Network Analysis of Research Collaboration in the Study of Social Conflict and Peace in Society

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ABSTRACT

Research collaboration in the study of social conflict and peace is essential for advancing knowledge and addressing societal challenges. This paper employs a bibliometric approach to analyze the network of research collaboration in this field, focusing on interdisciplinary perspectives and evolving trends over time. Through network analysis, thematic clusters are identified, including conflict emergence, societal development, global issues, post-conflict justice, and peacebuilding efforts. The temporal component highlights shifts in research focus from 2008 to 2014, indicating emerging trends such as peace education and societal belief. Furthermore, the heatmap overlay identifies potential future research topics, with less-explored areas offering opportunities for new contributions. This study provides valuable insights for researchers, policymakers, and practitioners involved in conflict resolution, peacebuilding, and social cohesion initiatives.

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1. INTRODUCTION

Social conflict and the pursuit of peace within societies are fundamental aspects of human interaction and societal development [1], [2]. Understanding the dynamics of research collaboration in this field is crucial for fostering interdisciplinary approaches and advancing knowledge to address pressing social issues [3], [4]. This research employs a bibliometric approach to analyze the network of research collaboration in the study of social conflict and peace in society. This introduction delineates the background, research problem, research objectives, and research significance of this endeavor.

The study of social conflict and peace has garnered significant attention from scholars across various disciplines, including sociology, political science, psychology, anthropology, and peace studies [5]–[7]. Societies worldwide grapple with diverse forms of conflict, ranging from intergroup tensions to civil unrest and armed conflicts, highlighting the urgency of effective conflict resolution and peacebuilding strategies [8], [9]. In recent decades, research in this domain has evolved rapidly, embracing multidisciplinary perspectives and innovative

methodologies to elucidate the complex dynamics of conflict and peace processes.

Despite the growing body of literature on social conflict and peace, the landscape of research collaboration within this field remains underexplored [4], [10]–[12]. Understanding how scholars collaborate, communicate, and disseminate knowledge is essential for identifying emerging trends, key influencers, and potential research gaps. Therefore, the central problem addressed in this study is the need to map and analyze the network of research collaboration in the study of social conflict and peace, thereby uncovering patterns of collaboration and identifying influential actors and research clusters [13]. The primary objectives of this research are as follows:

1. To identify central nodes within the collaboration network, including key research topics, thereby elucidating patterns of knowledge dissemination and intellectual exchange.
2. To assess the evolution of research collaboration over time, examining temporal trends in collaboration patterns, interdisciplinary engagement, and the emergence of new research themes and methodologies.
3. To explore the implications of research collaboration networks for the advancement of knowledge in the study of social conflict and peace, highlighting opportunities for interdisciplinary collaboration, knowledge integration, and policy relevance.

This research holds several significant implications for academia, policy, and practice. By providing a comprehensive analysis of research collaboration networks in the study of social conflict and peace, it offers valuable insights into the structure, dynamics, and evolution of scholarly communities engaged in this field. This understanding can inform strategic decisions regarding interdisciplinary research initiatives, funding allocation, and capacity-building efforts aimed at addressing pressing social challenges. Moreover, by identifying key nodes and thematic clusters within the collaboration network, this research facilitates knowledge dissemination, fosters intellectual exchange, and enhances the impact of research on policy and practice aimed at conflict resolution, peacebuilding, and social cohesion.

2. LITERATURE REVIEW

Research on conflict and peace in society is a significant area of study in modern global society. While the majority of scientific works on peace and conflict are directed towards studying conflicts, denying the possibility of peace research as a scientific discipline, some researchers argue that "the science about peace" is a real scientific discipline directed towards conflict prevention. The study of peace was for a long time hampered by insufficient theorizing about what peace entails beyond the absence of war. The common distinction is between negative peace (absence of violence) and positive peace (absence of structural or indirect violence and presence of social justice). Researchers are increasingly interested in understanding what truly constitutes peace and explaining the different varieties of peace that evolve after war. The research aims to eliminate war definitively from the theory and practice of human relationships. Therefore, war is not a tool but an object of scientific inquiry. In cognitive conception, the polemological research of war is the source of knowledge about war etiology, anatomy, and social functions. In utilitarian conception, it allows reaching conclusions on how to act to avoid war. Knowledge acquired in such a way indicates how to create reality so that war would become a historical category[14]–[18].

3. METHODS

This study employs a bibliometric approach to analyze the network of research collaboration in the study of social conflict

and peace in society. Bibliometric data, including publication records and citation information, will be extracted from scholarly databases such as Web of Science and Scopus. The dataset will encompass a comprehensive range of peer-reviewed articles, conference proceedings, and other scholarly publications related to social conflict and peace, using a systematic search strategy based on relevant keywords and subject classifications. Keyword occurrence networks will be constructed to visualize patterns of research clusters, utilizing network analysis techniques to identify central nodes, clusters, and the strength of collaborative ties. Temporal trends will be examined to assess the evolution of research over time, while thematic analysis will elucidate key research topics and interdisciplinary themes within the collaboration network [19]. This methodological approach enables a comprehensive exploration of research collaboration dynamics in the study of social conflict and peace, providing insights into the structure, evolution, and impact of scholarly communities engaged in this field.

4. RESULTS AND DISCUSSION
4.1 Research Data Metrics

Table 1. Data Citation Metrics

Publication years	: 1939-2024
Citation years	: 85 (1939-2024)
Paper	: 990
Citations	: 196278
Cites/year	: 2309.15
Cites/paper	: 198.26
Cites/author	: 160069.92
Papers/author	: 770.10
Author/paper	: 1.60
h-index	: 200
g-index	: 419
hI,norm	: 180
hI,annual	: 2.12

hA-index	: 44
Papers with ACC	: 1,2,5,10,20:955,834,532,296,145

Source: Publish or Perish Output, 2024

The table provides a comprehensive overview of the bibliometric characteristics of the publications related to the study of social conflict and peace from 1939 to 2024. Over this period, a total of 990 papers have been published, accumulating an impressive 196,278 citations. On average, each paper receives approximately 198 citations, with an exceptionally high citation rate of 2,309.15 cites per year, indicating the sustained impact and relevance of the research in this field. The average number of authors per paper is 1.60, suggesting a tendency towards collaborative research endeavors. The h-index, a widely used metric to assess the impact of scholarly output, stands at 200, while the g-index is 419, indicating the substantial influence of the publications within the field. Furthermore, the hI,norm value of 180 suggests that the top 180 papers have each received at least 180 citations. The hI,annual value of 2.12 signifies the average annual increase in the h-index. Additionally, the hA-index, which considers the number of authors contributing to a paper, is 44, reflecting the average number of papers authored by the top 44 authors with the highest h-indices. Finally, the table highlights the distribution of papers with different levels of accumulated citations (1, 2, 5, 10, 20), indicating that the majority of papers have received a substantial number of citations, with 955 papers cited at least once and decreasing numbers as citation thresholds increase. Overall, these metrics underscore the significant impact, prolific output, and collaborative nature of research in the study of social conflict and peace, reaffirming its importance in academia

Table 2. Top Cited Research

Citations	Authors and year	Title
12155	LA Coser (1956)	The functions of social conflict

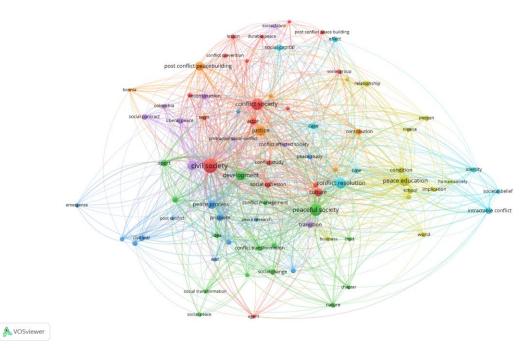| Citations	Authors and year	Title
6478	JP Lederach, FO Hampson (1998)	Building peace: Sustainable reconciliation in divided societies
5615	J Galtung (1996)	Peace by peaceful means: Peace and conflict, developments and civization
4499	J Knight (1992)	Institutions and social conflict
4388	R Paris (2004)	At war's end: building peace after civil conflict
4325	O Ramsbotham, H Miall, T Woodhouse (2011)	Contemporary conflict resolution
3571	R Niebuhr (2013)	Moral man and immoral society: A study in ethics and politics
3095	JS Migdal (2018)	The state in society
2869	MA Hogg (2016)	Social identity theory
2847	D Rodrik (1999)	Where did all the growth go? External shocks, social conflict, and growth collapses

Source: Publish or Perish Output, 2024

Figure 1. Network Visualization
Source: Data Analysis Result, 2024

In the network above, clusterization refers to the grouping of nodes based on their connectivity and the strength of their relationships.

1. Blue Cluster: The nodes in this cluster include terms like "civil war," "emergence," and "post-conflict." This cluster may focus on the themes of conflict emergence and resolution, as well as post-conflict scenarios.

2. Green Cluster: This cluster contains nodes like "civil society," "development," and "social cohesion." It likely represents concepts related to societal development, the role of civil society, and community building.

3. Yellow Cluster: With terms like "nature," "world," and "child,"

this cluster might relate to more global or natural aspects of societal studies, possibly the intersection of environment, global issues, and future generations.

4. Red Cluster: Here, nodes such as "conflict society," "justice," and "actor" are present. This cluster seems to deal with the societal impacts of conflict, justice in post-conflict societies, and the actors involved in these processes.

5. Orange Cluster: This one includes "post-conflict peacebuilding," "social capital," and "social fabric," suggesting a focus on rebuilding societal structures and relationships after conflicts.

Clusters are identified by their color and the density of connections within them. Nodes within the same cluster are more heavily interconnected with each other than with nodes in other clusters. This suggests that the concepts represented by these nodes are often discussed or considered together in the context of the literature or data from which this network was derived. Clusters can often signify thematic similarities, where each cluster represents a specific theme or topic area. The central nodes within each cluster are often the most significant or commonly occurring terms within that theme. The edges between nodes can indicate relationships such as co-occurrence in literature, similarity in usage, or a conceptual link. The thicker the edge, the stronger the relationship is likely to be.
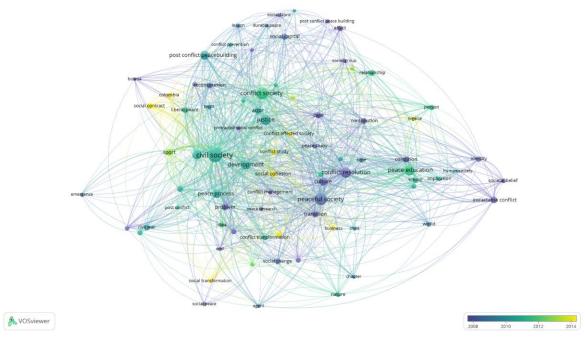

Figure 2. Overlay Visualization
Source: Data Analysis Result, 2024

The network graph above includes a temporal component, typically represented by a color gradient or varying node size, to indicate changes over time such as research trends. The graph includes a color legend at the bottom right corner that ranges from yellow to blue, corresponding to years from 2008 to 2014. This suggests that the color of the nodes represents the time period in which the term was most prominent in the literature or

dataset. Nodes that are more yellow are associated with earlier years (closer to 2008), and nodes that are more blue are associated with later years (closer to 2014). Therefore, by looking at the colors of the nodes, which terms became more prevalent at certain times can be identified. A specific area of the graph is gradually changing color from yellow to blue,

this indicates a shift in focus or emerging trends within the dataset over time. For instance, if terms associated with "peace education" and "societal belief" are getting bluer, it might suggest that these areas have been receiving increased attention in more recent years (closer to 2014 in this case).
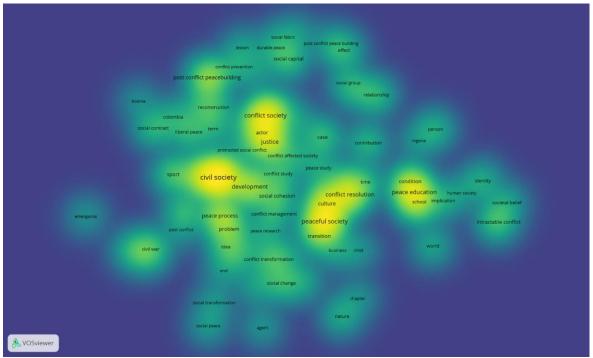

Figure 3. Density Visualization
Source: Data Analysis, 2024

The network graph with the heatmap overlay provides a visual representation of the density and centrality of certain topics within the network, which can help identify potential future research topics. Typically, areas that are less saturated or on the periphery of the network may represent emerging or less-explored topics that could be of interest for future research. Conversely, highly saturated areas often represent well-established topics with potentially more competition and existing literature. Topics that are on the edges of the network may represent niche or emerging areas. If these nodes are connected to central nodes, they might be gaining traction and could be interesting to explore. The color density can indicate the concentration of research. Lighter

areas might be less explored, offering opportunities for new research contributions.

5. CONCLUSION

In conclusion, the network analysis reveals insightful clusters within the dataset, each representing distinct thematic areas such as conflict emergence and resolution, societal development, global issues, post-conflict justice, and peacebuilding efforts. These clusters, distinguished by their color and interconnectivity, shed light on the interconnectedness of concepts within the literature or dataset. The temporal component further enriches our understanding by illustrating evolving research trends over time, with shifts in prominence indicated by changes in node color from yellow to blue.

Moreover, the heatmap overlay highlights areas of varying density and centrality, identifying potential future research topics. Emerging or less-explored areas on the periphery of the network offer opportunities for new contributions, while well-established topics in highly saturated areas signify existing literature and potential competition. Overall, this comprehensive analysis provides valuable insights for researchers seeking to navigate and contribute to the dynamic landscape of societal studies and conflict resolution.

REFERENCES

[1]   J. Palomo, C. Figueroa-Domecq, and P. Laguna, "Women, peace and security state-of-art: a bibliometric analysis in social sciences based on SCOPUS database," *Scientometrics*, vol. 113, pp. 123–148, 2017.

[2]   T. Baharuddin, S. Sairin, Z. Qodir, and H. Jubba, "Publication Trends Related to Social Capital and Governance: Bibliometric Analysis," 2021.

[3]   H. Gao and S. Wang, "The Intellectual Structure of Research on Rural-to-Urban Migrants: A Bibliometric Analysis," *Int. J. Environ. Res. Public Health*, vol. 19, no. 15, p. 9729, 2022.

[4]   D. D. Negeri, "Effects of Peace Marketing and Social Marketing Practice on Conflict Management: Mediating Role of Strategic Leadership (The Case from Mining Companies in East Guji Zone Oromia, Ethiopia)," *iRASD J. Manag.*, vol. 5, no. 1, pp. 39–48, 2023.

[5]   C. Dworschak, "Bias mitigation in empirical peace and conflict studies: A short primer on posttreatment variables," *J. Peace Res.*, p. 00223433221145531, 2021.

[6]   K. Webster, C. Chen, and K. Beardsley, "Conflict, peace, and the evolution of women's empowerment," *Int. Organ.*, vol. 73, no. 2, pp. 255–289, 2019.

[7]   C. Fausto, C. Xavier, and E. Welper, "Conflict, Peace, and Social Reform in Indigenous Amazonia: A Deflationary Account," *Common Knowl.*, vol. 22, no. 1, pp. 43–68, 2016.

[8]   N. Mueller-Hirth, "Business and social peace processes: how can insights from post-conflict studies help CSR to address peace and reconciliation?," *Corp. Soc. Responsib. Acad. insights impacts*, pp. 137–153, 2017.

[9]   J. Campbell, V. Ioakimidis, and R. A. Maglajlic, "Social work for critical peace: A comparative approach to understanding social work and political conflict," *Eur. J. Soc. Work*, vol. 22, no. 6, pp. 1073–1084, 2019.

[10]   M. P. Blacketer, M. T. J. Brownlee, and B. B. Bowen, "Perceptions of Social Network Influence: Key Players' Insights Into Power, Conflict, and Collaboration at the Bonneville Salt Flats," *Environ. Manage.*, vol. 69, no. 2, pp. 288–304, 2022.

[11]   M. Abdullah, M. Jannah, S. R. Kamsani, N. A. S. B. Rambely, R. B. Mamat, and N. M. Ariffin, "Legal Protection and Family Resilience of Women Victims of Post-Peace Conflict in Aceh: A Study of Gender Approach".

[12]   M. Flaherty, "SOCIAL WORK AND PEACE AND CONFLICT STUDIES: PARTNERSHIP WITH PROMISE," *Вісник Черкаського національного університету імені Богдана Хмельницького. Серія:" Педагогічні науки"*, no. 1, 2018.

[13]   J. Brauer and C. H. Anderton, "Conflict and peace economics: retrospective and prospective reflections on concepts, theories, and data," *Def. Peace Econ.*, vol. 31, no. 4, pp. 443–465, 2020.

[14]   А. Карпова, "Мир как объект научного познания," *Конфликтология*, no. 3, pp. 81–96, 2015.

[15]   A. Jarstad, J. Söderström, and M. Åkebo, "Introduction: conceptualizing and studying relational peace practices," in *Relational peace practices*, Manchester University Press, 2023, pp. 1–26.

[16]   M. V Naidu, "From an Idea to an Institution: the Canadian Institute of International Peace and Security," *Peace Res.*, pp. 2–27, 1984.

[17]   N. M. Ripsman, *Peacemaking from above, peace from below: Ending conflict between regional rivals*. Cornell University Press, 2016.

[18]   W. Krztoń, "Peace, War and an Armed Conflict as an Object of the Research of Polemology," *Humanit. Soc. Sci.*, vol. 20, no. 22 (1), pp. 91–103, 2015.

[19]   Y. Iskandar, J. Joeliaty, U. Kaltum, and H. Hilmiana, "Bibliometric Analysis on Social Entrepreneurship Specialized Journals," *J. WSEAS Trans. Environ. Dev.*, pp. 941–951, 2021, doi: 10.37394/232015.2021.17.87.