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Navigating the river of knowledge: two decades of unraveling global trends in adolescent well-being research

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ABSTRACT

This study examines the global issue of adolescent well-being by conducting a bibliometric analysis of 1,162 publications from the Scopus database, covering the period from 2003 to March 2023. The research aims to identify the most influential contributors, including countries, authors, journals, and key topics, within the field of adolescent well-being. The findings reveal that the USA, the UK, and Italy are the most active countries in this area of research, indicating their strong focus on adolescent well-being issues. Leading authors such as Landsverks and Barth are recognized as highly influential contributors to the field, with their work being frequently cited. The study also highlights prominent academic journals, including Children and Youth Services Review, Child Abuse and Neglect, and Journal of Youth and Adolescence, which have emerged as key platforms for disseminating research on adolescent well-being. These journals have played a crucial role in shaping academic discourse, as evidenced by their high citation counts. In terms of research topics, the analysis identifies major themes such as contributing factors to adolescent well-being and interventions aimed at improving it. These topics have been the focus of extensive research, reflecting the global concern for understanding and addressing the challenges faced by adolescents. The study provides a detailed overview of the current trends in research on adolescent well-being, offering valuable insights for future studies. Overall, the findings contribute to the growing body of literature in this area and underscore the importance of continued research on adolescent well-being at a global level.

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1. INTRODUCTION

The concept of well-being is frequently employed to denote a condition characterised by happiness, physical health, and a sense of fulfilment [1]. Nevertheless, the task of defining well-being presents difficulties due to its potential variability across cultural, societal, and personal contexts [2]. There exists a divergence of perspectives regarding the nature of well-being. One viewpoint posits that well-being is a subjective phenomenon that eludes precise quantification or objective delineation. Conversely, an alternative standpoint asserts that well-being may be objectively ascertained by the fulfilment of specific criteria [3]. Based on the provided definitions, it can be inferred that the notion of well-being is intricately linked to notions of happiness, contentment, and satisfaction, hence rendering it a multifaceted and intricate concept.

Scholars continue to engage in ongoing discussions on the precise definition of well-being. The task of defining well-being presents a significant issue due to its frequent usage as a synonym for other concepts such as happiness, mental health, or quality of life [4]. Although commonly linked to pleasant feelings and happiness, well-being incorporates various more dimensions, including physical health, social relationships, and a sense of purpose in life [5]. Hence, it is vital to comprehend that the notion of well-being is multifaceted and cannot be simplified to a solitary dimension.

The accessibility of well-being is an important consideration, as it is not uniformly attainable by all individuals [6]. Various social determinants of health, including socioeconomic position, race, gender, and other factors, have been found to exert a significant impact on an individual's overall well-being [7]–[9]. This implies that the promotion of well-being necessitates the acknowledgment and rectification of structural inequities, as well as the establishment of social frameworks that facilitate the attainment of optimal health and fulfilment for all persons. Hence, a thorough and nuanced knowledge of well-being necessitates the consideration of various individual and societal elements that influence its outcomes.

Adolescent well-being is a multifaceted construct that includes the mental, emotional, social, physical, and cognitive health of people in the 10-19 age range [10]. Adolescence is a phase characterised by substantial developmental transformations that can exert various effects on the overall welfare of individuals [10]–[12]. Consequently, the promotion of adolescent well-being requires the implementation of a complete approach that takes into account the distinct needs and challenges encountered by individuals in this stage of development.

Physical health is a significant component of teenage well-being, as highlighted by Greenleaf *et al*. [13]. This encompasses various aspects, such as adequate diet [14], [15], physical activity [16], [17], and availability of healthcare services [18], [19]. Therefore, it is imperative to address these difficulties in order to promote optimal physical well-being, as adolescents are also vulnerable to many health risks like substance addiction, sexual health concerns, and mental health disorders. Hence, it is necessary to undertake an examination of past research patterns pertaining to the well-being of adolescents in order to provide researchers with enhanced comprehension for the purpose of conducting future investigations.

An abundance of research on the well-being of adolescents concentrated on particular areas. In their study, Barrow and Thomas [20] conducted a systematic literature review (SLR) to investigate the perceived barriers and facilitators associated with help-seeking for adolescent mental health. Tsangaris *et al.* [21] did a comprehensive qualitative study and SLR with the aim of identifying the specific types of supportive care required by adolescents experiencing critical illness. Izzo *et al*. [22] conducted a SLR to examine the impact of family functioning on the well-being of adolescents. Various methodologies have been employed in the examination of prior scholarly investigations pertaining to the well-being of adolescents. Lathen *et al.* [23], Valkenburg *et al*. [24], Vidal *et al*. [25], and Bozzola *et al*. [26] employ scoping review methodologies to examine prior research pertaining to the aforementioned topic. The majority of the research employed SLR and scoping review methodologies to examine the existing body of knowledge. Moreover, numerous studies have assessed the impact of specific elements on the well-being of teenagers. Upon conducting our evaluation, it has become apparent that there is a necessity to provide a bibliometric analysis of the well-being of teenagers sourced from a reputable database.

In contrast to previous studies that examined specific contributing elements and utilised various approaches, this study offers a fresh contribution by conducting a systematic and contemporary analysis to advance our understanding of teenagers' well-being. This paper specifically focuses on addressing the following research questions:

- RQ1: what is the trend of research on adolescents' well-being published within 20 years to date?
- RQ2: which countries contribute significantly to the study of adolescents; well-being?
- RQ3: who are the most prolific authors on adolescents' well-being research?
- RQ4: what are the most influential publications on adolescents' well-being?

Bibliometric methods are employed to evaluate written articles within a particular discipline by means of quantitative analysis. The aforementioned approaches include informetrics [27], [28], scientometrics [29], and webometrics [30], with bibliometrics being the predominant method utilised in research. Statistical methodologies are frequently employed to analyse bibliographic synopses of scholarly articles, with a particular emphasis on discerning the prevailing patterns of publication across expansive or niche fields of study. The examination of these analyses may encompass the examination of geographical or institutional factors [31], [32], performance indicators [33], subject domains [34]–[36], as well as diverse forms of literature and authorship [37]. The analysis encompasses a wide range of material categories, such as journal articles, books, theses, patents, and reports.

Recent technological advancements have significantly enhanced the efficiency of report manufacturing. Reference-handling capabilities have been integrated into databases such as Web of Science, Scopus, and Google Scholar, facilitating improved accessibility to pertinent sources [38]. Furthermore, it is worth noting that there are commercial platforms available, such as Scival and InCites, which provide

sophisticated analytical tools, hence enhancing the potential for comprehensive study. Various specialized software tools, like Gephi [39], HistCite [40], and "Publish or Perish" [41], offer a range of metrics and quantitative normalization processes. The process of acquiring data for bibliometric methodologies frequently encompasses the utilization of content or citation analysis [30]. The implementation of computerized data processing has undoubtedly improved the efficacy of these techniques, resulting in a substantial increase in the number of publications in recent times [30].

Nevertheless, it is crucial to engage in a critical assessment of the dependence on these technical breakthroughs. The increased accessibility of diverse databases and software has undoubtedly enhanced the efficiency of information retrieval and analysis. However, it is imperative to acknowledge and address the inherent limits and biases that may be present in these technologies. The variability in quality and comprehensiveness of the data contained in these databases, along with the potential limitations in their algorithms for reference-handling and metrics calculation, can result in an incomplete and subjective portrayal of the research landscape. In addition, the growing dependence on computerised data processing gives rise to apprehensions pertaining to the quality of data, potential inaccuracies, and the researcher's comprehension of the underlying statistical assumptions.

To further assure statistical reliability, the recommendation to use a high number of data sets—more than 500 raises concerns over the viability and usefulness of this strategy. Although larger datasets have the potential to yield more reliable findings, researchers in niche or specialised domains may have difficulties in accessing and obtaining such extensive datasets. Hence, it is necessary to exercise prudent deliberation in order to achieve a harmonious equilibrium between the volume and calibre of data, thereby guaranteeing the attainment of significant and reliable findings in bibliometric investigations.

While conducting bibliometric research over a long period, it is crucial to carefully evaluate temporal variations and anomalies while selecting a starting year and gathering citations. According to the findings of Gu and Blackmore [42], and Mabe and Amin [43], there has been an observed annual increase rate ranging from 3.3% to 4.7% in the quantity of active scientific journals from the year 1900 to 1996. Prominent researchers, like Jayaratne and Zwahlen [44], Pilkington and Meredith [45], Maflahi and Thelwall [46], Fu and Ho [47], and Luna-Morales *et al*. [48], acknowledge the inherent value of employing bibliometric analyses to explore the dynamic research influence of journals, disciplines, authors, or countries.

When undertaking bibliometric studies that encompass many years, it is advisable to determine the starting year by considering notable modifications in the bibliometric database being used or by selecting the earliest year that contains a satisfactory quantity of indexed articles, unless specific research inquiries impose limitations. Nevertheless, it is important to acknowledge that there may be difficulties in retrieving specific data elements, such as limited fields, average citation counts, and the accessibility of abstracts, through the web interfaces of citation indexes. Hence, it is imperative for researchers to evaluate the temporal attributes of bibliometric databases in order to make well-informed choices on the commencement of their studies [44].

The utilisation of bibliometric research, especially when analysing long-term patterns, can potentially create biases that necessitate careful consideration and mitigation. The phenomenon of an expanding quantity of active scientific journals over time, as elucidated by Gu and Blackmore [42] and Mabe and Amin [43], has the potential to result in an excessive focus on recent publications, possibly resulting in the oversight of earlier nevertheless impactful studies. The presence of bias has the potential to distort the comprehension of research impact, leading to the neglect of past contributions and the preference for more recent research. In addition, the selection of the initial year for analysis, which is determined by database modifications or the availability of indexed articles, may unintentionally disregard significant older research that was not incorporated due to restrictions in indexing or the establishment dates of databases. Failure to consider earlier papers can result in incomplete analysis and an inadequate portrayal of the research landscape. From our perspective, it is imperative for researchers to do a thorough examination of the potential biases that may arise due to the proliferation of journals, limits in databases, and obstacles in accessing data. It is imperative to exercise caution and thoughtfulness in achieving a harmonious equilibrium between contemporary and past scholarly investigations. Additionally, conscientious endeavours should be undertaken to mitigate the influence of any inherent biases in the selection process when utilising bibliometric data. In addition, it is imperative to conduct further investigation and refinement of methodology in order to effectively mitigate the biases and limits inherent in bibliometric analyses, hence enhancing the overall reliability and validity of such studies.

According to recent studies conducted by Martín-Martín *et al*. [49], Singh *et al*. [50], and Thelwall [51], it has been found that Scopus provides a broader scope of coverage in terms of academic literature in comparison to Web of Science (WoS) and CrossRef open DOI-to-DOI citations. Nevertheless, it lags behind Google Scholar and Microsoft Academic in terms of its extent of coverage. The reason for the restricted presence of non-English journals in both Scopus and WoS can be linked to the rigorous indexing criteria implemented by Scopus, as highlighted by Mongeon and Paul-Hus [52]. The objectives of WoS and Scopus diverge, since WoS seeks to curate a well-rounded collection of journals for the purpose of assessing

impact, whereas Scopus prioritises a broader array of publications to facilitate information retrieval. Discrepancies in the amount of indexed articles from the same journals may arise in databases, even though they share coverage, owing to errors or classification criteria [35]. While Dimensions offers complimentary support to researchers, Scopus continues to be the most extensive citation index with quality control measures in place. Additionally, Scopus encompasses a broader time range compared to Dimensions or WoS Core Collection, rendering it a suitable option for conducting long-term studies. Therefore, the Scopus database was chosen for this investigation, taking into consideration the aforementioned comparison.

2. METHOD

The present study conducted a bibliometric analysis on the publications obtained from the Scopus science database, which has been widely employed in prior research on scientific journals, books, and conference proceedings (e.g., Faruk *et al*. [53]; Kipper *et al*. [54]; and Malanski *et al*. [55]). Scopus enables users to access 43 distinct data categories pertaining to research publications via its Search, Discover, and Analyse functionalities. These fields encompass many aspects such as source title, abstract, author keywords, year of publication, study area, affiliation, and document format. The Scopus platform is widely acknowledged in academic circles as a comprehensive curated database, as evidenced by the studies conducted by Singh *et al*. [50] and Leydesdorff *et al*. [56]. As per the updated Scopus content coverage guide released in August 2020, the database encompasses an extensive collection of over 1.7 billion cited references. This vast compilation establishes Scopus as a comprehensive repository, offering a wealth of information pertaining to the global landscape of scientific research endeavours.

A bibliometric analysis was conducted in March 2023 via the Scopus database. A search query was performed in the Scopus database to identify pertinent publications on the topic of adolescent well-being in any language. The query utilised the search term "adolescent's well-being" within the title field. In order to enhance the relevance of the identified publications to the central theme of teenagers' well-being and mitigate the risk of a substantial decrease in the number of publications, a search strategy focused solely on titles was implemented. This approach was chosen due to the pivotal role that titles play as the initial point of contact for readers [57]. The search approach employed in this study is illustrated in Figure 1, resulting in the retrieval of an initial sample of 1,162 publications.

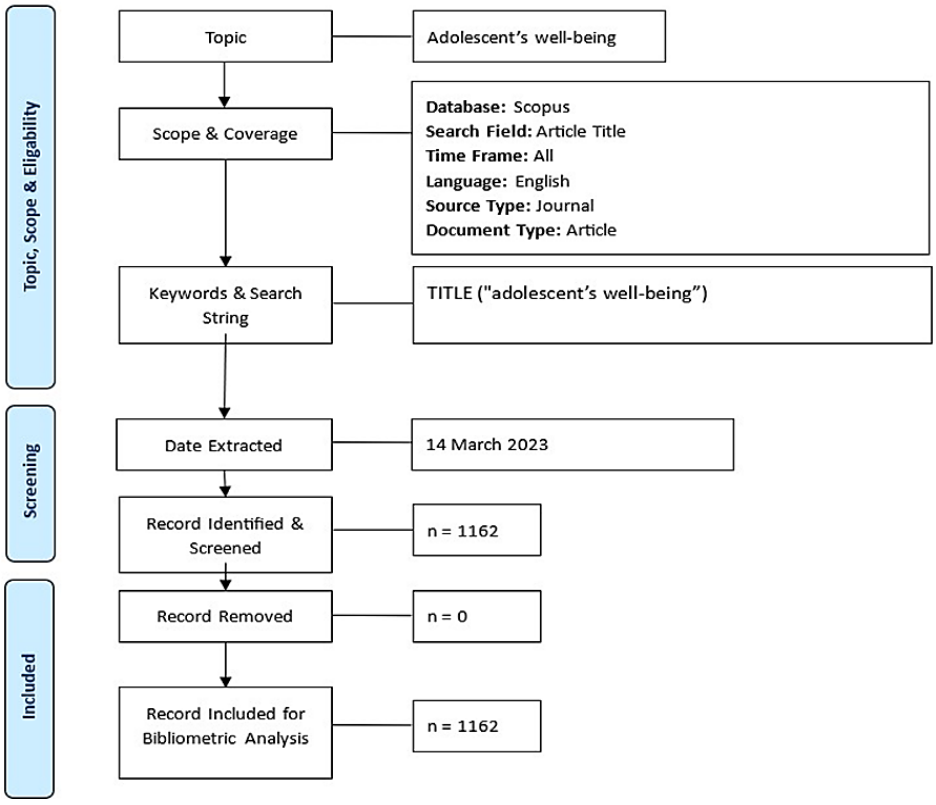


Figure 1. Flow diagram of the search strategy

In order to look into trends in publications (RQ1), countries (RQ2), publications (RQ3), sources (RQ4), and keywords (RQ5) in adolescent well-being research, we analysed the performance of bibliometric studies in this study. The software programme Microsoft Excel was employed to produce graphical representations and do calculations pertaining to the frequency and proportion of individual publications. Additionally, citation metrics were computed using Harzing's Publish and Perish application. In order to augment the investigation, the researchers utilised VOSviewer (version 1.6.18), a freely available software application, to conduct a scientific mapping analysis. This tool pulls citation and bibliographic data to visually represent the patterns of co-authorship and co-citation among authors. The technique was additionally employed to map the intellectual framework of teenage well-being by means of keyword co-occurrence analysis and bibliographic coupling analysis of documents.

3. RESULTS AND DISCUSSION

In this section, we explain the research we conducted to figure out the trend of publications specifically about adolescents' well-being based on the Scopus database. This study exclusively examines a period of 20 years encompassing publications from 2003 to 2023. In the year 2003, a total of six publications were identified.

3.1. Trends in publication

Publications on the well-being of adolescents are displayed in Figure 2. Subsequently, there is a gradual rise in the publication of research pertaining to the well-being of teenagers, culminating in the year 2006. Regrettably, there was a decline in the quantity of publications in the year 2004. The upward trajectory of publishing rates persisted from 2008 to 2009. However, the data from 2010, 2011, and 2012 indicates that there was no significant change in the pattern. There was a total of fifty publications per year throughout that specific time frame. The phenomenon of adolescent well-being publication began to gain traction in 2013. This phenomenon demonstrates the level of public consciousness regarding this matter. The apex of publication is evident in 2022, particularly in the aftermath of the Covid-19 pandemic. The year 2022 witnessed a significant increase in the number of publications, with a total of 125 articles. This surge in publications may be attributed to a notable growth of 30% in research focused on teenage well-being, as compared to the preceding year, which saw a total of 96 articles. In the span of time ranging from 2003 ($n = 6$) to 2022 ($n = 134$), there was a notable surge in scholarly investigations pertaining to the subject of teenage well-being, with a growth rate of 213.3%.

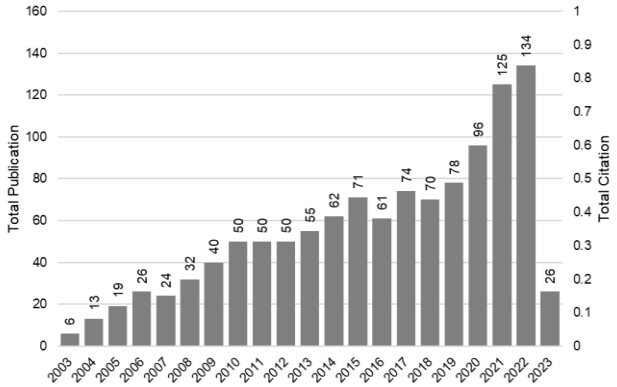


Figure 2. Total publications and citations by year

The primary objective of this study is to ascertain the origins of publications pertaining to the well-being of adolescents through an analysis of language data and document classifications. Table 1 presents a comprehensive overview of the several types of documents in which publications pertaining to the topic of teenage well-being have been disseminated. The predominant form of publication within the dataset consists of journal articles, accounting for 1,047 articles, which represents 90.10% of the total number of documents. The distribution of publications in the dataset includes articles (n = 47, 4.04%), review papers (n = 41, 3.53%), book chapters (n = 7, 0.60%), erratum (n = 6, 0.52%), conference papers (n = 5, 0.43%), books (n = 5, 0.43%), notes (n = 3, 0.26%), editorial (n = 1, 0.09%), and conference review (n = 1, 0.09%). Each of the aforementioned publications, namely erratum, conference paper, book, note, editorial, and conference review, constituted a minority portion, accounting for less than 1% of the total number of papers. According to the data presented in Table 2, it can be observed that a significant majority of teenage well-being articles,

specifically 98.45% (n = 1146), were composed in the English language. This finding suggests that English is the preferred language for scholarly investigations pertaining to this particular area of study.

Table 1. Document types

Document type	Total publications	Percentage (%)
Article	1,047	90.10
Review	47	4.04
Book chapter	41	3.53
Erratum	7	0.60
Conference paper	6	0.52
Book	5	0.43
Note	5	0.43
Editorial	3	0.26
Conference review	1	0.09
Total	1,162	100.00

Table 2. Languages

Language	Total publications	Percentage (%)
English	1,146	98.45
Spanish	6	0.52
Italian	4	0.34
Portuguese	3	0.26
Chinese	1	0.09
Polish	1	0.09
Russian	1	0.09
Slovak	1	0.09
Slovenian	1	0.09
Total	1,162	100.00

3.2. Publication by countries

Table 3 presents a comprehensive overview of the top 20 nations that have made significant contributions to the field of adolescent well-being research over a span of 20 years. The United States secured the top position with a percentage of 60.07%, while the United Kingdom followed closely with 6.02%. Italy, the Netherlands, Australia, Spain, and Canada also made notable contributions, accounting for 4.56%, 4.22%, 3.53%, 3.36%, and 3.27% respectively. The remaining 13 countries exhibited publication rates of less than 3%. The five highest-ranking countries were geographically distributed across three different continents, namely North America, Europe, and Oceania. The findings indicate that the well-being of adolescents is a prevalent issue on a global scale. Overlay visualization of the co-authorship by countries shown in Figure 3.

Table 3. The top 20 countries contributed to the publication.

Country	Total publications	Percentage (%)	Continent
United States	698	60.07	North America
United Kingdom	70	6.02	Europe
Italy	53	4.56	Europe
Netherlands	49	4.22	Europe
Australia	41	3.53	Oceania
Spain	39	3.36	Europe
Canada	38	3.27	North America
China	30	2.58	Asia
Hong Kong	27	2.32	Asia
Belgium	26	2.24	Europe
Germany	26	2.24	Europe
Finland	25	2.15	Europe
Portugal	22	1.89	Europe
Israel	18	1.55	Asia
South Africa	17	1.46	Africa
Sweden	16	1.38	Europe
Poland	14	1.20	Europe
Ireland	13	1.12	Europe
South Korea	13	1.12	Asia
Switzerland	13	1.12	Europe

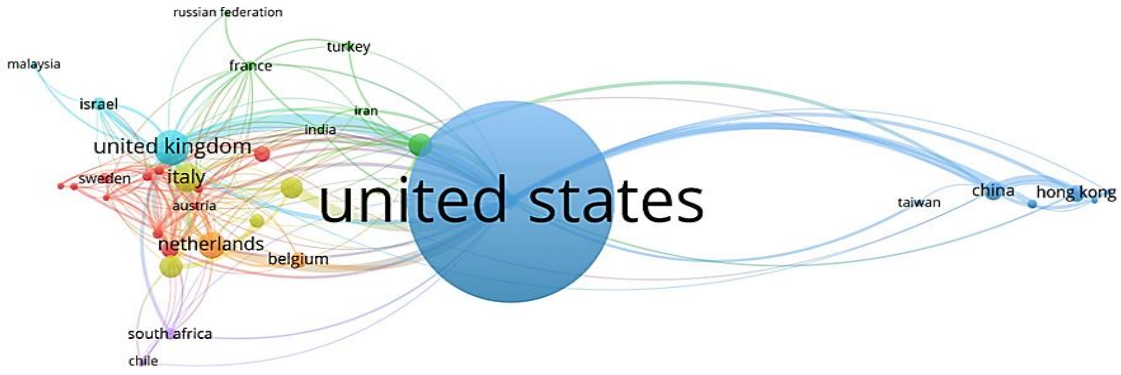


Figure 3. Overlay visualization of the co-authorship by countries

3.3. Publication by authors

Donthu *et al*. [58] conducted an analysis on co-authorship, focusing on the formal collaborations among nations involved in the research of adolescents well-being. The findings of this analysis have significantly enhanced comprehension of the interrelationships between nations and the valuable insights derived from this field of study. Moreover, our analysis has the potential to foster further scholarly investigation in places that are currently underrepresented. VOSviewer was employed as a tool to generate a visual depiction of the collaborative efforts. The findings indicate that the United States had the highest level of engagement in publishing research on adolescents' well-being throughout the initial phases, with notable associations observed between the United States, Iran, and India. Nevertheless, the United States has emerged as the most cooperative nation. In recent times, authors have broadened their collaborative efforts to encompass the countries of Netherlands, Austria, and Belgium, as denoted by the yellow node.

In general, the utilisation of co-authorship analysis and the visualisation of collaborations has facilitated the identification of the breadth of collaborative efforts among writers within particular affiliated nations across several continents. The provided material holds significant value for academics and policymakers seeking to comprehend the worldwide scope of research pertaining to the well-being of adolescents, as well as to ascertain prospective opportunities for international cooperation. Nevertheless, it is crucial to acknowledge that the examination of co-authorship alone offers insights into formal collaborations, potentially overlooking any informal collaborations that might be present.

Table 4 displays a compilation of the most productive scholars who have made significant contributions to the body of literature about the well-being of adolescents. It is important to highlight that the individuals featured in this list are only authors who have achieved a minimum publication count of 10, indicating their recognition as experts in this particular field. Landsverk, J, a researcher affiliated with the Child and Adolescent Services Research Centre at Rady Children's Hospital in the United States, has demonstrated exceptional productivity as an author, with a total of 31 publications to their credit. Barth, R.P. of the University of North Carolina in the United States and Zhang, J. of the Child and Adolescent Services Research Centre, Rady Children's Hospital in the United States are both ranked in the second and third positions, respectively, on the list. They have made significant contributions to the field with 29 and 26 publications apiece.

Considering the substantial contributions of these experts, who have devoted their endeavours to the investigation of adolescent's well-being, holds paramount importance. The authors' long publication records indicate a substantial depth of knowledge and expertise in this field, rendering them ideal assets for future investigations pertaining to this subject matter. Additionally, it is important to acknowledge that their study possesses the capacity to provide insights for policy development and intervention initiatives targeting the prevention and resolution of well-being concerns within educational institutions. This is of utmost significance as it directly impacts the academic achievements of students.

Table 4. Top ten authors contributing to adolescent well-being

Author name	Affiliation	Country	TP	NCP	TC	C/P
Landsverk, J.	Child and Adolescent Services Research Center, Rady Children's Hospital	United States	31	31	3136	101.16
Barth, R.P.	University of North Carolina	United States	29	29	2814	97.03
Zhang, J.	Child and Adolescent Services Research Center, Rady Children's Hospital	United States	26	26	1733	66.65
Hurlburt, M.S.	University of Southern California	United States	21	21	1422	67.71
Yoon, S.	The Ohio State University	United States	19	17	202	10.63
Leslie, L.K.	Child and Adolescent Services Research Center, Rady Children's Hospital	United States	18	18	1611	89.50
Casanueva, C.	RTI International	United States	14	13	428	30.57
Helton, J.J.	St. Louis University	United States	14	11	77	5.50
Kohl, P.L.	Washington University	United States	14	14	669	47.79
Raghavan, R.	Washington University	United States	14	14	483	34.50

Notes: The authors of the top contributing authors with more than five published articles on adolescent well-being. TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication.

3.4. Publications by source titles and documents

Within the context of research on the well-being of adolescents, a comprehensive compilation has been made of the leading ten academic publications that have published a minimum of five works categorised as articles as shown in Table 5. The analysis has been narrowed down to a total of 1,047 papers. It is noteworthy to mention that the journal Children and Youth Services Review has emerged as the most prolific source, accumulating an impressive 2,331 citations. The topic of child abuse and neglect ranks second in terms of scholarly publications, with a total of 71 articles and 2,318 citations. The Journal of Youth and

Adolescence follows closely behind with 1,002 citations. The Journal of Adolescence and the Journal of Child and Family Studies have a combined total of 25 citations, with n=840 and n=309 citations, respectively. The aforementioned statistics unequivocally indicate that the journals Children and Youth Services Review, Child Abuse and Neglect, and Journal of Youth and Adolescence are the three most often referenced publications in the field of research pertaining to the well-being of adolescents.

Table 5. 10 most active source titles

Source title	TP	TC	Publisher	Cite score	SJR 2021	SNIP 2021
Children and Youth Services Review	105	2,331	Elsevier	3.3	0.803	1.229
Child Abuse and Neglect	71	2,318	Elsevier	5.9	1.69	2.171
Journal of Youth and Adolescence	34	1,002	Springer Nature	6.7	1.716	2.194
Journal of Adolescence	25	840	Wiley-Blackwell	5.5	1.235	1.655
Journal of Child and Family Studies	25	309	Springer Nature	3.5	0.842	1.299
Child Indicators Research	23	420	Springer Nature	3.4	0.725	1.079
Child Maltreatment	22	878	SAGE	4.3	0.923	1.566
Frontiers in Psychology	19	209	Frontiers Media S.A.	4	0.873	1.605
International Journal of Environmental Research and Public Health	19	138	MDPI	4.5	0.814	1.44
Journal of Interpersonal Violence	14	100	SAGE	4.5	0.908	2.529

Notes: total number of publications; TC = total citations; CiteScore = average citations received per document published in the source title; SJR = SCImago Journal Rank measures weighted citations received by the source title; SNIP = source normalised impact per paper measures actual citations received relative to citations expected for the source title's subject field.

Table 6 is an in-depth review of the ten most influential scholarly documents in the field of teenage well-being research. It is noteworthy to mention that the article with the highest number of citations, amounting to an astonishing 862, is a research-based study conducted by Burns *et al*. [59]. The study focuses on the mental health requirements and the availability of mental health treatments for young individuals engaged with child welfare, as determined through a nationwide survey. Kolh *et al*. [60] conducted a study utilising data from the National Survey of Child and Adolescent Well-being to examine potential disparities in recidivism rates between verified and unproven instances of child maltreatment. This article, which has received 285 citations, holds the second highest citation count among relevant scholarly publications. The study authored by Hulburt *et al*. [61] investigates the contextual factors that influence the utilisation of mental health services among children who are involved in the child welfare system, ranking it as the third most frequently referenced publication. This study posits that the provision of specialised mental health services could potentially yield benefits for younger children and individuals who continue to reside in their own homes. In general, the aforementioned studies underscore the significance of mental health services for children who are considered vulnerable, emphasising the necessity for further investigation in order to enhance their accessibility to such services.

Table 6. Top 10 highly cited articles

No	Authors	Title	Total citation	Cites per year
1	Burns, *et al*. [59]	Mental health need and access to mental health services by youths involved with child welfare: a national survey	862	45.37
2	Kolh, *et al*. [60]	Time to leave substantiation behind: findings from a national probability study	285	20.36
3	Hulburt, *et al*. [61]	Contextual predictors of mental health service use among children opento child welfare	219	11.53
4	Stahmer, *et al*. [62]	Developmental and behavioral needs and service use for young children in child welfare	208	11.56
5	Kerker, e*t al*. [63]	Adverse childhood experiences and mental health, chronic medical conditions, and development in young children	173	21.63
6	Jaffee, et*.al*. [64]	Effects of chronic maltreatment and maltreatment timing on children's behavior and cognitive abilities	168	14
7	Leslie, e*t al*. [65]	Outpatient mental health services for children in foster care: a national perspective	163	8.58
8	Hazen, e*t al*. [66]	Intimate partner violence among female caregivers of children reported for child maltreatment	148	7.79
9	Barth, e*t al*. [67]	Placement into foster care and the interplay of urbanicity, child behavior problems, and poverty	133	7.82
10	Aarons, e*t al.*[68]	Behavior problems and placement change in a national child welfare sample: a prospective study	130	10

3.5. Discussion

Adolescent well-being encompasses the comprehensive physical, mental, and emotional health of persons between the age range of 10 to 24 years. The concept incorporates a wide range of components, such as both physical and mental well-being, socio-economic circumstances, the availability of healthcare services, and the likelihood of engaging in risky behaviours such as substance misuse, sexual activity, and violence [12], [69]. The prioritisation of understanding and promoting the well-being of adolescents is critical in offering assistance to young folks during this pivotal period of growth and guaranteeing they possess the essential means to flourish. The field of adolescent well-being research investigates a wide range of issues that have the potential to impact the physical and mental health, as well as the general state of well-being, among individuals in their youth. These determinants involve various dimensions, including social and economic considerations, familial and peer relationships, access to healthcare, and engagement in dangerous behaviours. It is imperative to acquire a more profound comprehension of these variables and their influence on the well-being of adolescents in order to facilitate the formulation of efficacious interventions and policies aimed at providing assistance to young individuals during this critical phase of their development.

Understanding the study trends pertaining to the well-being of adolescents is essential for effectively responding to the changing requirements of young individuals within our societal context [70]. As the understanding of the determinants influencing the health and well-being of adolescents broadens, it facilitates the formulation of more precise policies and interventions that aptly bolster them during this pivotal stage of growth. The examination of study patterns pertaining to the well-being of adolescents holds great importance in light of the dynamic requirements of young individuals within contemporary society [71]. These modifications arise as a result of cultural shifts that present novel obstacles for young individuals to handle. One such instance is the advent of social media and digital technology, which have given rise to new vulnerabilities such as cyberbullying and online harassment. In order to adequately confront these dynamic hazards, it is imperative to engage in continuous research and foster joint endeavours to facilitate the formulation of successful measures.

Moreover, conducting a comprehensive analysis of research patterns pertaining to the well-being of adolescents is essential in establishing a fundamental basis for acknowledging and comprehending the notable discrepancies that prevail in health outcomes and the availability of healthcare services among the youth population. The identification of these discrepancies is an essential preliminary measure in the development of focused and efficient treatments aimed at mitigating them. In order to develop effective methods that foster equity in teenage well-being, it is crucial to possess a complete comprehension of the fundamental causes and contributing variables that give rise to these differences.

It is crucial to recognise and acknowledge the differences in health outcomes and access to care among teenagers for a number of reasons. To begin with, the presence of disparities in health outcomes serves as evidence of the unequal allocation of resources and opportunities, hence emphasising the necessity of implementing focused interventions to address and correct these inequities. Adolescents hailing from marginalised or underprivileged backgrounds frequently encounter heightened obstacles in attaining optimal well-being as a result of diverse institutional and socio-economic issues. Through the analysis of research patterns, useful insights can be obtained into the specific areas and domains in which disparities continue to exist. This enables us to concentrate our efforts on addressing these gaps and promoting equitable access to resources and support.

Gaining a comprehensive understanding of the underlying factors contributing to these differences is of utmost importance in formulating efficacious intervention methods. To fully understand the elements that impact the well-being of adolescents, it is necessary to adopt a holistic approach that delves into the complex dynamics between several social determinants. These determinants encompass socioeconomic position, education, healthcare accessibility, and cultural influences. By examining the complicated interplay among these aspects, a more thorough understanding of young adults' well-being may be achieved. One example of a possible contributing factor to variances in health outcomes is socioeconomic disparities. Individuals from lower socio-economic origins may experience higher rates of health problems and face limited access to adequate healthcare. Through an in-depth exploration of research patterns, it is possible to identify the fundamental mechanisms that sustain these discrepancies. This knowledge may then be utilised to guide the creation of focused interventions that aim to effectively address the distinct requirements of marginalised or underserved communities.

Furthermore, adopting a comprehensive strategy to tackle gaps in the well-being of adolescents is crucial in advancing fairness and guaranteeing that all young individuals have equal opportunities to receive the essential resources and assistance needed for their overall growth and development. This strategy goes beyond the scope of healthcare access and encompasses other facets of well-being, such as mental health, social support, education, and avenues for personal development. By placing equity at the core, interventions can be formulated to account for the distinct requirements and situations of many demographic groups,

encompassing racial and ethnic minorities, LGBTQ+ youth, those with impairments, and individuals from socioeconomically lower socioeconomic backgrounds.

Nevertheless, it is crucial to recognise that the task of tackling inequities in the well-being of adolescents is a broad and intricate undertaking. The successful implementation of this endeavour necessitates a collective endeavour encompassing researchers, policymakers, healthcare practitioners, educators, and community stakeholders. In order to achieve meaningful outcomes, interventions must transcend superficial remedies and address the underlying systemic factors that sustain inequities, including structural disparities, discriminatory practises, and limited access to resources. The assessment of interventions and their efficacy in mitigating inequities holds significant importance in guaranteeing responsibility and ongoing enhancement.

Moreover, the examination of contemporary research patterns pertaining to the well-being of adolescents can facilitate the identification of nascent areas of necessity and potential obstacles that may manifest. Recent research has brought attention to the significance of mental health care for adolescents, particularly those who have encountered traumatic events or other adverse circumstances. As scholars delve deeper into comprehending the various determinants influencing the mental well-being of adolescents, the potential arises for the formulation of more efficacious approaches to prevent and address mental health issues. Additionally, this knowledge can facilitate the provision of assistance to young individuals grappling with mental health challenges.

In addition to employing a SLR and a scoping review, the utilisation of a bibliometric research method presents a feasible strategy for examining research patterns pertaining to the well-being of adolescents. Bibliometric research is a methodological approach that entails the examination and analysis of scholarly literature, citation behaviours, and collaborative networks with the aim of discerning prevailing patterns and nascent study domains. This methodology presents the opportunity to discern the most influential scholarly investigations pertaining to the domain of teenage well-being, as well as the prominent authors and publications associated with such study, and the collaborative relationships and networks established among academics. Consequently, bibliometric methodologies have the capacity to yield valuable insights regarding the patterns and developments in scholarly investigations pertaining to the well-being of adolescents, thereby furnishing valuable counsel for forthcoming study endeavours and policy initiatives. One notable benefit of employing bibliometric analysis is in its ability to unveil the most influential authors and publications within the realm of teenage well-being. Additionally, this method allows for the identification of key themes and research areas that have emerged over the course of time. This information possesses the potential to assist researchers in identifying existing gaps in knowledge, guiding future research endeavours, and facilitating the implementation of successful solutions. Additionally, bibliometric research has the potential to aid in the identification of prospective topics for collaboration among academics and institutions, hence fostering increased collaboration and the dissemination of knowledge.

This critical scholarly investigation has centred on a comprehensive collection of 1162 publications obtained from the Scopus database. The specific focus of this study is the examination of research pertaining to the well-being of adolescents, spanning a duration of 20 years from 2003 to 2023. The data extraction was performed on the 14th of March, 2023. The results of our study indicate a notable increase in scholarly interest in the field of teenage well-being, with a special emphasis on the period spanning from 2018 to 2022. The data presented in this study is exclusive to articles documented in 2023, as the investigation was completed in March of that year. However, we expect a sustained rising trajectory in publications within this particular subject. It is postulated that the period following the Covid-19 pandemic has engendered an increased emphasis among scholars on investigating the domains of well-being and mental health, owing to the substantial influence it has exerted on the younger population.

The United States has significantly dominated the list of top 20 countries engaged in partnership, representing a substantial proportion of 60.07%. The United Kingdom and Italy are ranked second and third, respectively, with percentages of 6.02% and 4.56%. The VOSviewer overlay provides a visually captivating depiction of this collaboration. During the initial phases of the collaboration, the United States emerged as the most prominent participant, forging connections with the United Kingdom, China, Hong Kong, and Taiwan. The United States might be seen as the most collaborative nation without a doubt. In recent times, commencing from the year 2018, authors have engaged in collaborative efforts with the countries of Netherlands, Belgium, Austria, and Sweden. The collaborations encompass multiple countries, showcasing a diverse blend of cultural interchange. However, in order to acquire a more profound comprehension of this phenomenon and to contribute to educational policy and practise, it is imperative to do study in nations that are underrepresented in the existing body of literature. Given the global significance of teenage well-being, it is imperative to develop a complete comprehension of this domain.

A co-citation analysis was done to address the third research question, which sought to identify the writers with the highest publication output on the topic of adolescent's well-being. Co-citation analysis is a

commonly employed technique utilised to ascertain the prominence of writers within a specific study domain, determined by the frequency with which they are mentioned alongside other authors. The findings of this research indicate that John Landsverk and Richard Barth are the writers with the highest publication output in the domain of teenage well-being, with Jinjin Zhang ranking third in terms of productivity. John Landsverk and Jinjin Zhang are prominent researchers in the field of child and adolescent well-being, currently affiliated with the Child and Adolescent Services Research Centre located in San Diego, United States. Richard Barth is widely recognised as a prominent authority in various domains of social inquiry, encompassing social work education, adoption, foster care, and child welfare. The aforementioned findings present significant insights to readers, facilitating a comprehensive comprehension of the eminent scholars in the domain of teenage well-being.

The determination of the most productive writers in the field of adolescent's well-being research holds considerable importance for academics with a vested interest in this domain. This aids individuals in the identification of possible collaborators, acquisition of ideas from established scholars, and discovery of seminal works for further reference. Additionally, this study helps to the advancement of scholarly understanding in the domain of teenage well-being by shedding light on the prominent figures who have made noteworthy contributions to the body of research. Hence, our findings hold substantial significance for academics and politicians with a vested interest in enhancing the welfare of teenagers. In our study, we have also conducted an analysis to determine the most productive sources and the most highly cited document within the realm of adolescent well-being research. The journals that emerged as the most productive sources in this field include children and youth services review, child abuse and neglect, Journal of Youth and Adolescence, Journal of Adolescence, and Journal of Child and Family Studies. Moreover, the publication with the highest number of citations on the topic of adolescent well-being is a research study conducted by Burns *et al*. [59], which is closely followed by the works of Kohl *et al*. [60] and Hurlburt *et al*. [61]. All of the research investigations were carried out within the geographical boundaries of the United States. Based on the findings, it is recommended that additional research be undertaken in developing nations, including Malaysia, Singapore, Indonesia, Thailand, and other countries in the Asian region.

4. CONCLUSION

In brief, this study provides a thorough and in-depth examination of the prevailing research patterns pertaining to the well-being of adolescents, utilising a significant corpus of published literature. The significant rise in the quantity of articles in this particular domain highlights the escalating attention and acknowledgment of the significance of understanding the well-being of adolescents. This study presents noteworthy collaborations among notable writers and countries, like Landsverks and Barth from the United States and the United Kingdom, which demonstrate a strong level of engagement. These collaborations offer favourable prospects for researchers from many nations to cultivate their combined efforts in the field of adolescent well-being. Additionally, the results provide insight into the journals that are most active and have received high citation counts in this particular field. Notably, these include The Children and Youth Services Review, Child Abuse and Neglect, and Journal of Youth and Adolescence.

Moreover, this study elucidates nascent domains of inquiry that explore diverse facets of teenage well-being, encompassing the analysis of influential determinants and the formulation of interventions designed to foster well-being. These emerging fields offer exciting opportunities for future study efforts, motivating scholars to further explore these areas in order to further our comprehension and awareness of the well-being of adolescents. It is recommended that future research endeavours use longitudinal research designs in order to comprehensively examine the temporal aspects of adolescent well-being. Additionally, it is important to investigate the mediating processes that connect independent variables with the well-being results observed in adolescents. In summary, the results of this study offer significant and necessary knowledge for both researchers and politicians who are dedicated to improving the welfare of adolescents. This study provides an overview of current research trends, serving as a basis for future endeavours. It facilitates a more thorough and educated approach to enhancing the well-being of adolescents.

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