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IDENTIFYING THEMES ON YOGA FROM SYSTEMATIC LITERATURE REVIEW

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Abstract

This study systematically reviews and synthesizes existing literature on yoga to identify key themes, trends, and research gaps. A dataset of 3,000 research papers published up to 2024 was retrieved from the Scopus database, with approximately 200 papers selected annually. A rigorous filtration process refined the dataset, resulting in a final set for analysis. The study employed factor analysis to extract and group related terms, revealing overarching themes such as Quality of Life Enhancement, Evidence-Based Yoga Research, Mental Health and Emotional Well-being, Yoga as Complementary Therapy, and Yoga Clinical Testing & Intervention Efficacy. The analysis also highlighted the role of yoga in pain management, mindfulness-based stress reduction, and specific demographic groups such as adults and women. The findings underscore yoga's potential in improving both mental and physical health outcomes, with specific attention to mental health conditions like anxiety, depression, and stress. It also emphasizes the need for more clinical studies, particularly randomized controlled trials (RCTs), to validate yoga's effectiveness as a complementary therapy. Additionally, the study suggests exploring yoga's role in chronic pain management, health management for conditions like diabetes and hypertension, and its integration into multidisciplinary healthcare programs. Future research could focus on tailoring yoga interventions for targeted demographics, such as women and older adults, and investigating the synergy between mindfulness and yoga. The study provides a comprehensive overview of the evolving field of yoga research and sets the stage for further studies to enhance the understanding and application of yoga in healthcare.

***Keywords**: Yoga, Systematic Literature, Bibliometric Analysis, Themes, Meta Analysis*

INTRODUCTION

Yoga, an ancient practice with origins in India, has transcended its spiritual roots to become a global phenomenon influencing diverse areas such as health, fitness, mental well-being, and even education. Over the years, yoga has been studied extensively in scientific literature, with researchers exploring its physiological, psychological, social, and cultural dimensions. As the corpus of yoga-related research grows, there is a critical need to systematically review and synthesize the existing literature to identify recurring themes, key contributors, and emerging trends. The title, "Identifying Themes on Yoga from Systematic Literature Review," aptly reflects this scholarly need, as it highlights the methodological rigor required to consolidate insights from a vast array of studies and provide a roadmap for future research. The justification for selecting this title lies in the rapid proliferation of yoga research across disciplines. Yoga is no longer confined to its traditional context as a spiritual or physical practice. It has found applications in diverse fields such as medicine, psychology, management, education, and public health. Studies have demonstrated yoga's effectiveness in managing stress, improving physical fitness, aiding mental health, and enhancing overall quality of life. However, despite its multidisciplinary appeal, the fragmented nature of existing research often makes it challenging to extract overarching themes or assess the direction of yoga scholarship. A systematic literature review, as proposed in this study, addresses this gap by organizing, synthesizing, and analyzing the body of knowledge to identify patterns and provide clarity on the state of research in yoga. Furthermore, the selection of this title is justified by the increasing emphasis on evidence-based practice in the field of yoga. While anecdotal evidence and traditional knowledge have historically formed the basis of yoga's benefits, modern research demands robust empirical studies to substantiate these claims. Over the last two decades, there has been a surge in the publication of yoga-related studies in high-impact journals, covering topics such as its impact on cardiovascular health, its role in stress reduction, and its application in workplace wellness programs. However, these studies often vary significantly in their focus, methodology, and outcomes. By systematically reviewing this diverse body of literature, this study aims to identify common themes and gaps, thereby contributing to the development of a more cohesive understanding of yoga's potential and limitations. The decision to analyze yoga research through a systematic literature review is also timely, given the rising global interest in holistic health and well-being. The COVID-19

pandemic, for instance, highlighted the importance of mental health and stress management, leading to a renewed interest in yoga as a tool for resilience and recovery. Governments, organizations, and individuals worldwide have turned to yoga as a preventive and therapeutic measure, further driving the need for comprehensive and evidence-based insights into its effectiveness. Against this backdrop, the proposed review provides a valuable synthesis of existing research, helping stakeholders—be it policymakers, practitioners, or researchers—make informed decisions about integrating yoga into their practices or policies.

Another critical aspect justifying the selection of this title is the methodological rigor implied in a systematic literature review. Unlike narrative reviews, which often lack a structured approach, systematic reviews follow a predefined methodology to ensure the comprehensiveness and reproducibility of the analysis. For this study, 3,000 research papers published up to 2024 were retrieved from the Scopus database using Publish or Perish software. The dataset spans several decades, capturing the evolution of yoga research from its early days to the present. This extensive dataset allows for a longitudinal analysis, enabling the identification of trends and shifts in research focus over time. Additionally, the use of advanced analytical tools such as VOS viewer and SPSS ensures that the findings are grounded in robust quantitative and qualitative analysis. The title also underscores the importance of identifying themes in yoga research, which is a crucial step in advancing the field. Themes provide a framework for understanding the key areas of interest within the literature, ranging from the physiological effects of yoga to its psychological and social implications. For instance, one theme might focus on yoga's role in chronic disease management, while another might explore its cultural and philosophical underpinnings. By organizing the literature into thematic clusters, this study not only facilitates a deeper understanding of existing research but also highlights areas that remain underexplored. This thematic approach is particularly valuable for early-career researchers and practitioners seeking to navigate the vast body of yoga literature. The justification for focusing on yoga also stems from its universal relevance and adaptability. Unlike other wellness practices that may cater to specific demographics or conditions, yoga offers a flexible and inclusive approach to health and well-being. Its adaptability across cultures, age groups, and health conditions makes it a subject of interest for researchers worldwide. However, this universality also adds complexity to the research landscape, as studies often differ in their conceptualization of yoga, the types of interventions used, and the outcomes measured. A systematic literature review, as proposed in this study, helps address these challenges by synthesizing diverse findings into coherent themes, thereby providing a clearer picture of yoga's impact across different contexts. Finally, the title "Identifying Themes on Yoga from Systematic Literature Review" aligns with the broader goals of academic scholarship, which include not only generating new knowledge but also organizing and synthesizing existing knowledge to make it accessible and actionable. By focusing on themes, this study aims to bridge the gap between research and practice, offering insights that are not only academically rigorous but also practically relevant. For instance, the findings of this review could inform curriculum design for yoga teacher training programs, guide the development of workplace wellness initiatives, or shape public health policies aimed at promoting holistic well-being.

The selection of the title "Identifying Themes on Yoga from Systematic Literature Review" is justified by the growing need for a comprehensive synthesis of yoga research. The title accurately reflects the study's objective of organizing and analyzing the existing body of literature to identify key themes, trends, and research gaps. By adopting a systematic approach and leveraging advanced analytical tools, this study aims to contribute to the advancement of yoga scholarship and its practical applications. The findings will not only enhance our understanding of yoga's multidimensional impact but also provide a valuable resource for researchers, practitioners, and policymakers seeking to harness its potential for individual and societal well-being.

METHODOLOGY

The primary objective of this study is to systematically review and synthesize existing literature on yoga, identifying key themes, trends, and research gaps. To achieve this, a dataset of 3,000 research papers published up to 2024 (approximately 200 papers per year) was retrieved from the Scopus database using the Publish or Perish software. The distribution of papers accessed spans from prior to 2010 to 2024, with 200 papers selected annually.

Years	Research Papers Accessed
Till 2010	200
2011	200
2012	200
2013	200
2014	200
2015	200
2016	200
2017	200
2018	200

2019	200
2020	200
2021	200
2022	200
2023	200
2024	200
Total	3000

A rigorous filtration process was applied to refine the dataset, where four papers were removed due to missing author names, none were excluded for missing titles, and three duplicate entries were eliminated, resulting in a final dataset for analysis.

From this refined dataset, the top 10 authors, journals, and research papers on yoga were identified to establish significant contributions and sources in the field. Furthermore, network relationship analysis was performed using VOSviewer to map the connections among authors and frequently used terms, with the results presented in both tabular and network visualization formats. To delve deeper into the thematic structure of the literature, 24 terms were analyzed to extract key themes and patterns, and dimensional reduction was conducted using factor analysis in SPSS to group related terms and identify overarching themes. This structured methodology provides a detailed analysis of yoga research, highlighting trends, interconnections, and gaps in the literature while showcasing its evolution over time

Author and Co-Author Relationship

Figure 1: Author and Co-Author Relation Network

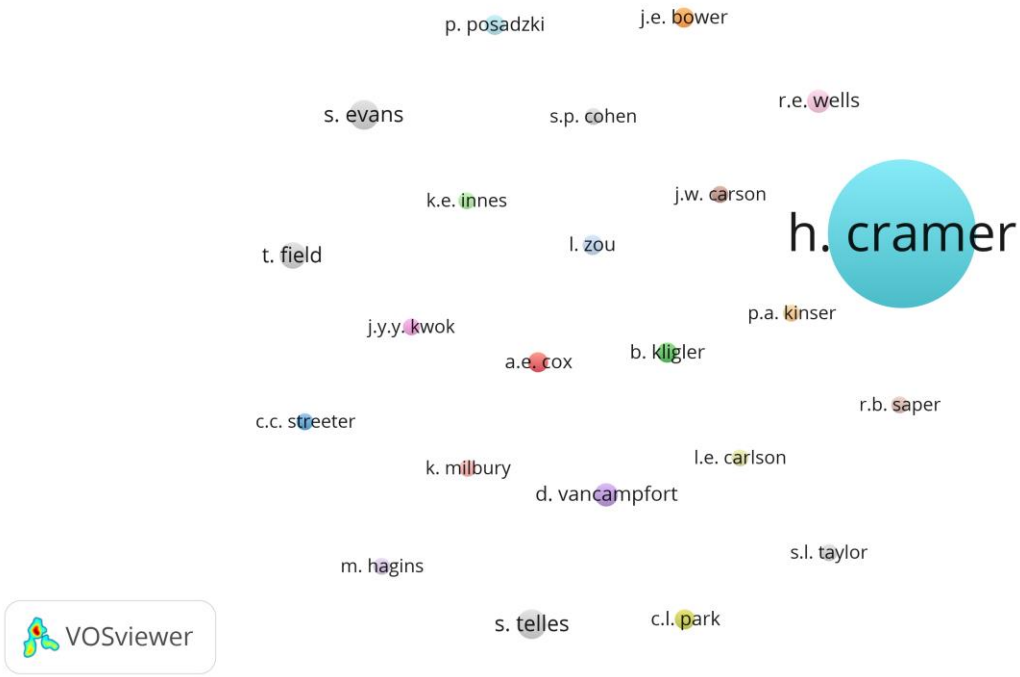

Table 1: Selected Authors

id	author	documents	total link strength
207	a.e. cox	6	0
308	b. kligler	6	0
452	c.c. streeter	5	0
477	c.l. park	6	0
581	d. vancampfort	7	0
811	h. cramer	44	0
1036	j.e. bower	6	0
1107	j.w. carson	5	0
1113	j.y.y. kwok	5	0
1154	k. milbury	5	0

1210	k.e. innes	5	0
1338	l. zou	6	0
1348	l.e. carlson	5	0
1450	m. hagins	5	0
1812	p. posadzki	6	0
1841	p.a. kinser	5	0
1973	r.b. saper	5	0
1978	r.e. wells	7	0
2054	s. evans	9	0
2153	s. telles	9	0
2217	s.l. taylor	5	0
2232	s.p. cohen	5	0
2264	t. field	8	0

The analysis of author and co-author relationships in yoga research highlights individual contributions from 23 prominent authors, with significant variability in the number of publications. H. Cramer leads with 44 documents, followed by S. Evans and T. Field with 9 and 8 publications, respectively, while several others contributed 5 to 7 documents. Despite these contributions, the Total Link Strength (TLS) for all authors is 0, indicating a lack of co-authorship relationships within the dataset. This suggests that most authors have worked independently, highlighting limited collaboration in the field. This absence of collaborative networks underscores an opportunity to foster stronger academic partnerships, which could enhance interdisciplinary insights, resource sharing, and the overall impact of yoga research. Strengthening co-authorship and collaborative projects could play a pivotal role in advancing the field further.

Table 2: Selected Terms from the Title

Term No.	Selected Term	Occurrences	Relevance Score
1	Adult	175	0.1431
2	alternative medicine	76	8.9037
3	anxiety	106	0.7434
4	complementary	86	8.4707
5	covid	91	0.2755
6	depression	139	0.6237
7	effect	537	0.1793
8	effectiveness	101	0.1847
9	exercise	244	0.1085
10	intervention	394	0.1556
11	life	140	0.7694
12	management	176	0.3822
13	meditation	105	0.2102
14	meta analysis	333	0.3006
15	mindfulness	158	0.1899
16	pain	212	0.194
17	patient	262	0.1541
18	quality	173	0.6567
19	randomized controlled trial	192	0.0889
20	stress	135	0.3003
21	systematic review	521	0.3105
22	treatment	217	0.2778
23	woman	152	0.2027
24	yoga	741	0.1746

Figure 2: Selected Document Term Relation Network

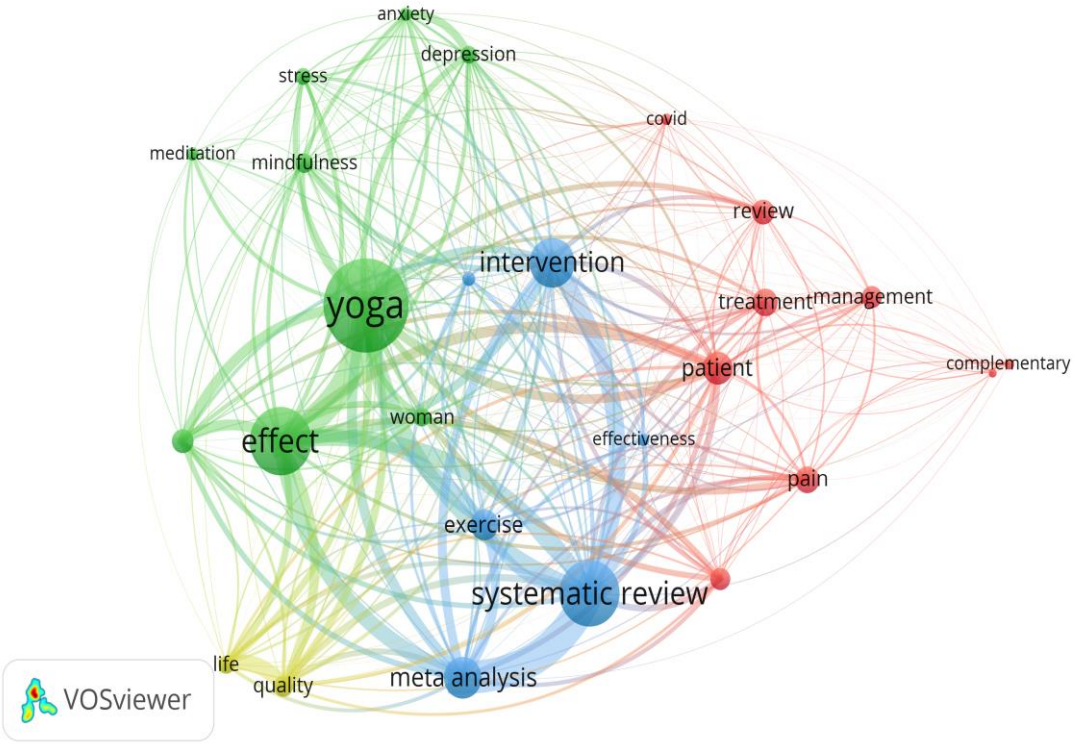

Table 2 presents a selection of key terms related to yoga research, along with their occurrences and relevance scores. The term "Yoga" appears most frequently with 741 occurrences, reflecting its central role in the research, while "Effect" and "Systematic Review" also have a high frequency of 537 and 521, respectively, indicating the focus on evaluating yoga's effects through systematic methods. Terms such as "Intervention" (394 occurrences), "Patient" (262 occurrences), and "Exercise" (244 occurrences) emphasize the practical application of yoga in clinical and therapeutic contexts.

In terms of relevance, "Alternative Medicine" (relevance score: 8.9037) and "Complementary" (relevance score: 8.4707) stand out as highly relevant, suggesting a significant interest in yoga as a complementary or alternative treatment approach. "Anxiety" (relevance score: 0.7434), "Depression" (relevance score: 0.6237), and "Life" (relevance score: 0.7694) reflect yoga's importance in mental health and overall well-being. Interestingly, while "COVID" has 91 occurrences, its relevance score is relatively low (0.2755), indicating it is less central in the overall research despite its contemporary importance. Other terms, such as "Effectiveness", "Pain", and "Management", highlight the therapeutic and health management aspects of yoga. This analysis underscores the multidimensional nature of yoga research, covering mental health, clinical intervention, physical exercise, and its potential as a complementary therapy, with a particular emphasis on systematic evidence of its effectiveness.

Table 3: Top 10 Cited Authors

Sr. No.	Authors	Sum of Cites
1	H. Cramer	4350
2	R. Chou	3569
3	A. Diamond	3095
4	J. Kabat-Zinn	2716
5	P. Barnes	2648
6	A. Qaseem	2220
7	S.P. Cohen	1824
8	N.E. Foster	1447
9	M. Bushnell	1395
10	J. Carmody	1234

Figure 4: Top 10 Authors

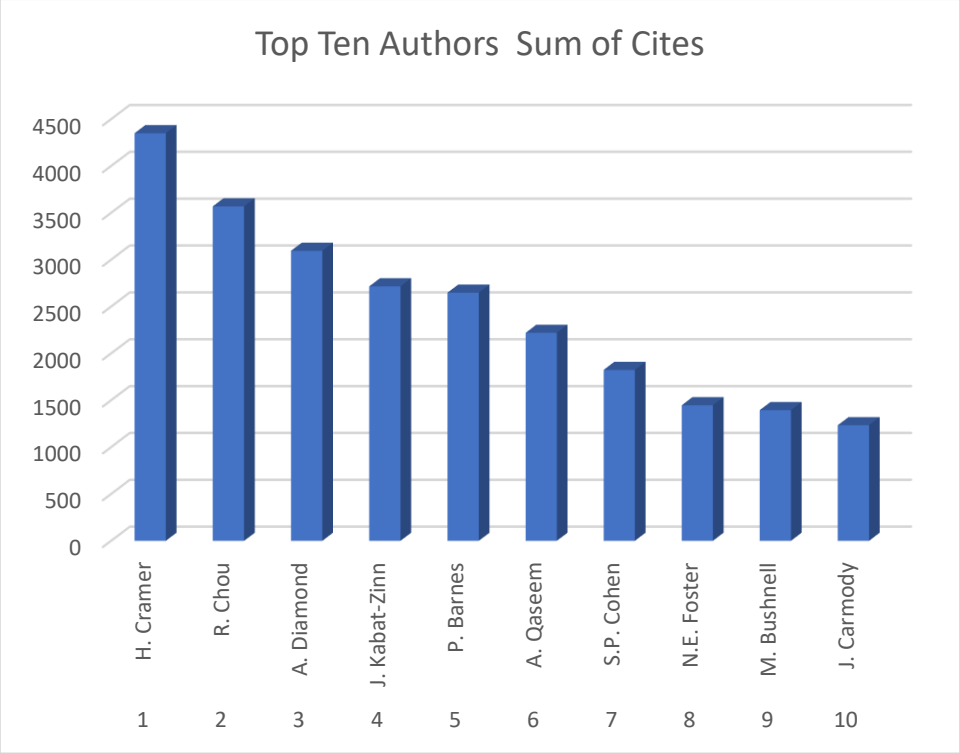

Table 3 presents the top 10 most cited authors in yoga research, highlighting their significant contributions to the field. H. Cramer leads with 4,350 citations, followed by R. Chou (3,569) and A. Diamond (3,095), showcasing their prominent roles in shaping the academic discourse on yoga. Other influential authors include J. Kabat-Zinn (2,716 citations), known for his pioneering work on mindfulness and meditation, and P. Barnes (2,648 citations), who has also made significant contributions to the field. Authors like A. Qaseem (2,220 citations) and S.P. Cohen (1,824 citations) have contributed extensively to clinical and therapeutic research on yoga, while N.E. Foster (1,447 citations) and M. Bushnell (1,395 citations) have focused on pain management and yoga's impact on physical health. J. Carmody (1,234 citations) rounds out the top 10, emphasizing mindfulness and psychological aspects of yoga.

This distribution of citations highlights the key researchers who have influenced the yoga research landscape, particularly in areas such as mindfulness, pain management, and the clinical application of yoga. The citations reflect the authors' extensive research output and their contribution to the ongoing development of yoga as a therapeutic and well-being practice.

Table 4: Top 10 Research Papers

Sr. No.	Research Paper	Sum of Cites
1	An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results	2716
2	Diagnosis and treatment of low back pain: A joint clinical practice guideline from the American College of Physicians and the American Pain Society	2117
3	Noninvasive treatments for acute, subacute, and chronic low back pain: A clinical practice guideline from the American College of Physicians	2000
4	Interventions shown to aid executive function development in children 4 to 12 years old	1880
5	Complementary and alternative medicine use among adults: United States, 2002.	1483
6	Prevention and treatment of low back pain: evidence, challenges, and promising directions	1447
7	Cognitive and emotional control of pain and its disruption in chronic pain	1395
8	Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program	1234
9	Complementary and alternative medicine use among adults and children: United States, 2007.	1165
10	Trends in the use of complementary health approaches among adults: United States, 2002–2012	1153

Figure 5: Top 10 Research Paper

Table 4 presents the top 10 most cited research papers in the field of yoga and related therapies, underscoring the significant studies that have shaped the understanding and application of yoga in healthcare. The paper titled "An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results" leads with 2,716 citations, highlighting the pivotal role of mindfulness meditation in managing chronic pain, a central theme in yoga research.

Other highly cited papers include "Diagnosis and treatment of low back pain: A joint clinical practice guideline from the American College of Physicians and the American Pain Society" (2,117 citations) and "Noninvasive treatments for acute, subacute, and chronic low back pain: A clinical practice guideline from the American College of Physicians" (2,000 citations), which reflect the clinical relevance of yoga in addressing common musculoskeletal issues, particularly low back pain. Papers like "Interventions shown to aid executive function development in children 4 to 12 years old" (1,880 citations) and "Cognitive and emotional control of pain and its disruption in chronic pain" (1,395 citations) delve into cognitive aspects of yoga and mindfulness, emphasizing their potential benefits beyond physical health. Additionally, research on the broader use of complementary and alternative medicine among adults and children in the United States (e.g., "Complementary and alternative medicine use among adults: United States, 2002" and "Trends in the use of complementary health approaches among adults: United States, 2002–2012") reinforces yoga's growing acceptance as an alternative treatment modality.

These studies collectively highlight the integration of yoga and mindfulness-based interventions in both pain management and broader wellness frameworks, demonstrating their clinical importance and the increasing academic interest in these approaches.

Table 5: Year Wise Citation

Sr. No.	Years	Sum of Cites
1	2013	17707
2	2017	16772
3	2012	16749
4	2011	15594
5	2016	14891
6	2015	14840
7	2014	14765
8	2018	14499
9	2020	11225
10	2021	10076

Figure 6: Year Wise Citation

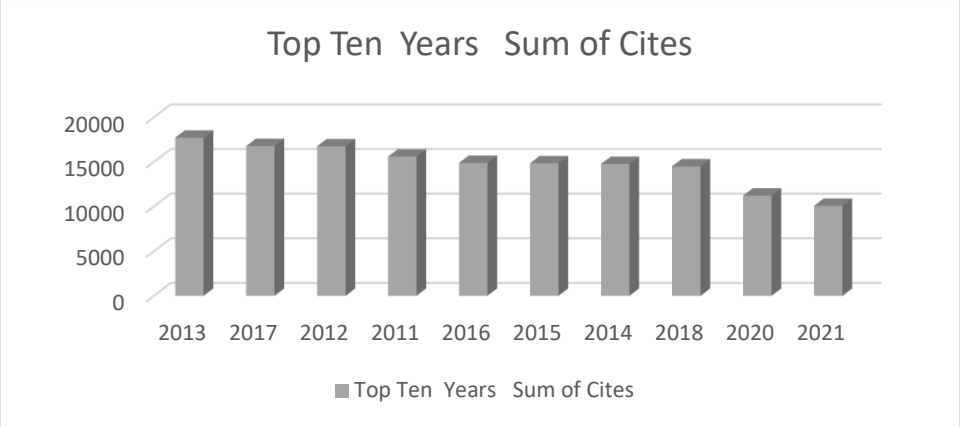

Table 5 presents the year-wise citation data for yoga-related research, revealing notable trends in the academic interest and impact of yoga studies over time. The year 2013 stands out with the highest sum of citations (17,707), indicating a peak in research activity or the publication of influential studies during this period. This is closely followed by 2017 (16,772 citations) and 2012 (16,749 citations), suggesting a sustained interest in yoga research around these years. The citation counts gradually decrease in the following years, with 2011 (15,594 citations) and 2016 (14,891 citations) also reflecting strong research output. However, from 2018 onwards, there is a noticeable decline in citations, with 2020 (11,225 citations) and 2021 (10,076 citations) showing a decrease in academic engagement, possibly due to shifting research priorities or changes in the publication landscape during and after the COVID-19 pandemic. This pattern highlights the fluctuating but consistently strong academic interest in yoga, with a clear peak in the early to mid-2010s. It also reflects potential shifts in research focus over time, indicating that while yoga remains a significant area of study, newer topics or challenges may be drawing more attention in recent years.

Table 6: Top 10 Journals

Sr. No.	Years	Sum of Cites
1	Annals of Internal Medicine	6926
2	Journal of Alternative and Complementary Medicine	6874
3	Cochrane Database of Systematic Reviews	5816
4	Evidence-based Complementary and Alternative Medicine	4475
5	The Lancet	4014
6	National Health Statistics Reports	3442
7	Complementary Therapies in Medicine	3417
8	General Hospital Psychiatry	3388
9	Alternative Therapies in Health and Medicine	2565
10	BMC Complementary and Alternative Medicine	2468

Figure 7: Top 10 Journals

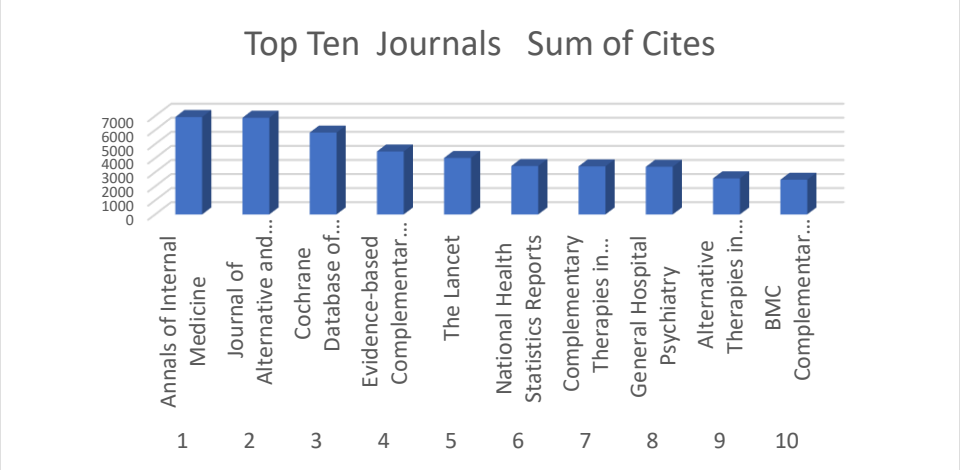

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Table 6 presents the top 10 journals with the highest citation counts in the field of yoga and complementary medicine research, showcasing the platforms where significant studies are published and widely referenced. Annals of Internal Medicine leads with 6,926 citations, highlighting its prominence in publishing high-impact studies related to health interventions, including yoga. Journal of Alternative and Complementary Medicine follows closely with 6,874 citations, emphasizing the journal's significant contribution to research on alternative therapies like yoga and mindfulness. Other notable journals include Cochrane Database of Systematic Reviews (5,816 citations), known for its rigorous reviews of healthcare interventions, and Evidence-based Complementary and Alternative Medicine (4,475 citations), which focuses on integrating alternative treatments with conventional medical practices. Prestigious medical journals such as The Lancet (4,014 citations) and General Hospital Psychiatry (3,388 citations) also feature prominently, demonstrating the increasing acceptance and recognition of yoga as a legitimate therapeutic practice within mainstream medical research.
Journals like National Health Statistics Reports (3,442 citations), Complementary Therapies in Medicine (3,417 citations), and Alternative Therapies in Health and Medicine (2,565 citations) further reinforce the expanding interest in yoga and complementary therapies, underscoring their growing role in health research. These journals collectively highlight the interdisciplinary nature of yoga research, with contributions spanning across internal medicine, psychiatry, and complementary medicine.

Dimension Reduction - Factor Analysis

Table 7: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.507
Bartlett's Test of Sphericity	Approx. Chi-Square	6087.436
	Df	276
	Sig.	0.000

Table 7 presents the results of the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity, which are crucial for assessing the appropriateness of performing factor analysis on the dataset.
The KMO Measure is 0.507, which is considered to be in the moderate range (values closer to 1 are preferable). A KMO value above 0.5 indicates that the sample size is adequate for factor analysis, though it is not ideal. This suggests that while the sample size is sufficient, there might still be room for improvement in terms of adequacy for factor extraction.
The Bartlett's Test of Sphericity has a significant result with an Approximate Chi-Square value of 6087.436, df (degrees of freedom) of 276, and a significance value (Sig) of 0.000. This result indicates that the correlation matrix is not an identity matrix and that there are significant relationships between the variables, justifying the use of factor analysis. Since the significance level is less than 0.05, we can confidently proceed with the factor analysis as the data are appropriate for extracting meaningful factors.
The test results suggest that the dataset is suitable for factor analysis, as the variables exhibit sufficient correlations and the sample size is adequate, though there may be potential to improve the overall adequacy.

Table 8: Communalities

	Initial	Extraction
adult	1.000	.759
alternative medicine	1.000	.669
anxiety	1.000	.761
complementary	1.000	.613
covid	1.000	.716
depression	1.000	.759
effect	1.000	.534
effectiveness	1.000	.427
exercise	1.000	.649
intervention	1.000	.576
life	1.000	.898
management	1.000	.738
meditation	1.000	.726
meta analysis	1.000	.692
mindfulness	1.000	.610
pain	1.000	.495
patient	1.000	.667

quality	1.000	.898
randomized controlled trial	1.000	.416
stress	1.000	.370
systematic review	1.000	.676
treatment	1.000	.724
woman	1.000	.766
yoga	1.000	.631
Extraction Method: Principal Component Analysis.		

Table 8 displays the communalities for each variable, both initially and after extraction through Principal Component Analysis (PCA). Communalities indicate the proportion of each variable's variance that is explained by the extracted factors. Initially, all variables have a communal value of 1.000, meaning each variable's total variance is assumed to be explained by the factors. After extraction, the communalities range from 0.370 (for stress) to 0.898 (for life and quality), reflecting the extent to which the factors explain the variance in each variable. Higher communalities, such as those for life (0.898), quality (0.898), and depression (0.759), suggest that these variables are well-explained by the extracted factors. In contrast, variables like randomized controlled trial (0.416) and stress (0.370) have lower communalities, indicating they are less well-represented by the factors and may require further refinement or additional factors for a better explanation.

The extraction has successfully captured significant variance for most variables, though some, like stress and randomized controlled trial, may need additional attention in the analysis.

Table 9: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.085	8.689	8.689	2.085	8.689	8.689	1.833	7.639	7.639
2	1.712	7.133	15.821	1.712	7.133	15.821	1.729	7.205	14.844
3	1.650	6.875	22.696	1.650	6.875	22.696	1.558	6.492	21.336
4	1.401	5.837	28.533	1.401	5.837	28.533	1.393	5.803	27.139
5	1.342	5.590	34.124	1.342	5.590	34.124	1.338	5.573	32.712
6	1.208	5.032	39.155	1.208	5.032	39.155	1.222	5.094	37.806
7	1.142	4.756	43.912	1.142	4.756	43.912	1.212	5.049	42.855
8	1.117	4.655	48.567	1.117	4.655	48.567	1.106	4.608	47.463
9	1.061	4.421	52.987	1.061	4.421	52.987	1.104	4.599	52.062
10	1.034	4.309	57.297	1.034	4.309	57.297	1.102	4.591	56.653
11	1.015	4.228	61.525	1.015	4.228	61.525	1.093	4.552	61.205
12	1.002	4.173	65.698	1.002	4.173	65.698	1.078	4.492	65.698
13	.961	4.003	69.701						
14	.939	3.912	73.613						
15	.919	3.831	77.444						
16	.880	3.667	81.111						
17	.858	3.575	84.686						
18	.760	3.168	87.854						
19	.710	2.957	90.811						
20	.649	2.705	93.516						
21	.496	2.067	95.584						
22	.459	1.912	97.495						
23	.409	1.705	99.200						
24	.192	.800	100.000						
Extraction Method: Principal Component Analysis.									

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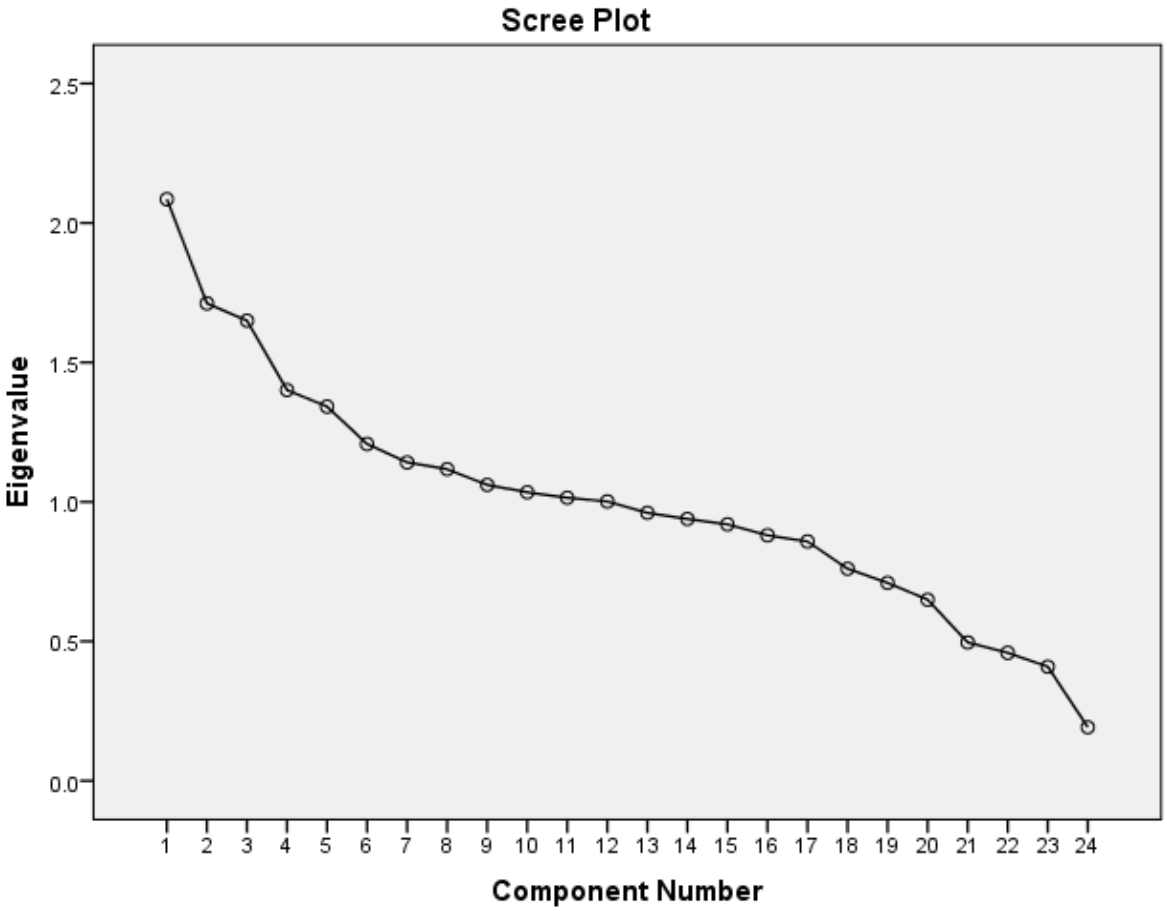

Table 9, Total Variance Explained, illustrates the results of Principal Component Analysis (PCA) for the dataset. The first component explains 8.689% of the total variance, and the second and third components further explain 7.133% and 6.875%, respectively, bringing the cumulative variance explained to 22.696%. As more components are considered, the variance explained gradually decreases, with the first 12 components accounting for 65.698% of the total variance. Beyond the 12th component, the incremental contribution to the total variance becomes minimal, with components 13 to 24 contributing progressively less, with the 24th component explaining only 0.8% of the variance. Overall, the first few components explain the majority of the variance, suggesting that the dataset can be effectively represented by a reduced set of components without significant loss of information. The total variance explained by all 24 components reaches 100%, confirming that the analysis captures all the underlying data variation.

Table 10: Rotated Component Matrix[a]

	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
life	.947											
quality	.942											
systematic review		.815										
meta analysis		.807										
depression			.868									
anxiety			.865									
alternative medicine				.812								
complementary				.766								
randomized controlled trial					.593							
management											.498	
yoga					.501							
effect					.488							

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exercise						.711						
effectiveness		.324										
intervention								.355				
mindfulness							.759					
stress							.533					
meditation												.083
adult									.847			
woman										.829		
patient					.273							
treatment										.022		
covid												.786
pain								.262				
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.												
a. Rotation converged in 14 iterations.												

Table 11 presents the extracted factors through factor analysis, where the terms are grouped under different factors that have emerged from the factor analysis process. Each column represents a factor, and the rows indicate the terms that are strongly associated with each factor.

Factor 1 includes terms like Life and Quality, suggesting that these concepts are closely related in the context of the data. Factor 2 is linked with Systematic Review and Meta Analysis, indicating that these research methods are commonly grouped together. Factor 3 includes Depression and Anxiety, showing a strong relationship between these mental health issues. Factor 4 is focused on Alternative Medicine and Complementary, reflecting the association between non-conventional treatment methods.
Factor 5 includes terms like Randomized Controlled Trial and Effectiveness, which are related to the quality of research and clinical testing. Exercise is associated with Factor 6, while Mindfulness and Meditation are grouped under Factor 7, both of which are techniques for mental and physical well-being. Factor 8 highlights Intervention, Stress, and Pain, linking them to therapeutic strategies. Factor 9 focuses on Adult, and Woman in Factor 10, suggesting a demographic connection. Finally, Management appears in Factor 11, indicating its significance as a distinct component, and Meditation is also included but with a lower factor loading.

Table 11: Extracted Factors through Factor Analysis

1	2	3	4	5	6	7	8	9	10	11	12
Life	Systematic Review	Depression	Alternative Medicine	randomized controlled trial	exercise	mindfulness	intervention	adult	woman	management	meditation
Quality	Meta Analysis	Anxiety	Complementary	yoga		stress	pain		treatment		covid
	Effectiveness			effect							
				patient							

This grouping of terms through factor analysis allows for a deeper understanding of how various aspects, such as treatment modalities, mental health, and demographics, interrelate in the study. Each factor represents a unique theme or set of associated concepts that can be further explored for insights into the research context.

Table 12: Rearranged and Extracted Factors through Factor Analysis

Themes	Quality of Life Enhancement	Evidence-Based Yoga Research	Mental Health and Emotional	Yoga as Complementary Therapy	Yoga Clinical Testing & Interv	Yoga as Physical Exercise	Mindfulness-Based Stress Reduction	Pain Management through Yoga	Yoga for Adults	Yoga for Women's Health	Yoga for Health Management	Meditative Practices for COVI

			Well-being		ention Efficacy							D-19 Recovery
Indicators 1	Life	Systematic Review	Depression	Alternative Medicine	Randomized Controlled Trial	Exercise	Mindfulness	Intervention	Adult	Woman	Management	Meditation
Indicators 2	Quality	Meta Analysis	Anxiety	Complementary	Yoga		Stress	Pain		Treatment		Covid
Indicators 3		Effectiveness			Effect							
Indicators 4					Patient							

Table 11 and Table 12 provide valuable insights into the underlying patterns and themes in the data through factor analysis. Table 11 presents a series of extracted factors, where terms associated with similar concepts are grouped together, revealing distinct themes within the study. The factors identified include categories such as Life and Quality, Systematic Review and Meta Analysis, Depression and Anxiety, Alternative Medicine and Complementary Therapies, and more. These factors indicate how various elements like mental health, treatment types, and research methods interconnect.

In Table 12, the extracted factors are further refined and organized into more descriptive categories, emphasizing key themes such as Quality of Life Enhancement, Evidence-Based Yoga Research, Mental Health and Emotional Well-being, and Yoga as Complementary Therapy. Each factor reflects a specific area of focus, such as the use of Yoga for mental health, Pain Management, or Mindfulness-Based Stress Reduction. The indicators under each factor provide specific terms like Depression, Effectiveness, Pain, and Treatment, helping to clarify the relationships between various wellness practices and health outcomes.

By reorganizing the factors into more defined themes in Table 12, the analysis provides a clearer view of how yoga, mindfulness, mental health, and physical health interventions are interconnected in the context of the research. These insights can guide further exploration into the effectiveness of yoga and complementary therapies for mental and physical well-being, highlighting specific areas where interventions may be most beneficial for various demographics, such as Adults and Women.

FUTURE SCOPE OF THE STUDY

The findings from the study provide several promising avenues for future research.

- First, the theme "Mental Health and Emotional Well-being" indicates that more studies are needed to explore how specific yoga practices impact mental health conditions like anxiety, depression, and stress. Understanding these effects could lead to the development of yoga-based mental health interventions.
- Additionally, the "Evidence-Based Yoga Research" theme suggests the need for further randomized controlled trials (RCTs) to establish the clinical efficacy of yoga in treating various health conditions. More robust evidence will strengthen yoga's role as an alternative therapy and enhance its acceptance in mainstream healthcare.
- The "Pain Management through Yoga" theme opens up the potential for investigating yoga's role in managing chronic pain conditions such as arthritis, back pain, and fibromyalgia. Research could compare yoga with traditional pain management treatments to assess its effectiveness.
- Another important area is "Yoga for Specific Demographics", including "Yoga for Women's Health" and "Yoga for Adults". Tailored yoga interventions for these groups could address unique health challenges, such as pregnancy, menopause, and aging-related issues, providing targeted benefits for these populations.
- The theme "Yoga for Health Management" highlights the potential for integrating yoga into multidisciplinary health programs for managing long-term conditions like diabetes, hypertension, and obesity. Future studies could explore how yoga can be used alongside traditional treatments to improve overall health outcomes.
- "Mindfulness-Based Stress Reduction" emphasizes the potential synergy between mindfulness and yoga in managing stress. Future research could focus on how combining these practices benefits mental health and provides holistic stress management solutions.

- The "Meditative Practices for COVID-19 Recovery" theme calls for further exploration into how yoga can support recovery from COVID-19 and other such viruses, particularly in terms of respiratory rehabilitation, mental health recovery, and overall well-being.
- Lastly, "Yoga Clinical Testing & Intervention Efficacy" points to the need for more studies on the effectiveness of different yoga practices in clinical settings. Future research should focus on evaluating the efficacy of specific yoga interventions for treating health conditions.

CONCLUSION

In conclusion, this study provides a comprehensive analysis of the yoga research landscape through a systematic literature review and factor analysis. By analyzing a dataset of 3,000 research papers, the study identifies key themes such as the enhancement of quality of life, the role of evidence-based yoga research, and its effectiveness in mental health and emotional well-being. Additionally, themes like yoga as a complementary therapy, its impact on pain management, and its benefits for specific demographics, such as women and adults, were identified. These findings underscore the diverse applications of yoga in improving physical and mental health outcomes. The factor analysis presented in the study reveals clear patterns in how various yoga practices are linked to different health conditions, treatment methods, and research approaches. These insights offer valuable guidance for future research, which can focus on exploring the efficacy of yoga in managing chronic conditions, its integration into multidisciplinary health programs, and the potential for yoga-based mental health interventions.

Further research is needed to establish the clinical efficacy of yoga through more randomized controlled trials (RCTs), particularly in areas such as pain management, mindfulness-based stress reduction, and COVID-19 recovery. Additionally, tailoring yoga interventions for specific populations, such as women, the elderly, and individuals with chronic conditions, represents an important avenue for future exploration. Overall, the study highlights the evolving role of yoga as a holistic health intervention and provides a roadmap for further research to optimize its use in promoting well-being across different demographics and health conditions.

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