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A Descriptive and Quantitative Content Analysis of Researchers in Martial Arts and Combat Sports: Examining the Gender Distribution, Educational Backgrounds, Areas of Expertise, and Citation Metrics

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Article Info	Abstract
Article type: Research Article	<p>This paper presents a comprehensive investigation into the demographic and academic profiles of researchers in the fields of martial arts and combat sports. Using a descriptive and quantitative content analysis based on Google Scholar profiles, the study explores the impact of these researchers on the development of sports science. Key variables examined include gender distribution, relevant educational background, areas of expertise, academic qualifications, the distribution and origins of the researchers, and citation metrics. The authors emphasize the significance of sport sciences and the necessity for interdisciplinary cooperation. The findings highlight a predominance of male researchers in the field and a high percentage of researchers with sports-science-related qualifications. Geographically, the United States, Ukraine, England, Brazil, and Australia have the highest number of scholars in these disciplines. The citation analysis provides insight into the range of influence these researchers have in their respective fields, with a notable portion having citation ranges from 101 to 500. The report also provides an analysis of the h-index and i10-index ranges, contributing factors to the increasing acceptance of martial arts and combat sports as influential and critical areas of study within the realm of sports science. In conclusion, the study calls for continued research to further understand, enhance knowledge, and facilitate development in the field of martial arts and combat sports within sports science.</p>
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Introduction

Among the activities that involve a lot of physical contact and direct athlete confrontation are combat sports (CS) and martial arts (MA). The broad range of fighting disciplines has been shown to offer numerous avenues for scholarly inquiry into social change and personal transformation via processes of embodiment (Channon & Jennings, 2014). Both ancient martial arts and modern martial sports aim to shape character and the way citizens think, believe, move, act, react, and conduct themselves in society (Wargo et al., 2007). Experts from other fields are now needed in sports science to aid in the development of this field (Williams & Kendall, 2007). Therefore, it is an important aspect of these activities, due to the wide range of influence on the dynamics of social relations and quality of life (Borba-Pinheiro et al., 2016; Dimare et al., 2016).

In particular, what sets MA apart from other disciplines is its integral presence in human life from its earliest stages (Golmohammadi Zangabad & Mosayyebi Kordabad, 2020). Even practiced as a hobby, MA can significantly improve the quality of life and reduce the risk of diseases that affect society (Tsang et al., 2009). According to Kotarska et al. (2019), MA are disciplines that anyone can start practicing at any age since they are not centered on sports competition. As a "derivative of the MA traditions of the East or the West, whose distinctive feature is sports rivalry," CS are understood (Cynarski et al., 2017). They are of great interest to sports coaches and educators, because of their potential to convey moral and ethical values, as well as to teach, to control and discharge aggression in a socially approved manner (Kostorz & Sas-Nowosielski, 2021). CS and MA have been regarded as important educational resources because of their unique characteristics (Lafuente et al., 2021). Discussions about MA and CS range from philosophy and training to introducing children to physical activity (VC Pereira et al., 2022). Thus, while CS prepare athletes for competition, MA training focuses primarily on the social and moral development of its practitioners (Kostorz & Sas-Nowosielski, 2021).

MA and CS have had significant global growth and are now regarded as vital forms of cultural expression (Pérez Gutiérrez et al., 2017). According to Binder (2007), self-defense instruction in Asian MA incorporates philosophical and ethical concepts that may be applied to daily life, emphasizing the integration of the mind and body. MA and CS appear to have a unique educational benefit because they frequently emphasize personality development shaping and self-care in addition to fighting an opponent (Kotarska et al., 2019). According to some research, MA and CS are well-liked and quickly growing sports (Bu et al., 2010). According to research findings thus far, participants' belief in attaining high levels of physical fitness and health improvement was a significant factor in their decision to practice MA and CS (Zienowicz et al., 2015). In contrast, female participation in CS has seen an 11% increase in recent decades (Kuipers, 2015). The promotion and development of MA and CS as a physical activity throughout people's lives can be justified in society. These sports not only enable a person to achieve the required health norms but also can form certain characteristics of the person's personality, which is necessary in the process of systematic physical activity (Biernat & Boguszewski, 2015).

In recent years, there has been a noticeable interest in the research community at large to assess research efforts using scientometric methodologies (Konur, 2012). Continuous progress in science has opened up new avenues for researchers, which has led to continuous efforts aimed at enhancing the prominence of science and expanding its influence in various research fields (Golmohammadi & Pashaie, 2024). Researchers can find a vast range of academic literature on the Internet worldwide with the help of Google Scholar, an amazing tool (Noruzi, 2005). The most extensive source for citation counts is Google Scholar. A number of other databases, such as Web of Sciences and Scopus, only include citations within their database. Accordingly, citation counts in other databases would differ (Mondal et al., 2022). Additionally, Google Scholar evaluates a document's popularity based on how frequently it has been cited in other works. The results are typically displayed with the most frequently cited references at the top (Noruzi, 2005). H-index is one of the new scientometric indices that assesses a researcher's or scientist's impact on science as well as the quality of their actual scientific productivity. This profile is based on the most cited researcher's collection of articles and the number of citations given to them in articles published by others. The productivity and impact of a group of researchers and scientists, such as that of an educational institution, a university, or a

nation, can be assessed using this indicator (Hirsch, 2005). Additionally, Google Scholar uses the i10-index, which counts publications with ten or more citations. It was first released by Google in 2011 and is meant to assist in determining an academic's productivity. It shows how many of an author's publications have been mentioned at least ten times by other scholars (Dhamdhare, 2018).

With the increasing acceptance of MA education as a physical education method (Cox, 1993) researchers and educators should correspondingly understand the nature of their subject material. Zientek et al. (2018) go over the advantages of Google Scholar and how to utilize it to share research on social media. Given that CS are among the most popular, it would appear important to assess the performance of athletes in this field so that coaches and athletes in other sports can utilize the findings, explanations, and success rates (Golmohammadi Zangabad & Mosayyebi Kordabad, 2020). One of the most significant and primary markers of the activities of institutions of higher learning is the development of science. At both the national and international levels, planners and policymakers in the academic sectors take this crucial notion into consideration. Based on the scientific production of countries, many decisions are made in the field of scientific research and development (Norouzi Chakoli et al., 2007).

Due to the rapid growth of sports, especially MA and CS in the world, the need to conduct extensive research in these fields is felt, and it is necessary to conduct multi-faceted research in different dimensions about them. For this purpose, the use of previous knowledge and previous research conducted in these fields and researchers who have worked hard to expand and develop these fields will be considered. We can create a roadmap to guide our future research in sport and build on the knowledge gained from previous research and the tireless dedication of researchers to ensure that our research is relevant and relevant in these dynamic and ever-changing fields. This content analysis aims to examine the current state of research in this field, specifically in relation to gender, education, and expertise. By analyzing the existing literature, this study aims to shed light on potential biases and gaps in knowledge, and provide insights on how to promote inclusivity and equality in the world of MA and CS.

To achieve the goals of this research, the questions of this research are: Who are the top MA and CS researchers in terms of the number of citations / h-index / i10-index / in Google Scholar? What are the academic specializations of researchers interested in doing research in MA and CS? Which countries have done the most research in the international arena in the fields related to MA and CS, and what is the geographical distribution of the leading countries in these fields? What is the number of researchers in terms of gender and based on the profiles available in Google Scholar? How does the Google Scholar profile comparison of researchers interested in research in CS and MA domains look like? Specialists and researchers who have spent their time and energy studying these sports and have worked hard for their development are valuable resources and their research can be a beacon for future research.

Research Methods

The current study uses descriptive and quantitative content analysis to look into the scientific pursuits and demographics of researchers with an interest in martial arts (MA) and combat sports (CS) who have profiles on the Google Scholar platform and mention "martial arts" or "combat sports" and or both of them, as one of their research interests (areas of interest).

Google Scholar has become one of the most widely used tools for researchers to search scientific information (Martín-Martín et al., 2018; Mussell & Croft, 2013; Nicholas et al., 2017), which allows searching for scholars according to their research fields (Tang et al., 2021). Unlike conventional databases, this search engine automatically indexes content from the academic web and, as a source of data to analyses Open Access levels across all countries and fields of research (Martín-Martín et al., 2018). Compared to comparable interdisciplinary commercial databases like as Web of Science and Scopus, Google Scholar's coverage is far more comprehensive, as it automatically parses the whole academic web rather than indexing only certain sources (Delgado López-Cózar et al., 2019). It is also worth mentioning that one should be cautious when using Google Scholar for citations and metrics, as it is susceptible to manipulation and its indexing quality still remains a challenge (Halevi et al., 2017). Due to its ease of use, wide coverage, and fast indexing speed, it has become the preferred choice for many researchers when conducting literature searches (Golmohammadi & Pashaie, 2024).

The present study involved a thorough examination of 149 researchers' Google Scholar profiles who had listed martial arts and Combat Sports as their areas of interest up until October 8, 2023. For this purpose, in the search section of Google Scholar profiles, a search was made twice and each time one of the keywords "label:martial_arts" and "label:combat_sports" was used. Three sources (Google Scholar pages, researchers' university pages, and researchers' pages in Research Gate) were used to find the researcher's demographic information, and researchers' profiles in Google Scholar were used to check information related to research. After data collection, in the stage of detailed data analysis, 7 researchers were excluded from the study due to incomplete information or lack of complete transparency of the profile. Finally, we reviewed and analyzed 142 profiles (Of the finalized profiles, 87 were related to MA, 46 were related to CS, and 9 were related to both MA and CS). A carefully designed coding sheet with thorough instructions was provided to aid in data collection. The gathered data were thoroughly analyzed, with primarily descriptive statistics being used. Key indicators that distinguish between specialized cases in this study's analysis units included the "number of citations," "h-index," "i10-index," "educational degree," "gender distribution," and the field of expertise of the researchers. This methodological approach guarantees the reliability and integrity of the data that was gathered and makes it possible to conduct a thorough and accurate review of the scientific environment surrounding MA and CS research as of the date in question. Finally, the data obtained from this research was analyzed using SPSS version 22 software and through descriptive statistics. The handling of citations and references was also done using EndNote₂₀ software.

In Figure 1, the comprehensive process of searching and analyzing researchers' profiles on Google Scholar is depicted.

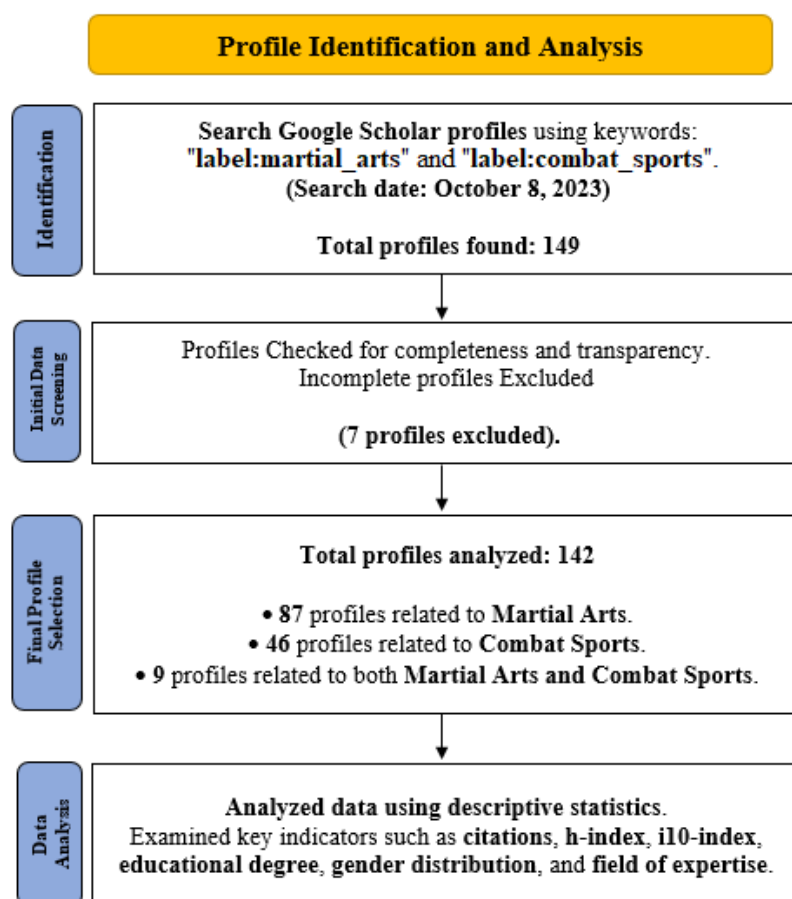


Figure 1. Process of Searching and Analyzing Researchers' Profiles on Google Scholar

Findings

In the quantitative-descriptive evaluation by researchers in the field of martial arts (MA) and combat sports (CS), the principles and concepts related to this topic have been examined. Using analytical and statistical

methods, this research has examined a number of features and characteristics of researchers' profiles for detailed analysis.

Table 1- Genders of MA and CS researchers in the Google Scholar database

Gender	MA Group		CS Group		MA & CS Group		Total	
	n	%	n	%	n	%	n	%
Male	65	74.71	37	80.44	9	100	111	78.17
Female	22	25.29	9	19.56	0	0	31	21.83
Total	87	100	46	100	8	100	142	100

Based on the findings of Table 1, it is clearly possible to see statistical differences in the number of male and female researchers. According to the findings of the MA group, 74.71% of researchers were male and 25.29% were female. In the CS group, 80.44% of researchers were men and 19.56% were women. In the group of MA and CS, all the researchers (100%) were men. In the general review of the profiles, it can be stated that 78.17% of the researchers of this study were men and the remaining (21.83%) were women.

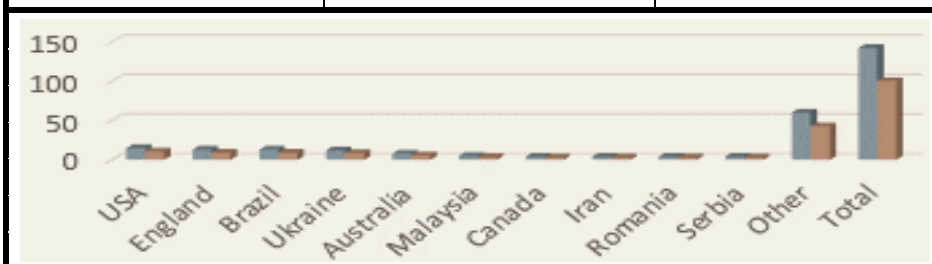
Table 2- Education of MA and CS researchers in the Google Scholar database

Education	MA Group		CS Group		MA & CS Group		Total	
	n	%	n	%	n	%	n	%
Related to sport sciences	36	41.38	42	91.30	8	88.88	86	60.56
Out of sport sciences	39	44.83	2	4.35	1	11.11	42	29.58
No information	12	13.79	2	4.35	0	0	14	9.86
Total	87	100	46	100	9	100	142	100

Based on the findings of Table 2, we can find interesting differences between the groups as well as within the groups. Based on the findings in the MA group, it can be said that about 41.38% of the researchers have a field of study related to sports science (they were in different fields) and about 44.83% of the researchers were studying in other fields (outside of sports science). The research findings in the CS group provided important information about the academic background of the researchers. More than 90% of these researchers were found to have degrees related to sports science. About 4.35% of these researchers had degrees in fields outside of sports science. In the review of the findings of the MA and CS group, it can be clearly seen that 88.89% of the researchers in this group had education related to sports science and only 11.11% of the researchers had education outside the field of sports science. In general, it can be seen that 60.56% of the researchers had education related to physical education and sports sciences (in different fields) and 29.58% of the researchers had studied in fields other than sports science.

Table 3- MA and CS Researcher's Countries in the Google Scholar database:

Countries (Top 3)	MA Group		Countries (Top 3)	CS Group		Countries (Top 3)	MA & CS Group		Countries (Top 6)	Total	
	n	%		n	%		n	%		n	%
Ukraine	12	13.65	Brazil	8	17.39	Spain	1	12.5	USA	15	10.55
USA	12	13.65	England	7	15.22	England	1	12.5	England	13	9.16
England	5	5.70	Australia	3	6.52	Germany	1	12.5	Brazil	13	9.16
Other	59	67	Other	28	60.87	Other	5	62.5	Ukraine	12	8.45
Total	88	100	Total	46	100	Total	8	100	Australia	8	5.63
									Malaysia	5	3.52
									Canada	4	2.82
									Iran	4	2.82
									Romania	4	2.82
									Serbia	4	2.82
									Other	60	42.25
									Total	142	100



The research findings also provide valuable insights into the countries that have the most researchers in the fields of MA and CS and the number of citations these researchers have to their names. Based on the findings of Table 3 regarding the researcher's research country (based on the information and name of the university mentioned in the researcher's profile), it can be said that in the MA group, researchers from Ukraine, America, and England (about 30% in total) were at the top of the table and in the CS group, countries like Brazil, England, and Australia (in total about 39.13%) were at the top. Also, in the study of the group of MA and CS, Spain, England and Germany (based on the number of researchers' citations) were at the top of the researchers with about 37.5% of the total. In the general review of all the researchers, we can mention the American researchers who were at the top of the list with 10.55% of the total statistics (15 researchers) and occupied the first place among the researchers. In the lower ranks, researchers from countries such as England, Brazil, Ukraine, Australia, Malaysia, Canada, Iran, Romania, and Serbia can be mentioned. These countries respectively and in total account for about 47.2% (with 67 researchers) of the statistics formed. Also, about 42.25 percent of the researchers (60 people) were from other countries.

Table 4- Citations of MA and CS researchers in the Google Scholar database

Range	Citation							
	MA Group		CS Group		MA & CS Group		Total	
	n	%	n	%	n	%	n	%
10001-25000	0	0	1	2.17	0	0	1	0.70
5001-10000	1	1.15	2	4.35	0	0	3	2.11
2501-5000	4	4.60	0	0	0	0	4	2.82
1001-2500	7	8.05	9	19.56	1	11.11	17	11.98
501-1000	5	5.75	7	15.22	1	11.11	13	9.15
251-500	10	11.49	7	15.22	2	22.22	19	13.38
101-250	15	17.24	4	8.70	2	22.22	21	14.79
51-100	8	9.19	2	4.35	0	0	10	7.04
26-50	6	6.90	6	13.04	1	11.11	13	9.15
10-25	12	13.79	3	6.52	1	11.11	16	11.27
Under 10	14	16.09	3	6.52	1	11.11	18	12.68
No Citation	5	5.75	2	4.35	0	0	7	4.93
Total	87	100	46	100	9	100	142	100

Based on the findings of the study and Table No. 4, the results show that in the MA group, about 17.24 percent of the researchers had citations between 101 and 250. Also, the highest citation in this group had citations between 5001 and 10000, which included about 1.15% of the total statistics. In the CS group, based on the results, it can be seen that about 19.56% of the researchers had citations between 1001 and 2500. Also, the highest citation in this group was 10,000 to 25,000 (with 2.17%). In the group of MA and CS, about 45% of researchers had citations between 101 and 500, and the highest citation in the group between 1001 and 2500 was 11.11%. Finally, according to the research findings, it can be stated that among all the researchers, 0.7% of them had the highest citation rate (between 10001 and 25000 citations). Also, about 14.79 percent of researchers had citations between 101 and 250.

Table 5- h-index of MA and CS researchers in the Google Scholar database

Range	h-index							
	MA Group		CS Group		MA & CS Group		Total	
	n	%	n	%	n	%	n	%
71-80	0	0	1	2.17	0	0	1	0.70
61-70	0	0	0	0	0	0	0	0
51-60	0	0	0	0	0	0	0	0
41-50	1	1.15	2	4.35	0	0	3	2.11
31-40	1	1.15	0	0	0	0	1	0.7
21-30	7	8.05	4	8.70	1	11.11	12	8.46
16-20	3	3.45	6	13.04	0	0	9	6.34
11-15	6	6.89	6	13.04	1	11.11	13	9.15
6-10	18	20.69	10	21.74	4	44.44	32	22.54
1-5	46	52.87	15	32.61	3	33.33	64	45.07
0	5	5.75	2	4.35	0	0	7	4.93
Total	87	100	46	100	9	100	142	100

Based on the findings of Table 5, it can be clearly stated that in the MA group, about 1.15 percent of the researchers had an h-index between 41-50, and in the CS group, about 2.17% of researchers had h-index between 71-80. In the group of MA and CS, 44.44% of researchers had h-index between 6-10. Finally, in the general view of researchers, it can be seen that 0.7% of researchers had the highest h-index (between 71-80) and about 45.07% of researchers had h-index between 1-5.

Table 6- i10-index of MA and CS researchers in the Google Scholar database

Range	i10-index							
	MA Group		CS Group		MA & CS Group		Total	
	n	%	n	%	n	%	n	%
301-350	0	0	1	2.17	0	0	1	0.70
201-300	0	0	0	0	0	0	0	0
101-200	1	1.15	2	4.35	0	0	3	2.11
51-100	2	2.30	2	4.35	0	0	4	2.82
41-50	0	0	1	2.17	1	11.11	2	1.41
31-40	8	9.19	3	6.52	0	0	11	7.75
21-30	3	3.45	5	10.87	1	11.11	9	6.34
11-20	7	8.05	7	15.22	1	11.11	15	10.56
1-10	39	44.83	17	36.96	4	44.44	60	42.25
0	27	31.03	8	17.39	2	22.22	37	26.06
Total	87	100	46	100	9	100	142	100

Based on the findings of Table 6, it can be stated that in the MA group, 1.15% of the researchers had an i10 index of 101-200. In the CS group, 2.17% of the researchers had the highest limit of i10 index between 301-350. In the group of MA and CS, 11.11% of the researchers had an i10 index between 41-50. Finally, in reviewing the profile of all the researchers, it can be concluded that 0.7% of the researchers had an i10 index between 301-350 and about 42.25% of the researchers (60 people) had an i10 index between 1-10.

Due to these different components, these sports are also associated with cultural, religious and educational perspectives. With their wide-ranging implications and rapid growth, this study discusses the need for more fundamental research in these areas. It also points to the important role that scientific production, especially in higher education institutions, plays in this field.

Discussion

Undertakings related to research are an essential foundation for knowledge acquisition and dissemination. We find new insights, challenge preexisting paradigms, and expand the frontiers of human understanding through meticulous research, experimentation, and critical analysis. By allowing us to share our discoveries

and deepen our understanding, this process adds to the body of knowledge that benefits society at large. The scientometric data was retrieved from the Google Scholar database, as was previously indicated. More benefits come with using Google Scholar in addition to its free access. Utilizing Google Scholar is simple and easy. Additionally, it is highly efficient, because information can be found instantly, without requiring further registration steps (Pitsolanti et al., 2017). In this regard, easy access to Google Scholar can motivate academics to focus on publication quality rather than quantity to achieve higher impact through more citations. Authors may be encouraged to use social media to promote their work in addition to being focused on citation counts (Jensenius et al., 2018).

According to the thorough analysis conducted for this study, a significant gender gap is found in the researcher population of martial arts (MA) and combat sports (CS). This research has significance since gender theories within the sports sector explain why women are often prohibited from engaging in sports because they are often perceived as a domain where male attributes are dominant (Kuipers, 2015). The analysis conducted for this study reveals that there is a higher proportion of male researchers compared to female researchers in these fields. This gender disparity is evident in both the MA and CS groups, with a ratio of 74.71% male researchers to 25.29% female researchers in the MA group, and 88.44% male researchers to 19.56% female researchers in the CS group. Furthermore, it is worth noting that all the researchers in the MA and CS group are male, further emphasizing the gender gap in this study. Overall, this finding underscores the need for greater gender diversity and inclusion in the field of MA and CS research. Therefore, the increasing participation of women in sports could show a change in gender structure. As an example of this process of degendering, Jutel (2009) states that female strength is more appreciated than before. The stereotypical perception of women as being passive or submissive is being impacted by the growing appreciation of female strength. In addition, the appreciation of female strength is seen in sports as well. Elling and Claringbould (2005) mentioned that historically, women have triumphed in sports like boxing and football which were dominated by men. The movement towards gender parity, or degendering, may be indicated by the change in gender roles. No particular operationalizations have been developed to assess degendering in any aspect of society, including sports, despite a wealth of research on gender and degendering in sports (Kuipers, 2015). To address the gender gap in current research, practical strategies such as implementing targeted recruitment plans for female researchers can be used. Also, creating a supportive research environment that pays attention to gender diversity and its value will also be effective.

We got important findings from our investigation into the educational backgrounds of MA and CS researchers. Our study's conclusions showed that approximately 41.38% of researchers engaged in MA had academic qualifications related to sports sciences (in different fields of sports sciences), while 44.83% of them had academic backgrounds in fields other than sports sciences. Furthermore, MA group and CS group showed significant differences. In the CS group, it was found that 91.30% of researchers had academic qualifications in sports sciences, with only 4.35% of researchers active in fields other than sports sciences. Similarly, in the MA and CS group, there was also a significant difference between researchers with academic qualifications related to sports sciences (88.88%) and other fields (11.11%). Furthermore, the information shows a significant difference between the academic backgrounds and interests of researchers in these two fields. It seems that CS are a niche within the larger field of sports sciences. This indicates that the majority of academic credentials held by researchers in CS are closely related to sports sciences, and the presence of individuals with backgrounds outside of sports sciences is minimal. On the other hand, the MA discipline appears to take a more open-minded and all-encompassing approach, drawing researchers from a variety of academic disciplines rather than just sports sciences. Due to its wider breadth and rich history of cultural practices, MA draws researchers from a variety of fields. CS, on the other hand, are more concerned with competitiveness, physiology, and technical factors, which is why researchers in this field tend to have more qualifications in sports science. The study's conclusions highlight the appeal and diversity of MA, which appear to go beyond the boundaries of a particular academic field. This emphasizes even more how diverse and rich MA are, in contrast, to CS, which seem to be more specialized and tightly related to sports sciences. Based on the findings of the research, the interdisciplinary cooperation of sports science researchers with researchers of other sciences who have research interests in combat sports can have positive effects on the quality of the produced research. These researchers can collaborate together, and publish unique scientific works to promote and advance the development of these sports.

In our research, a conspicuous trend emerged where the United States exhibited notable prominence in the domains of MA and CS. Of the academics who contributed to our study overall, American researchers made up a sizable 10.55%. The global distribution of researchers in these domains is demonstrated by the fact that, after the United States, other countries like England, Brazil, Ukraine, Australia, Malaysia, Canada, Iran, Romania, and Serbia made up a total of 47.2% of the study participants. Researchers from different countries are dispersed, which fosters opportunities for collaboration, cross-cultural exchange, and the possibility of enriched perspectives in the study of MA and CS. This helps to create a more extensive and varied body of knowledge in these fields.

The result of our studies showed that among the 146 researchers studied by us, one researcher with 23088 citations among all the groups was ranked first among the researchers of these groups and our research. A significant observation pertained to the substantial variation in the number of citations among researchers in the CS group compared to the other two groups. Specifically, in the category of over 500 citations, the CS group accounted for 41.3% of the researchers, the MA group constituted 19.55%, and the combined MA and CS group included 22.22% of the researchers. This disparity might indicate different dedication and skill levels across both groups, with the CS researchers possibly exhibiting a higher level of recognition and specialization in their particular domains.

After analyzing the H-index of researchers, we found a top researcher that has an outstanding H-index of 78, which puts them at the top of this research project. Remarkably, none of the other researchers in our study were able to obtain an H-index greater than 50. Moreover, our results show an interesting pattern: 79.31% of researchers in the MA group and 58.7% in the CS group had an H-index of less than 10. Similarly, in the combined MA and CS group, 77.77% of researchers had H-index below 10. This pattern highlights the importance of raising the number of useful papers in various domains while also indicating a strong commitment to producing new and significant knowledge and improving the quality of research.

According to the results of the current research, it can be seen that the majority of researchers in the fields of MA and CS have an H index of less than 10. The MA group had 75.86% of its researchers, the CS group had 54.35% of its researchers, and the MA and CS group had 66.66% of its researchers. This might lead to a greater focus on quality and the creation of more specialized papers, which would enhance scientific data and support higher-quality research in these areas. It also symbolizes the emphasis on expanding existing knowledge and producing more useful outcomes in various domains. Researchers interested in these subjects may find these achievements valuable as success models for their future work.

Based on the findings of this study, several operational and practical recommendations can be made to improve the quality and impact of research in the fields of martial arts and combat sports. First, it is critical to address gender inequality by implementing policies and initiatives that encourage greater participation of women in these research fields. Secondly, it is necessary to strengthen interdisciplinary cooperation so that researchers with different academic backgrounds can come together and achieve excellent research results by creating platforms for interdisciplinary dialogue and joint research projects. In addition, researchers should use social media and other digital platforms to disseminate their scientific works more widely.

Conclusion

The global development of research in martial arts and combat sports studies is highlighted in this article, along with their significant contributions to the area of sports science. It highlights this research's significance and global reach while highlighting their important contribution to the advancement of sports science. In conclusion, this research paper illuminates the profound influence of martial arts and combat sports on the advancement of sports science. Both disciplines not only improve physical health but also have the potential to promote ethical values and shape personalities, reinforcing their value within the broader educational and cultural landscape. The study has established that the majority of researchers within these disciplines are males with an educational background in sports-related fields. The dominance of countries such as Ukraine, the United States, and England in martial arts and Brazil, England, and Australia in combat sports, emphasizes the global reach and impact of martial arts and combat sports, and prompts for more diversity in this research arena. The wide range of citations and h-index values recorded by scholars across

these disciplines reflect the vast spectrum of expertise and research tendencies within martial arts and combat sports. Nonetheless, the low percentage of researchers with high h-indexes signifies the need for more groundbreaking work. Moreover, the study emphasizes the gender disparity, indicating that while increasingly more females are venturing into this field of research, they are still significantly underrepresented. The study encourages expanding the horizons of female researchers in this realm. Lastly, this paper affirms the importance of leveraging the existing body of knowledge developed by experts within martial arts and combat sports to guide and inform future research endeavors in the field of sports science, thereby further asserting the significance of these disciplines in the broadening understanding of sports science.

In conclusion, while this study sheds light on the demographic and academic profiles of researchers in martial arts and combat sports, it is crucial to acknowledge its limitations and consider future research directions. By addressing these limitations and exploring new avenues of inquiry, we can further enhance knowledge, promote inclusivity, and advance the field of sports science in relation to martial arts and combat sports.

Limitations and Future Research

The limitations of the paper center significantly on the nature of the data sources used. This study relied on Google Scholar profiles of researchers, which might yield incomplete or biased results. Not all researchers (especially those from low-resource settings) have Google Scholar profiles, and even those that do may not update them regularly or may use them differently, leading to variability in the data. Also, this research was only conducted on the keywords "martial arts" and/or "combat sports" in English language, and many profiles may have used these words in other languages, which were not included in our research. This could result in a skewed representation of research impact in the field. In addition, the cited h-index and i10-index figures provide limited indications of actual research impact or quality, as they simply measure the quantity of a scholar's work that has been cited by others. They fail to capture z domains of martial arts and combat sports. Thus, while it offers significant insights, the study's focus and methodology inherently limit its conclusions.

Future research should consider utilizing multiple data sources and platforms to ensure a more comprehensive understanding of the research landscape. The focus could also be broadened to analyze the research output from different academic institutions, including universities and research centers, to identify potential hubs of academic interest and expertise within these fields. Additionally, this study focused primarily on the quantity of research output and citation metrics, but future research should aim to assess the quality of research carried out by these researchers. Evaluating the impact of their work beyond citation counts, such as societal impact, contributions to policy and practice, and ethical considerations, would provide a more holistic understanding of their contributions to martial arts and combat sports.

Conflicts of Interest

The authors report no conflicts of interest in this work.

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