Exploring the Landscape: A Bibliometric Analysis of Youth Engagement in Fitness Research and It's Marketing Ramifications

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Abstract:

This bibliometric study examines the academic literature related to the factors that drive the young generations to engage in physical exercise in gyms. This study focus on young generations' motives to cope with stress relief, health awareness, lifestyle considerations, and their intersections with marketing strategies for gym industries. By quantitatively analyzing keywords trends used, this study aims to present a comprehensive analysis of the current state of research and identify knowledge gaps that could inform future research and marketing strategies. The Scopus database is utilized for data mining of the articles, and it discovered 1.593 documents to be analyzed using VOSviewer software. Based on the analysis of the research keywords, we identify five distinct clusters that will can assist future scholars to analyze the idea of the study. The results have substantial significance for scholars and professionals in the gym business, particularly those who are concerned with the health of young generations.

1. Introduction

In recent times, there has been a notable surge in the level of interest demonstrated by the younger generations towards healthy lifestyle such as physical activities in gym or fitness center (Kumari et al., 2020). This growing trend reflects a noteworthy shift in lifestyle preferences, with younger individuals actively seeking opportunities to enhance their physical well-being. This inclination is also driven by their desire to manage stress and embrace a health-conscious way of life. The increasing emphasis on fitness and wellbeing has not only resulted in changes in personal habits, but it also has brought new opportunities and challenges in the field of marketing (Pilgrim & Bohnet-Joschko, 2019; Rachmawati et al., 2023).

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The underlying phenomenon motivating younger generations to actively engage in physical exercise in gyms is linked with prevailing ideals of self-care, happiness, and a desire for a healthy lifestyle (Harvey et al., 2022). Within the context of this research topic, the utilization of bibliometric analysis has emerged as an essential tool for comprehending the depth and development of study (Wamba & Queiroz, 2021; Aprilianti et al., 2023).

This bibliometric analysis offers a comprehensive perspective on the knowledge network pertaining to gym participation, health awareness, stress management, and lifestyle issues through a systematic evaluation and quantification of scholarly literature. By examining scientific publications, significant journal articles, and emerging topic trends, this study reveals the intellectual progressions pursued by scholars. Bibliometric analysis used in this study serves as a crucial means to identify current trends, significant research contributions, and intersections across multiple fields, fostering interdisciplinary perspectives. Within the scope of this study, the motivations behind the willingness to go to gym or do fitness among the younger generation are diverse, encompassing both physiological and psychological factors (Piotrowski & Piotrowska, 2021) that needs to be identified further.

Although previous studies have acknowledged the importance of healthy lifestyle issues among young generations, especially in the post-Covid-19 era, a specific gap exists in the understanding the nuanced motivations and preferences that drive young individuals to participate in gym activities. The existing literature provides a broad overview (Goodyear et al., 2021; Chen & Wang, 2021), but there is a need for a more in-dept exploration of the literature to find out more about the research trends in gym participation among the younger generation. This study contributes to the existing body of knowledge by delving into the intricate connections and trends on gym participation, health awareness, and lifestyle choices among the younger generation. The novelty of this study lies in its comprehensive bibliometric analysis, which not only identifies trends and contributions, but also explores the intersections of various fields, providing a more holistic understanding.

The primary objective of this study is to examine the variables influencing the behavior and choices of young generations in engaging in gym activities and their implications for marketing strategies. Through an analysis of the interconnected themes of stress relief, health awareness, and lifestyle choices, this study aims to establish a connection between scholarly discourse and the practical subject of marketing. Additionally, this study seeks to provide insights guiding the development of strategic marketing aligned with the desires and preferences of the young generation. It also explores the trend through bibliometrics study and examines the different methods scholars have employed in this research area.

Previous studies have underscored the significance of healthy lifestyle issues among young generations, especially in the post-Covid-19 era, where a notable change in lifestyle has been observed (Cancello et al., 2020; Abi-Jaoude et al., 2020). Increased

health awareness has motivated young individuals to engage in physical activities like going to the gym, promoting both physical and mental well-being (Pascoe et al., 2020). Viewed as a positive youth development, gym owners and the industry at large should capitalize on this opportunity for market growth (Beesley & Fraser-Thomas, 2019). Given the rising number of young individuals prioritizing a healthy lifestyle, marketing promotions become a crucial strategy (Gunawan & Sari, 2021; León-Quismondo et al., 2020; Tsitskari & Batrakoulis, 2021).

Therefore, the aim of this study is to gain a comprehensive understanding of the trend of gym involvement among the young generation and its implications for marketing strategy using bibliometric analysis techniques. Furthermore, the findings of the analysis can be employed as a valuable resource and framework by scholars, researchers, and professionals in the fitness business for investigating the research subject. We attempt to achieve the aim of the study by exploring these research questions:

RQ 1: How is the trend of the young generations' gym participation in scientific journals?

RQ 2: What are the keywords that can used for future studies in the topic?

RQ 3: How is the trend of this topic in different countries?

2. Theoretical Background

Consumer Behaviour in Young Generation

As one of the major topics in marketing research, consumer behavior has long been known as a multifaceted field of study that delves into the processes and activities individuals engage in when searching for, purchasing, using, and evaluating products or services (Sima et al., 2020; Song et al., 2019; Sheth, 2021). This topic encompasses a wide range of factors including psychological, social, cultural, and economic influence, which all contribute to the decision-making process of consumers. Since its initial development in 1969 (Howard & Sheth, 1969), the field of consumer behavior has continued to evolved, as scholars have attempted to develop models and framework to explain consumers' decision-making process. Existing studies have considered factors such as motivation, perception, learning, and social influences (Zwanka & Buff, 2021; Budiman & Dananjoyo, 2021). With the existence of digital technologies, globalization, and changing societal values, this area of research has become more dynamic and needs further exploration.

Within the context of consumer behavior in the young generation, it also becomes crucial to consider consumers' unique characteristics and dynamics which shape their preferences, choice, and decisions. The young generation, which is also often referred to as Generation Z and Millennials, has their own characteristics of being technologically savvy, socially conscious, and is heavily influenced by peer opinions and online interactions (Taha et al., 2021; Islam et al., 2021; Chaturvedi et al., 2020). Therefore, understanding their consumption behavior involves analyzing the impact of digital media, social networks, and other emerging trends that color their decision-

making process. The influence of social media through various platforms such as Instagram or TikTok plays a pivotal role in shaping preferences, creating trends, and influencing their purchasing decision (Wei et al., 2021; Sheth, 2021; Jain, 2020). In the context of this study, social media is seen as a channel that can affect the self-esteem, body image, and overall well-being of young generation, including how they form the perception for healthier life style.

Social media platforms play a significant role in shaping this healthier life style for younger generation (Goodyear et al., 2021; Abi-Jaoude et al., 2020). Fitness influencers often showcase their workout routines, healthy eating habits, and the positive effects of an active lifestyle. In addition, young consumers today also tend to exhibit heightened awareness of health and wellness. They are more likely to prioritize physical fitness as part of a holistic approach to well-being. This shift can be attributed to increased access to health information, fitness influences on social media, and general cultural emphasis on staying fit (Chen & Wang, 2021; Rounsefell et al., 2020). The consumer behavior of the young generation towards a healthier lifestyle, particularly in the context of going to the gym, is shaped by a complex interplay of social, cultural, technological, and personal factors.

3. Methodology

This study employed a bibliometric analysis to acquire a full comprehension and interpretation of the visualization of scientific publication outcomes related to the utilization of mathematical and statistical methods. The utilization of this quantitative methodology is frequently employed to visually represent academic map, hence revealing observable patterns and trends (Zhang & Eichmann-Kalwara, 2019). In this study, all the journal articles are obtained from the Scopus database. The researcher decided to only use Scopus database because it considered as the most comprehensive journal database which provide many reputable scientific and academic information. The data mining is conducted in August 20th, 2023 with the search string used in the Scopus database of "youth*" OR "young*" OR "teen*" OR "gen z" OR "millennial" AND "gym* " OR "fitness" OR "exercise" OR "training" OR "workout". This search string is used according to the criteria of titles, keywords, and abstract in the Scopus in order to get more data related to young generation and gym life style scientific article research from scholars. This study only uses open access articles with the year of publication from 2014-2023. The specific time span is determined to provide the view of the developing trend in the research topics in the last ten years. Furthermore, open-access articles are chosen as these articles are freely accessible to the global research community. Open-access articles inherently prioritize transparency as it provides unrestricted access to the research methodologies, data, and findings. Its accessibility also allows fellow researchers for verification and further exploration. The chosen subject area for data mining is business management and accounting, economics, econometrics, and finance. Only articles at the final publication stage from journal sources are considered, and the selected language is English.

The article samples are obtained in the .csv format, which stands for comma-separated values. Subsequently, these samples are subjected to be processed using VOSviewer. This software is used to visualize and analyze the trend of the scientific articles in the form of bibliometric maps (Gao et al., 2021). VOSviewer has been used by many scholars for bibliometric analysis research because it can create publication trends maps, country maps, citation maps, and keywords maps (Amiri et al., 2023). The VOSviewer software is utilized to perform a network analysis, examining the connections among the article's keywords. The outcomes are presented in the form of a network graph consisting of nodes representing the keywords and network lines that establish relationships between those nodes (Rosli & Zaki, 2023). The keywords' occurrences that appear in the maps can be adjusted based on their relevance and can be also be removed if it is not relevant. The keywords' relevancy is determined by considering its redundancy, potentials to overlap, information (informative or non-informative, generic, or common terms), and weak connections to other terms (Tajudeen et al., 2022; Yu et al., 2022). In addition, the VOSviewer software possesses the capability to do data mining, facilitate the mapping of scientific publications, and enable the grouping of articles from many database sources (Padmalia, 2023).

4. Empirical Findings/Result

Visual Representations of Topic Area in VOSviewer
This study examines the presence of a minimum number of correlations among the keywords employed in VOSviewer. It limits to only five keywords as the most frequent and relevant keywords appears in this research topic. The use of VOSviewer is very beneficial as it provides an overview of bibliometric mapping, focusing on three specific visualization techniques: network visualization, overlay visualization, and density visualization (Nandiyanto & Al Husaeni, 2021). After finishing the analysis of the keywords in VOSviewer, it shows five clusters with the color red, green, blue, yellow and purple. It describes the relationship between the keywords which correlate to one research topic to another (Nandiyanto & Al Husaeni, 2022).

All of the keywords are depicted with the circles or nodes which have different colors based on its clusters. Each keywords have their own color and size. There is a positive correlation between the presence of specific keywords in the title and abstract of a research study. The network lines connect the nodes to each other, and the size of a node increases proportionally to the frequency of occurrence of a keyword or set of keywords in the search results. The visual representation of keyword relationships is achieved by the use of lines that indicate the presence of similar terms (Batubara et al., 2022). The overlay of the network further signifies the significance of these connections. The proximity between nodes can be vary, as it is determined by the frequency of their connections. Nodes that are closely connected are more likely to be in close proximity. Therefore, the size of the letters and circles in the VOSviewer outcomes are established based on the frequency of keyword occurrences (Yu et al., 2020). In addition, it can be concluded that the more frequent occurrence of the keywords, the bigger circles and letters will be shown.
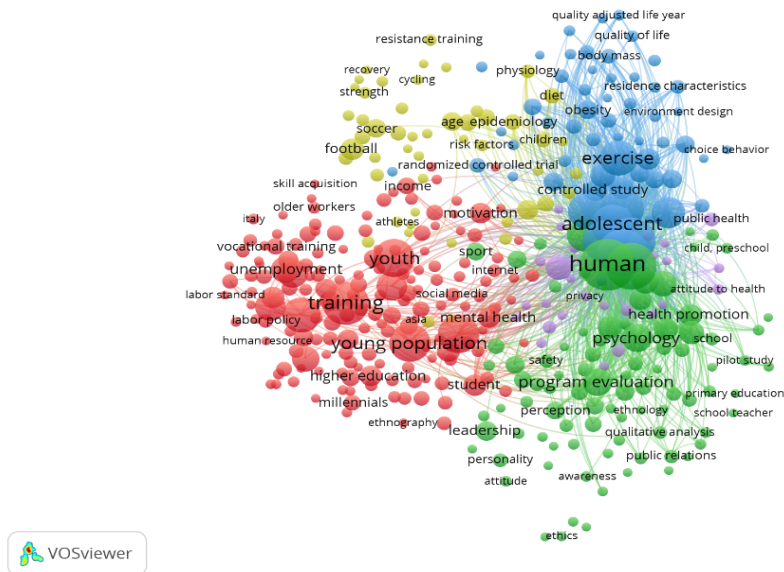
Figure 1. Network Visualization of Research Topic Area in VOSviewer

The illustration reveals the presence of distinct clusters pertaining to the various topics under examination. The terms that belong to the same cluster (color area) have meaning that there is a close relationship between those keywords according to the article publication from scholars. The most frequent and relevant keywords' occurrences of each cluster are represented in this following table:

Table 1. The Cluster of the Keywords.

Cluster 1 (Red)	Links	Total Link Strength	Occurrences
1. Youth	268	516	183
2. Higher Education	311	767	110
3. Training	218	690	110
4. Student	100	215	56
5. Education	17	40	26

Cluster 2 (Green)	Links	Total Link Strength	Occurrences
1. Human	305	2797	159
2. Psychology	211	886	48
3. Health Promotion	233	708	32
4. Youth Development	97	140	14
5. Awareness	75	115	7

Cluster 3 (Blue)	Links	Total Link Strength	Occurrences
1. Adolescent	264	1621	92
2. Exercise	216	1229	73
3. Quality of Life	185	432	21
4. Health Behavior	127	375	18
5. Healthy Lifestyle	124	176	15

Cluster 4 (Yellow)	Links	Total Link Strength	Occurrences
1. Fitness	171	311	31
2. Strength	10	15	9
3. Risk Factor	75	116	8
4. Communication	42	65	8
5. Mobility	44	55	7

Cluster 5 (Purple)	Links	Total Link Strength	Occurrences
1. Public Health	113	227	12
2. Health Education	102	180	10
3. Attitude to Health	76	148	7
4. Job Satisfaction	47	66	7
5. Human Relation	66	103	5

VOSviewer has grouped the keywords from young generations' participation on healthy life publications into five distinct clusters. It has relationship between each keyword and can be connected to the article research publication on marketing research topic area. The next figure is the trend visualization or overlay visualization. This data visually depicts every year's publishing trends within the study topic area (Effendi et al., 2021). This study examines the research articles that are published within the last ten year which is from year 2014 to 2023. This overlay visualization explains the trend of keyword usage within the period of time (Chávez, 2019). There is a hue color in each node that indicates a cumulative count number of publications that linked to particular research articles' keyword over the years (Michulek & Krizanova, 2023). Every color in this visualization has its own meaning. Keywords that are more commonly used in many research articles in the early stages of the research period are depicted in blueish color. Meanwhile, the keywords that is used more frequently in recent year of publications are depicted in yellowish color.
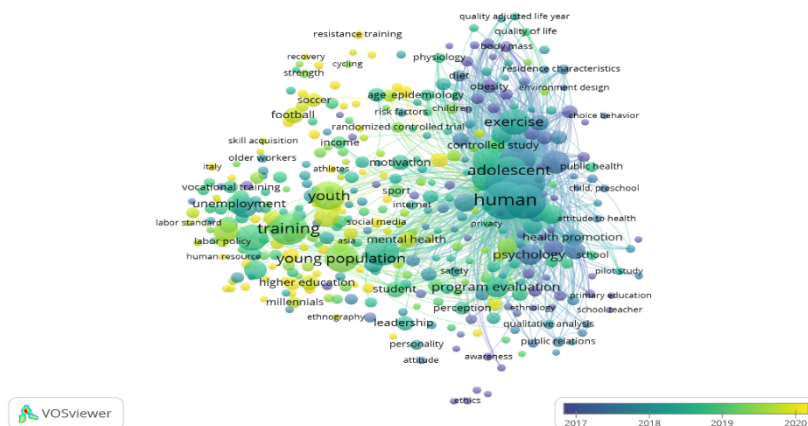
Figure 2. Overlay Visualization of Research Topic Area in VOSviewer

The visualization depicts that the nodes representing the most current terms are characterized by a yellowish color. It can provide a valuable insight to some researchers who want to conduct a study in this topic area. The researchers can explore many studies or subjects that is still less explored. In reference to Figure 2, particular keywords are seen as new areas of study interest in the recent year. The study of young generations' participation on healthy life and its implication in marketing for gym business can be explored by future scholars. These recent keywords are mental health, higher education, social media, millennials, resistance training, entrepreneurial intention, adolescent, creativity, youth sport, and positive youth development. These keywords are still less explored, that is the reason why it was occurred in this research studies as the most recent study visualization.

This implied that there are lot of areas of study to explore and also suggest that young generations have awareness toward their health. In correlation with marketing subject area, it promotes a healthy lifestyle to young generations and build marketing strategy to be more creative in reaching young generations. Therefore, this study is in line with the topic that are already explained with the use of bibliometric analysis.

Moreover, in bibliometric analysis research there is also density visualization. It visualizes the depth of research topic area that is already conducted by some scholars (Rosyihuddin & Sudarmiatin, 2023). In this figure, the are no links and nodes such as in network visualization and overlay visualization. This figure shows the depth of research by mapping the color in area surroundings the keywords. The more concentrated color area indicates that the keywords are already discussed and explore more in many articles research. It increases in number, because the research regarding that topic areas are used. In this study, the lighter color is in the area of the keywords such as human, adolescent, youth, training, mental health and young population.
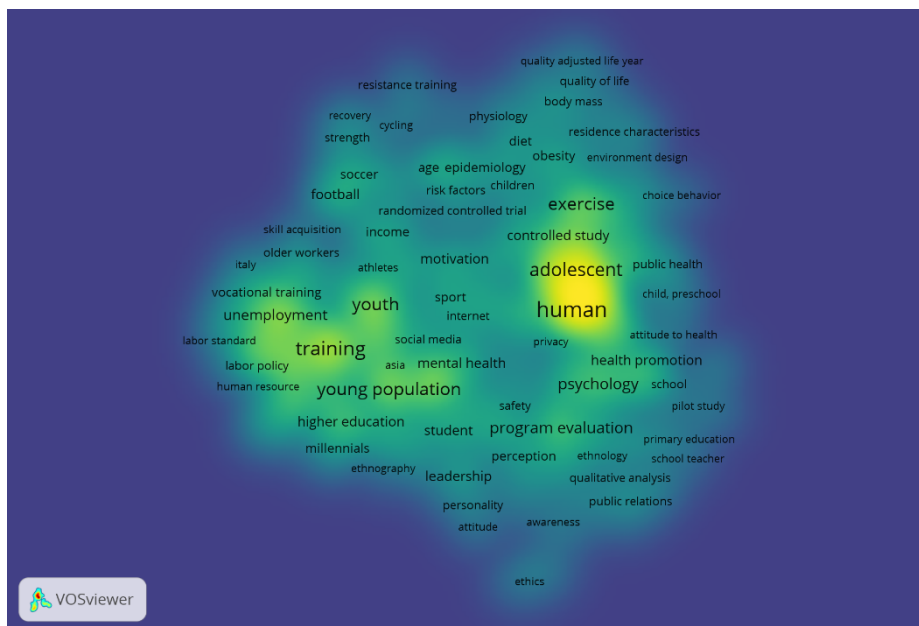
Figure 3. Density Visualization of Research Topic Area in VOSviewer

Based on data result, the researcher can search for the novelty of the study. For instance, the study related to young generations (can be millennials or gen Z) and their mental health issues or lifestyle can be an alternative to be observed for marketing promotion. There are many topics according to the keywords discovered in bibliometric analysis that can be used by researchers to conduct a study. The researchers can contribute to the knowledge and scientific publications. Furthermore, future scholars also can conduct study by linking the keywords on each topic area and creating a new topic such as marketing health promotion in social media to attract young generation or reducing young generations' mental health issues in fitness center. From these results, it can be known that bibliometric analysis is very useful to help the researchers consider the topic area to be conducted based on the scientific map visualization.

Visualization of Country Study in VOSviewer

There a lot of topic areas discussed in this study. Many researchers are interconnected each other by the use of keywords that they used within different topic areas (Luckyardi et al., 2022). The availability of information on each topic area might be vary depend on search criteria on specific keywords entered by the researchers. In this study, it is discovered some of the topic area that is discussed and studied by other researchers in relation to this theme of young generations and healthy life style as depicted in Figure 4. The number of occurrences in this topic area still limited in number. Thus, the researchers can provide support as their contribution to the scientific publication. For instance, the analysis of psychological factor that determine the willingness of young generation to go to gym or fitness center.
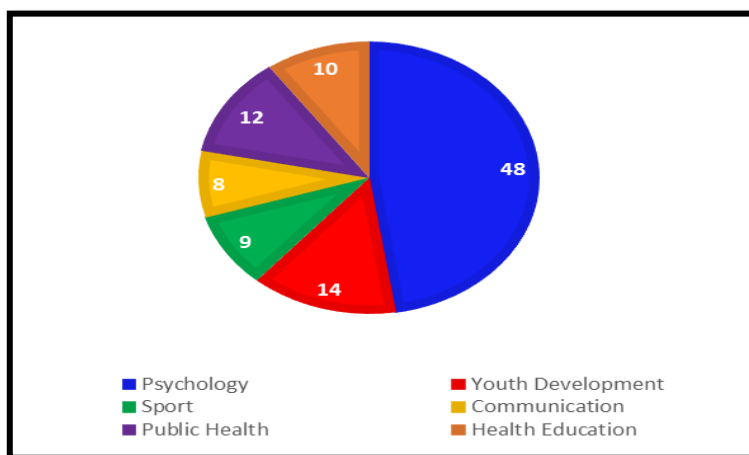
**Figure 4. Number of Publications in Other Topic Areas**

In additions, bibliometric analysis also provides other information of the publication trend such as the author, journals, country of study, and also citation (Tajudeen et al., 2022). In this study the researcher also examines the country of study using VOSviewer software for bibliometric analysis. The number of countries that is appeared in the file .csv from the Scopus database that is convert to VOSviewer is 144 data. However, there are several countries which produced articles specifically to this topic area in conducting the study. This is due to the topic area are still less explored by some researcher and this topic are started to increase recently. As a result, each country have been ranked according to the greatest number of publications in this topic area, with a selection limited to 20 countries, including Indonesia.

Table 2. The Countries Publication Number

Name of Country	Number of Documents	Number of Citations
1. United States	334	3591
2. United Kingdom	193	1883
3. Germany	129	1897
4. India	83	430
5. Australia	80	758
6. Russia	68	144
7. Canada	67	475
8. Italy	63	669
9. Malaysia	58	388
10. South Africa	58	330
11. Spain	56	574
12. China	44	770
13. France	37	422
14. Netherlands	33	440
15. Norway	30	292

16. Switzerland	28	352
17. Poland	25	52
18. Portugal	24	140
19. Turkey	24	142
20. Indonesia	22	86

According to the data presented in the table, it is obvious that the United States possesses the most number of studies among the countries listed. The next country with the second greatest number of publications is United Kingdom, followed by Germany, while other countries including Indonesia in the bottom place. In Indonesia, there are still lack number of publications regarding this topic area. Additionally, the table presents data regarding the total number of documents and the number of citations. This data confirms that the scientific production of articles journal in this topic area are mostly discussed. Many researchers have already conducted study regarding this and they referred to other research over the world. Each author will cite one to another and the number of citations will be increasing in recent year to the future. Figure 5 presents the link between countries that produce journal articles that correlate each other based on their reference and citation from VOSviewer software visualization.
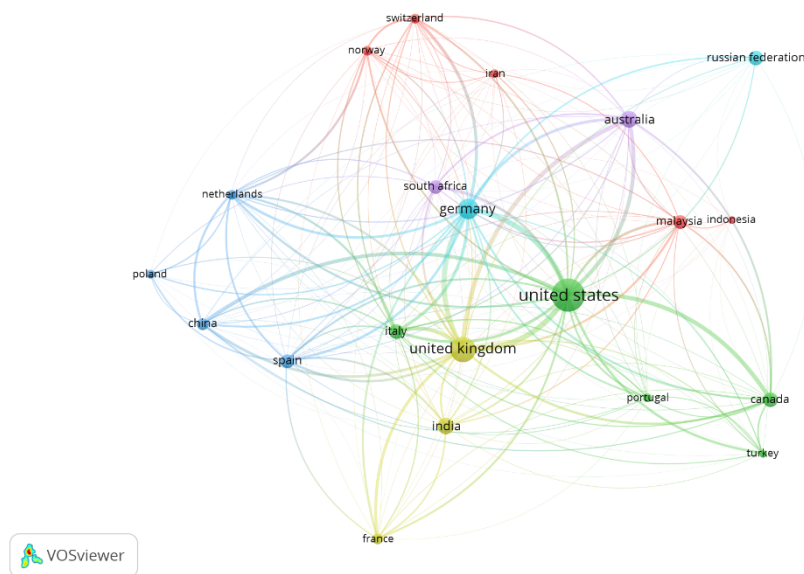
Figure 5. Country of Study Visualization in VOSviewer

According to the country visualization, it can be seen that all the country are interconnected. The bibliographical data shows the nodes and lines with its different colors that can be analyzed. The United States has the bigger size of the nodes since it become the most productive country in this study. Many countries refer to the US as their benchmark in writing journal articles. In contrast, Indonesia, being the country with the lowest publication count, has smaller nodes and distinct clusters compared to

the top five countries contributing to the area of study. This means that scholars in Indonesia should increase their publication regarding this research topic.

5. Discussion

Based on the analysis that have been carried out, this study obtains several findings. The network visualization analysis generates several keywords which are then grouped into clusters. The first cluster highlights the strong connection between physical activity and educational settings, while the second cluster underscores the psychological aspects of fitness engagement, pointing towards the importance of mental well-being in promoting a healthy lifestyle. The third one revolves around the factors which influence adolescent lifestyle choice and the implications for overall well-being. Furthermore, the fourth cluster focuses on fitness-related terms, and suggests potential areas for research into the physiological aspects of fitness, including risk factors and communication strategies. The last cluster hints at the societal and public health implications of fitness engagement.

In addition, the results of overlay visualization and network density reveal intriguing patterns in the usage of keywords over time. Keywords like *choice behavior, quality of life, risk factors, attitude to health, awareness,* and *perception* have gained recent attention, indicating evolving trends in the field. Conversely, perennial keywords such as *youth, training, young population, human,* and *exercise* continue to be central to the discourse. This dynamic landscape suggests a need for ongoing exploration of emerging topics while maintaining focus on enduring themes.

Analyzing the distribution of publications by country underscores the global significance of the topic. It can be inferred that the US has concerned these issues on the research topic of young generations with healthy life, mental issues, life style, and their awareness to do workout. In relation to marketing subject, the US may have already now that these issues become an opportunity for fitness business to attract young generation to do workout and go to the gym. American young generations have a healthy life style because they are doing workouts before or after their activities (Ruiz-Roso et al., 2020). On the other hand, countries like Poland, Portugal, Turkey, and Indonesia have fewer publications. Indonesia is still faced with the health problem especially in young generation (Efendi et al., 2019), yet it also present opportunities for increased research collaboration and knowledge exchange.

Theoretically, this study can initiate the growth number in scientific publication since this topic also become main interest recently. The identified clusters provide a foundation for developing theoretical frameworks that integrate education, psychology, adolescent development, fitness, and public health. The evolving keyword landscape also suggests the need for ongoing theoretical refinement to accommodate emerging concept such as choice behavior, social media influence, and perception. Practically, insights from this study can inform educational institutions about the symbiotic relationship between academic settings and physical activity,

prompting the development of holistic programs. Additionally, the emphasis on psychological aspects calls for tailored interventions that consider the mental well-being of individuals engaging in fitness activities. Furthermore, fitness industry stakeholders can leverage findings related to the risk factors and communication strategies to enhance the program effectiveness.

While this study provides valuable insights, several limitations should be acknowledged. The focus on open-access articles from the Scopus database may limit the understanding of the existing literatures that are not included. Furthermore, the 10-year temporal scope of 2014-2023 might not capture the whole development of the study. Future scholars are suggested to consider exploring subscription-based journals for a more comprehensive view, and aim for a more diverse dataset to enhance the robustness of conclusions.

6. Conclusions

This study uses bibliometric analysis to examine the publication trends in 2014-2023 of young generations and gym as the keyword search. The specific keywords with string are used to obtain relevant articles from the Scopus database. It discovered 1.593 document articles related to this research topic after the data mining. The publications are increasing in the number with the most recent research interest. The findings of the analysis are derived from the data obtained through the utilization of VOSviewer software for visualization purposes. The data are collected from various scientific disciplines and research topic with the relationship of the researchers all over the world. This study also configures and visualize trend of publication based on published literature systematically with the analysis of bibliometric approach. There are some keywords identified in this bibliometric analysis that is useful for determining the novelty of the research.

In the analysis of the research keywords, it has resulted in the identification of five distinct clusters. This suggests that there are five groups of related keywords in the research area. The keywords can help future scholars to analyze the idea of the study that will be conducted. It also have major implications for scholars and the gym business industry, particularly those who are concerned with the health of younger generations. These results can be used as an insight for future research, guiding scholars towards the most recent and relevant areas based on the occurrence the keywords usage. In conclusion, these insights can provide valuable knowledge contributions to a variety of research subject area. Academics or scholars can leverage this information as guidelines in conducting their studies. Entrepreneurs or business owners especially in health and fitness industries can understand market trends and marketing strategy to be develop especially for young generation market target. This knowledge insight can spur further study in promoting healthy life style for young generations.

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