009). Theimpact of perceivedorganizationalethicalclimate on worksatisfaction. *Journal of businessethics*, *84*(3), 297-311.	49	49
	4	Mulki, J. P., Jaramillo, J. F., &Locander, W. B. (2008). Effect of ethicalclimate on turnoverintention: Linkingattitudinal-andstresstheory. *Journal of businessethics*, *78*(4), 559-574.	48	48
	5	Jaramillo, F., Mulki, J. P., & Solomon, P. (2006). The role of ethicalclimate on salesperson's role stress, jobattitudes, turnoverintention, andjobperformance. *Journal of PersonalSelling&Sales Management*, *26*(3), 271-282.	46	46
Nursing	1	Olson, L. L. (1998). Hospitalnurses' perceptions of theethicalclimate of theirworksetting. Image: theJournal of NursingScholarship, 30(4), 345-349.	63	63
	2	Tsai, M. T., &Huang, C. C. (2008). Therelationshipamongethicalclimatetypes, facets of jobsatisfaction, andthethreecomponents of organizationalcommitment: A study of nurses in Taiwan. *Journal of Business Ethics*, *80*(3), 565-581.	59	59
	3	Hart, S. E. (2005). Hospitalethicalclimatesandregisterednurses' turnoverintentions. *Journal of NursingScholarship*, *37*(2), 173-177.	50	50
	4	Pauly, B., Varcoe, C., Storch, J., & Newton, L. (2009). Registerednurses' perceptions of moral distressandethicalclimate. *Nursingethics*, *16*(5), 561-573.	41	39
	5	Ulrich, C., O'donnell, P., Taylor, C., Farrar, A., Danis, M., &Grady, C. (2007). Ethicalclimate, ethicsstress, andthejobsatisfaction of nursesandsocialworkers in the United States. *Socialscience&medicine*, *65*(8), 1708-1719.	39	39

TC: Total citation. TLS: Total link strength, refers to standard weight in calculations

Another central co-citation cluster 2 (red) consists of studies which are labelled as theoretical extension. With the impact of temporal emphasis on antecedents in 2000's (Martin & Cullen, 2006), scholars extensively started to examine the relationship between leadership and ethical climate. Leaders' moral development(Schminke et al., 2005), leader values (Dickson et al., 2001) particularly ethical leadership(Brown et al., 2005; Brown & Treviño, 2006;Mayer et al., 2010; Shin, 2012) led this cluster.The co-citation cluster 3 (blue)differs from the others in one respect;instead of theoretical accumulation of knowledge, this cluster is characterized by the field of application.This

cluster of works has tested the knowledge gained by the first two clusters, with which it is closely associated, primarily in the field of services (Schwepker et al., 2005; Mulki et al., 2008; Elçi&Alpkan, 2009), particularly attitudes of sales people;such as perception, role stress, job satisfaction, commitment, turnover, trust and performance (Schwepker et al., 1997; Babin et al., 2000; Schwepker, 2001, Weeks, 2004; Jaramillo et al., 2006; Mulki et al., 2006, DeConinck, 2011).As with other co-citation analyses, the final co-citation cluster 4 (yellow) comprises research in the subject of nursing, which indicates a distinct body of knowledge. This cluster's distinctive development pattern isolates it from the field's central knowledge base and places it on the periphery.With a specific emphasis on Olson's (1998) ethical climate conception, all works in this cluster focus on the relationship between ethical climate and attitudes in the healthcare setting.

Conceptual Structure

Conceptual structure analysis reveal which topics and themes are prioritized by the relevant scientific discipline(s).Keyword co-occurrences indicate that the ideas underlying those words are closely connected. For this purpose, a co-occurrence (co-word) analysis and a temporal outlook is prepared. Figure 5 reveals that the links and relationships between keywords formed three distinct clusters.

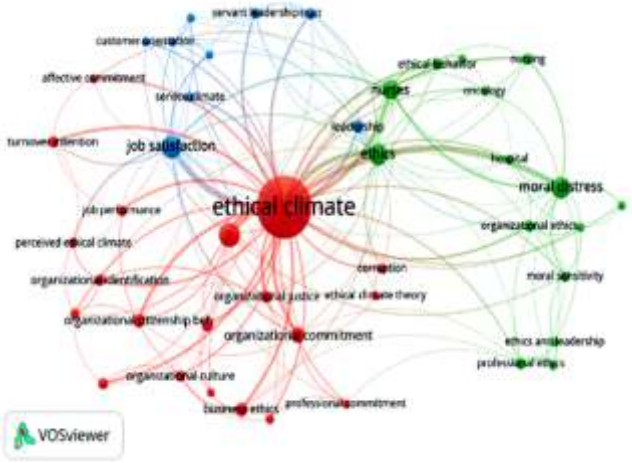

Figure 5. Keyword co-occurrence network

The largestand central cluster (red) demonstrates a group comprisingantecedents and outcomes in ethical climate research; including ethical leadership (42), organizational commitment (17), organizational citizenship behavior (12), turnover intention (11), organizational justice (10), culture (9), meaning that these topics are closely connected in ethical climate research. Second, the green cluster of keywords consist of topics which are often found in nursing field, such as nurses and nursing (36), moral distress (32), professional ethics (8), moral sensitivity (7), hospital (5), clinical ethics (5). Third, the blue cluster gathers keywords which are mostly related to leadership and marketing/sales research, including job satisfaction (35), leadership (11), trust (8), servant leadership (7), service climate (6), customer orientation (5), salespeople (5), performance (5).Second, a temporal outlook of keyword connections indicates the most prominent research topics in different fields.

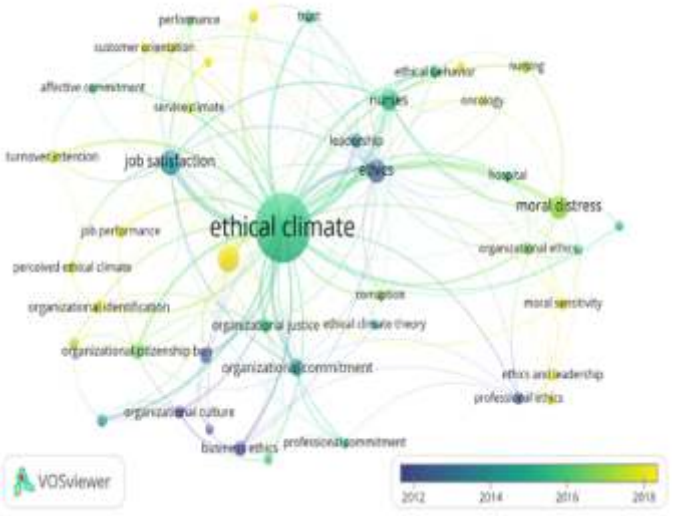

Figure 6. Temporal network of keyword co-occurrences

The emphasis on dominant variables in ethical climate research (e.g., organizational commitment, job satisfaction, ethics, business ethics, organizational culture) is relatively longstanding. However, newer elements, such as moral distress in the nursing field, contemporary approaches, such as ethical and servant leadership, and behavioral variables, such as organizational identification, appear to have attracted the attention of scholars in recent years.

Academic and Social Collaboration

Analyzing the international collaboration statistics (Table 5) reveals that the United States, China, and Turkey are at the forefront of scientific production. The average number of citations for publications produced in Turkey remains low compared to countries with similar production levels. Due to the fact that just one of the 33 research was created through international collaboration, Turkey's collaboration score of 3 percent remains extremely low. In addition to production, citations provide an overall picture of a country's influence in the literature. Looking at the average number of citations, it is evident that the United Kingdom (62.4), the United States (57.5), and Canada (38.5) are in the top three.

Table5. Collaboration Statistics

S.No.	*Country*	*Scientific production*			*Collaboration*		
		N	*TC*	*mean TC*	*SC*	*MC*	*Cr*
1	USA	139	7995	57,52	114	25	0,18
2	China	60	1202	20,03	46	14	0,23
3	Turkey	33	584	17,70	32	1	0,03
4	Iran	18	146	8,11	15	3	0,17
5	South Korea	18	420	23,33	13	5	0,28
6	Malesia	18	72	4,00	9	9	0,50
7	Israel	16	488	30,50	14	2	0,13
8	Australia	15	358	23,87	12	3	0,20
9	Canada	13	499	38,39	12	1	0,08
10	India	9	31	3,44	9	0	0
11	Italy	9	104	11,56	7	2	0,22
12	Spain	9	64	7,11	7	2	0,22
13	Sweden	9	194	21,56	7	2	0,22
14	Belgium	8	161	20,13	4	4	0,50
15	Finland	8	187	23,38	6	2	0,25
16	Netherlands	7	225	32,14	4	3	0,43
17	United Kingdom	7	437	62,43	3	4	0,57
18	Norway	6	105	17,5	5	1	0,17
19	Southern Cyprus	4	27	6,75	2	2	0,50
20	France	4	50	12,5	2	2	0,50

N: Number of articles, TC: Total citation, SC: Singlecountry publication, MC: Multi-country publication, Cr: Collaboration rate, refers to the ratio of collaboration rate (Cr) to total production (N)

Analysis of international cooperation suggests that at least half of papers performed in the United Kingdom, Malaysia, and Belgium are the product of international cooperation.

Discussion and Conclusion

Since Victor and Cullen's seminal works (1987, 1988), which had a substantial impact on ethical climate research, hundreds of papers and a series of established literature reviews have been published.This bibliometric analysis complements existing studies in several ways. First, using co-citation analyses, the field's qualitatively interpreted performance data was mapped to a quantitative knowledge base.In this way, the influence of authors, journals and documents is explained in terms of their productivity data, as well as the common structures and logics in which they cluster.Second, the knowledge base is extended with the elaboration of conceptual constructs. Finally, an updated view of international collaboration is presented.

The standard method of examining the literature focuses on the elements of ethical climate research. So far, the majority of empirical study on ethical climate has focused on consequences, with a lesser emphasis on antecedents (Mayer, 2014), andsome works have also focused on measuring ethical climate (e.g., Newman et al., 2017). Interestingly, the knowledge base shown by co-citation analyses provided a further perspective. The performance and science mapping analyses of authors, journals, and references suggest that ethical climate research is rooted predominantly in four distinct domains.The major clusters of knowledge were pioneered by Victor and Cullen's concept of ethical climate and the theoretical extensions of the fundamental ethical climate model. Nonetheless, the use of this understanding in the service business, notably in sales and marketing, has produced a distinct knowledge base.This issue is even more evident in the case of nursing, where a distinct body of knowledge has been produced. Missing this characteristic may lead to a neglect for the many ethical climate literatures.In addition, the characteristics of the conceptual structure lend support to this idea.Considering the variations, a future knowledge base divergence with specific ethical climate issues in distinct application fields can be expected.Finally, the research concluded with observations on international cooperation. Here, distinctions between publication performance, citation performance, and collaboration are uncovered.

The research has some limitations.First, bibliometrics has significant advantages over qualitative systematic reviews and meta-analyses, such as its capacity to manage a large database and provide robust quantitative conclusions as opposed to qualitative analysis (Donthu et al., 2021).However, the nature of the data in bibliographic databases creates a static picture (see Zupic&Čater, 2015). A second limitation arises from the selected database. In this study the SSCI and ESCI databases were selected in WoS, while alternative platforms offer a broader database. Besides, the gray literature such as proceedings, dissertations which has significant explanatory potential(Paez, 2017) as well as other scientific studies which are not included in these databases are also excluded.This limitation also provides a research recommendation; a bibliographic coupling that includes gray literature could provide more comprehensive information on the evolution of the ethical climate. Moreover, as a response to the neglected variations, more specific components of ethical climate research models focusing on comparing and contrasting different sectors are recommended. Finally, future research can segment the data into multiple time periods to better comprehend the evolution of the domains.

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