

MAPPING THE RESEARCH LANDSCAPE OF CHRISTIAN SERVICE UNIVERSITY: A BIBLIOMETRIC STUDY OF SCOPUS-INDEXED PUBLICATIONS

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ABSTRACT

Christian Service University (CSU) is a private higher education institution in Ghana whose research contributions have received limited bibliometric attention. This study analysed all Scopus-indexed publications affiliated with CSU from 2011 to 2024 to examine publication trends, thematic focus, collaboration patterns, and scholarly impact. Data were retrieved from Scopus and assessed for document and source types, subject area distribution, prolific authors, influential institutions, geographical collaborations, keyword frequencies, and citation metrics, including h-index, g-index, and citations per paper. A total of 83 publications were identified, with journal articles dominating (81.93%). Social Sciences (16.67%), Medicine (14.29%), and Nursing (11.90%) emerged as leading subject areas. Output peaked in 2014 (24.10%) but declined sharply after 2020. Collaboration was strongest with Ghanaian institutions, notably Kwame Nkrumah University of Science & Technology, alongside notable partnerships in South Africa, Australia, Canada, and China. Highly cited works addressed breast cancer, mobile health interventions, and nursing education. CSU accrued 970 total citations, with an h-index of 17 and g-index of 28, reflecting moderate impact. Overall, CSU's research is multidisciplinary, nationally grounded, and internationally engaged. This study contributes to knowledge by providing the first comprehensive bibliometric mapping of a private Ghanaian university's research landscape, offering benchmarks for institutional performance, highlighting strengths in health and social sciences, and identifying opportunities for enhancing visibility, collaboration, and global impact.

Keywords: *Christian Service University, Bibliometric Analysis, Research Productivity, Citation Impact, Ghana*

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1.0 INTRODUCTION

1.1. Institutional Background of Christian Service University

Christian Service University (CSU), located in Kumasi, Ghana, has a rich legacy of academic excellence, Christian values, and societal transformation. Established in October 1974 as Christian Service College through the combined vision of Ghanaian Christians and missionaries from the Worldwide Evangelisation for Christ (WEC), the institution initially focused on theological training. Over its first three decades, CSU offered certificate, diploma, and degree programmes in theology and ministry, preparing individuals for leadership in church and mission work (Christian Service University, 2025b).

A major transformation occurred in 2004, when the institution broadened its mandate to become a liberal arts university college, introducing programmes in business, communication, education, nursing, midwifery, information technology, computer science, and development planning (Christian Service University, 2025c). In 2023, CSU achieved full university status through the granting of a presidential charter, becoming the tenth private university in Ghana to attain such autonomy (Christian Service University, 2025a). Today, CSU stands as a fully accredited evangelical liberal arts university with over 8,000 alumni serving in diverse sectors, both locally and internationally (Christian Service University, 2025a).

1.2. Bibliometrics as a Tool for Institutional Research Evaluation

In an era of knowledge-driven economies, the visibility and impact of a university's research output are essential indicators of its contribution to academic advancement and societal development. Bibliometric analysis has emerged as a critical approach to evaluating institutional research performance, offering objective and transparent measures of productivity, collaboration, and impact (van Raan, 2003). It enables the mapping of scholarly trends, identification of influential authors, and assessment of research networks through tools such as VOSviewer and CiteSpace (Kumar, 2025). Universities worldwide increasingly rely on bibliometric indicators to benchmark their research standing, with these metrics contributing significantly, often 20–75%, to global university ranking systems (Szluka et al., 2023).

While bibliometric methods provide valuable insights, they also require careful interpretation due to variations across disciplines, differences in citation practices, and database coverage limitations (Lancho-Barrantes et al., 2010; Moed, 2009). Nonetheless, when used alongside qualitative measures such as peer review, bibliometrics offer a robust framework for institutional research assessment and strategic planning.

1.3. Research Gap and Study Objectives

Despite CSU's five-decade history, its transition to a fully chartered university, and its expanding academic portfolio, there is limited empirical evidence on the scale, scope, and impact of its scholarly contributions in internationally indexed databases. Specifically, there is no comprehensive bibliometric analysis documenting CSU's research productivity, thematic strengths, collaboration patterns, or citation impact in Scopus, the largest abstract and citation database of peer-reviewed literature.

This knowledge gap constrains the university's ability to benchmark its research performance against national and international peers, identify its most influential research areas and scholars, and formulate evidence-based strategies for enhancing scholarly visibility and collaboration. To address this, the present study conducts a comprehensive bibliometric analysis of all Scopus-indexed publications affiliated with CSU, mapping its research landscape and providing insights to inform institutional research policy, capacity building, and strategic partnerships. Specifically, the study examines the volume and growth trends of CSU publications over time (that is, document and source types, year of publications, subject area, source titles and authorship), identifies the most collaborating

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institutions and countries (geographical and institutional distributions), explores the prominent research areas and thematic patterns (keywords analysis), and evaluates the citation impact (citation analysis) of CSU's scholarly output.

2.0 LITERATURE REVIEW

2.1 Bibliometrics as a Research Evaluation Tool

Bibliometric methods have evolved into essential tools for assessing research performance and tracking scientific developments at institutional, national, and global levels. These approaches use quantitative analysis of publications and citations to evaluate scientific output, impact, and disciplinary landscapes (van Raan, 2003). Beyond their original function as information retrieval tools, bibliometrics now play a central role in research evaluation, often complementing peer review to provide a more objective and systematic perspective (Moed, 2009). Commonly used indicators include journal impact factors, the h-index, citation counts, and field-normalised metrics, each offering distinct insights into research productivity and influence. Advanced bibliometric techniques, such as co-authorship and co-citation analysis, enable the visualisation of scientific field structures, collaboration patterns, and thematic developments over time (van Raan, 2003). Software tools like VOSviewer and CiteSpace have enhanced the ability to map research networks and identify emerging trends (Kumar, 2025). Despite their utility, bibliometric indicators are not without limitations. They may be affected by disciplinary differences in publication and citation practices, database coverage biases, and the risk of misuse or overreliance, which can distort scholarly communication and incentivise quantity over quality (Haustein & Larivière, 2015). As such, bibliometric evaluation is most effective when applied alongside qualitative measures, ensuring a balanced approach to institutional research assessment.

2.2 Bibliometric Studies in Ghana and Africa

Bibliometric studies have been widely applied to assess research output, collaboration, and journal quality across various disciplines and institutional contexts. Some have examined single journals to track publication trends, thematic focus, and influential authors (Anyi et al., 2009), while others have compared bibliometric rankings with peer-review outcomes in national research assessments, revealing differences between the two approaches (Abramo & D'Angelo, 2011). In many cases, bibliometrics are preferred over peer review because they are more cost-effective and scalable, particularly in the natural and formal sciences (Abramo & D'Angelo, 2011). In Africa, bibliometric analyses have highlighted emerging research topics, identified prolific scholars, and assessed the international visibility of national outputs.

In Ghana, research publications have shown a consistent growth trend over time. A bibliometric analysis of Ghana's contributions to the Science Citation Index Expanded from 1936 to 2016 revealed a marked increase in publications from 1998 to 2015, with a strong focus on health and medicine (Boamah & Ho, 2017). Library literature in Ghana similarly experienced an upsurge between 1950 and 1994, with over a quarter of publications occurring in the last five years of that period (Kadiri, 2001). A meta-analysis of microbiological food safety publications from 1997 to 2009 found that food contamination was the dominant research theme (Saba & Gonzalez-Zorn, 2012). More recently, studies on university–industry collaboration (2011–2020) have shown a steady rise in outputs from top Ghanaian universities, underscoring the importance of collaborative work (Danquah et al., 2025).

International research collaboration plays a pivotal role in shaping Ghana's scholarly impact. The United States and England are the top collaborating partners, contributing significantly to Ghana's research performance (Onyacha, 2020). While the University of Ghana remains the leading institution for research articles, institutional collaboration in some sectors, such as tourism, remains limited (Adu-Ampong, 2017). In biogas technology, low government engagement and weak policy frameworks hinder effective partnerships (Osei-Marfo et al., 2022). Publishing in high-impact journals indexed by

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platforms such as Thomson Reuters Scientific has been recommended to enhance visibility and citation impact (Boamah & Ho, 2017).

Thematic research trends in Ghana reflect the country's developmental priorities. Housing research has examined land markets, regulation, and low-income housing conditions, with emerging attention to gated communities and mortgages (Kavaarpuo & Sarfoh, 2022). Oil and gas scholarship focuses on sustainable development and environmental governance (Osei-Kojo et al., 2024), while tourism studies reveal growing productivity but limited representation in top-tier journals (Adu-Ampong & Mensah, 2021). Neuroscience research, though expanding, remains dominated by observational studies on depression, epilepsy, and substance misuse, with few experimental or clinical investigations (Quansah & Karikari, 2016). Across these disciplines, collaboration is often international but still requires diversification in methodology and increased high-impact journal presence.

2.3 Research Collaboration and Citation Impact

Research on citation impact further confirms the benefits of international collaboration. Ghanaian authors who co-publish with US partners often achieve higher citation rates (Boamah & Ho, 2017; Onyacha, 2020). However, balancing global partnerships with domestic and regional collaboration remains essential. Citation counts are also shaped by journal accessibility and quality more than analytical methods (Djokoto et al., 2020). In nursing, steady growth in publications focused largely on curriculum implementation signals and increasing capacity for evidence-based practice (Christmals et al., 2018).

2.4 Private Universities and the Research Gap

Despite this growing national research base, bibliometric studies of private universities in Ghana remain scarce. Existing scholarship disproportionately focus on public universities, which generally perform better in accreditation and quality assurance metrics (Dattey et al., 2014). Private universities often face systemic constraints such as limited funding, inadequate infrastructure, and insufficient faculty development opportunities (Amponsah & Onuoha, 2013). Their quality assurance systems tend to emphasise planning over robust monitoring and evaluation (Odjidja, 2023). Research on academic librarians in Ghana's public universities indicates limited international collaboration and a predominance of single-authored works (Boshoff & Lamptey, 2020), trends that may be even more pronounced in private institutions. Moreover, standard bibliometric measures may fail to account for scale differences between small and large academic units, leading to skewed evaluations (Anninos, 2014).

This gap underscores the need for comprehensive, context-sensitive bibliometric analyses of private institutions such as Christian Service University. By identifying research strengths, benchmarking performance, and informing strategies for increased scholarly visibility, such studies can help these institutions position themselves more competitively in Ghana's evolving research landscape.

3.0 METHODOLOGY

This study adopted a quantitative bibliometric research design to map the research landscape of Christian Service University (CSU). Bibliometric analysis was selected because it provides an objective, systematic means of evaluating research output, collaboration patterns, and thematic trends using publication and citation data.

The data source for this study was the Scopus database, which is recognised as a high-quality, curated repository of scholarly literature with extensive coverage of peer-reviewed publications and detailed author profiles (Baas et al., 2020). Scopus was selected due to its reliability, wide disciplinary coverage, and robust search functionalities, which enable accurate retrieval of institutional publication records.

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The search strategy (Figure 1) involved an affiliation search in Scopus using variations of the institution's name, specifically "Christian Service University College" and "Christian Service University." This ensured that all relevant publications were captured, even where different institutional naming formats were used in the authors' affiliations. The Scopus search string used was: *AFFIL ("Christian Service University College" OR "Christian Service University") AND PUBYEAR > 2010 AND PUBYEAR < 2025*. Data were extracted on 15 January 2025. Records were exported in CSV format and cleaned in Microsoft Excel (Microsoft 365) before analysis. VOSviewer (v1.6.20) and Publish or Perish (v8) were used for network and citation analyses.

The inclusion criteria were as follows: (i) publications must be affiliated with CSU; (ii) records must be indexed in Scopus between January 2010 and December 2024, covering a complete 15-year period; and (iii) only final, published documents in journals, conference proceedings, or books recognised by Scopus were considered.

Data extraction from Scopus was followed by a rigorous cleaning process in Microsoft Excel to standardise author names, affiliations, and keywords, and to remove duplicates or erroneous entries. Subsequent analyses were performed using a combination of bibliometric tools: Publish or Perish software for citation metrics, VOSviewer for network visualisation of thematic or keyword co-occurrence patterns. These tools allowed for the examination of publication trends over time, identification of prolific authors and collaborating institutions, and detection of dominant and emerging research themes.

The methodological approach is consistent with recent Scopus-based bibliometric studies that have explored research trends in diverse domains. For example, Rawal and Harji (2024) analysed e-learning literature during the COVID-19 pandemic, identifying leading countries, prolific authors, and frequently used terms such as "COVID-19." Similarly, Aini and Shafie (2024) applied bibliometric methods to Quranic linguistics research, revealing its cross-disciplinary nature and increasing academic influence. These studies illustrate the effectiveness of Scopus-based bibliometric analysis in providing comprehensive insights into the structure, output, and evolution of scholarly fields, an approach equally applicable to assessing CSU's research contributions.

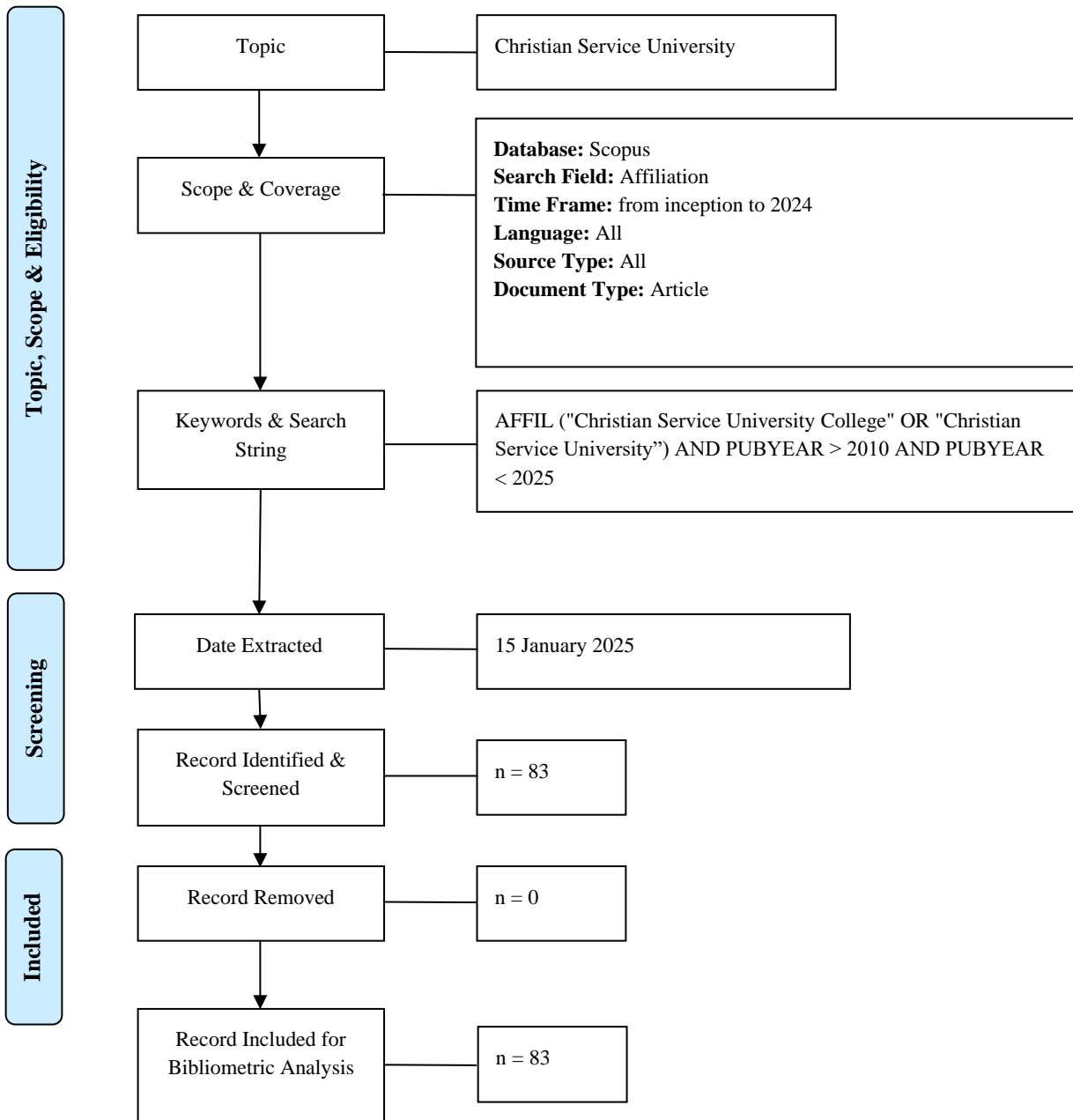


Figure 1 Flow diagram of the search strategy

This study relied exclusively on data from the Scopus database, which, while comprehensive, does not fully capture the breadth of CSU’s scholarly output. Publications indexed in other databases such as Web of Science (WoS) and Google Scholar, as well as grey literature and works in non-indexed local journals, were not included. Consequently, the findings may underrepresent the full diversity and impact of CSU’s contributions, especially in disciplines less covered by Scopus.

4.0 RESULTS

4.1. Document Types

Figure 1 shows the distribution of document types for Christian Service University (CSU) research output, as indexed in Scopus. Out of the total 83 publications retrieved, articles account for 68 records (81.93%). Book chapters represent the second most common document type, with 5 publications (6.02%), followed by review papers, which comprise 4 publications (4.82%). Conference papers

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account for 2 publications (2.41%). Two publications (2.41%) are classified as errata, while one publication (1.20%) is categorised as a note and one retracted paper (1.20%).

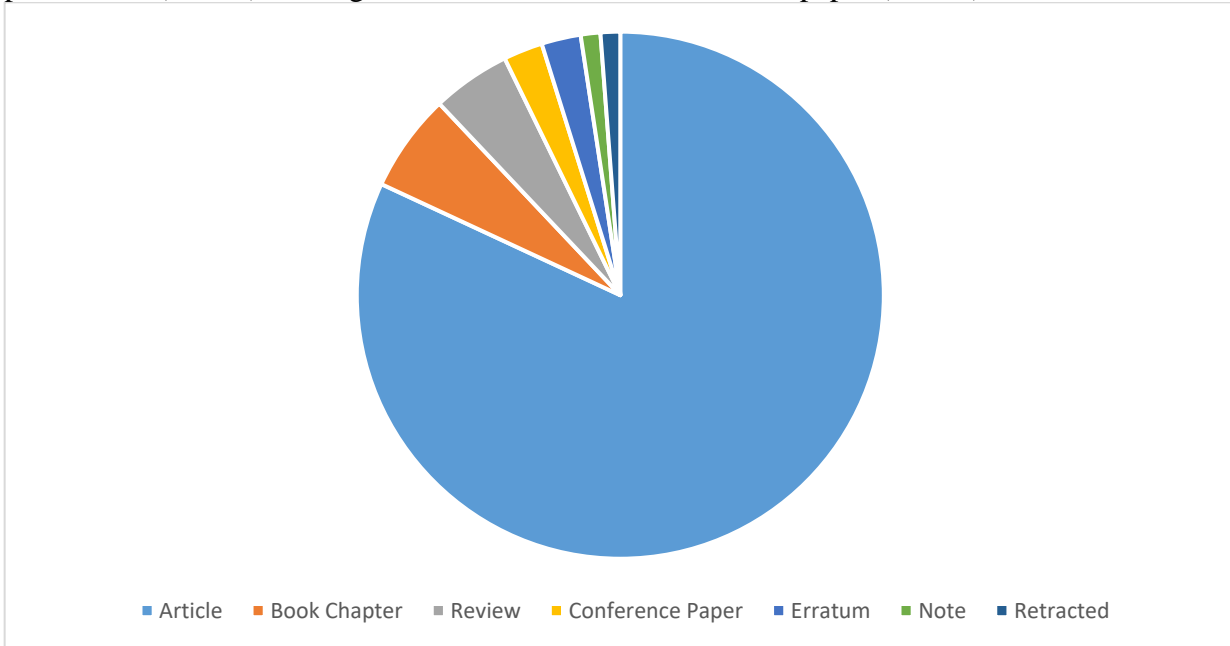


Figure 2 Document types for disseminating Christian Service University (CSU) research output

4.2. Source Types

The analysis of source types for Christian Service University (CSU) research output shows a strong dominance of journal publications as the primary medium for disseminating scholarly work, as shown in Figure 2. Of the total 83 publications indexed in Scopus, 75 (90.36%) appear in academic journals. Books account for 4 publications (4.82%). Publications in book series make up 2 records (2.41%). Trade journals and conference proceedings are the least represented source types, each with 1 publication (1.20%).

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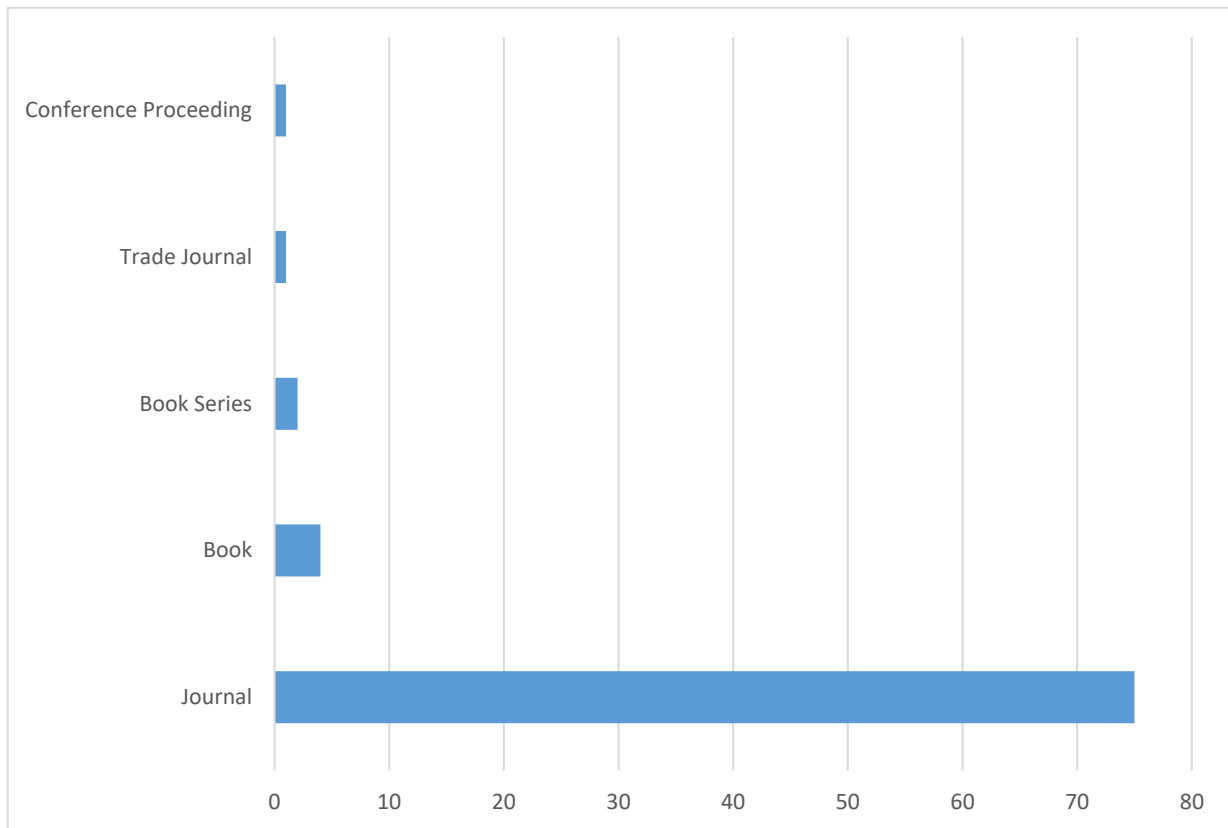


Figure 3 Source types for disseminating Christian Service University (CSU) research output

4.3. Year of Publications/Evolution of Published Studies

Figure 4 illustrates the analysis of the year of publications for Christian Service University (CSU) research reveals notable fluctuations in scholarly output over the study period, with distinct periods of high and low productivity. Between 2011 and 2024, a total of 83 publications were indexed in Scopus. The earliest and most productive year in the dataset is 2014, which recorded the highest number of publications (20; 24.10% of the total output). This was followed by 2011 with 15 publications (18.07%). Subsequent years, such as 2015 and 2018, also saw relatively high outputs, with 8 (9.64%) and 9 publications (10.84%) respectively. However, there are noticeable dips in publication trends in some years, such as 2020 with only 3 publications (3.61%), and particularly in 2021, 2022, 2023, and 2024, each registering just 1 publication (1.20%).

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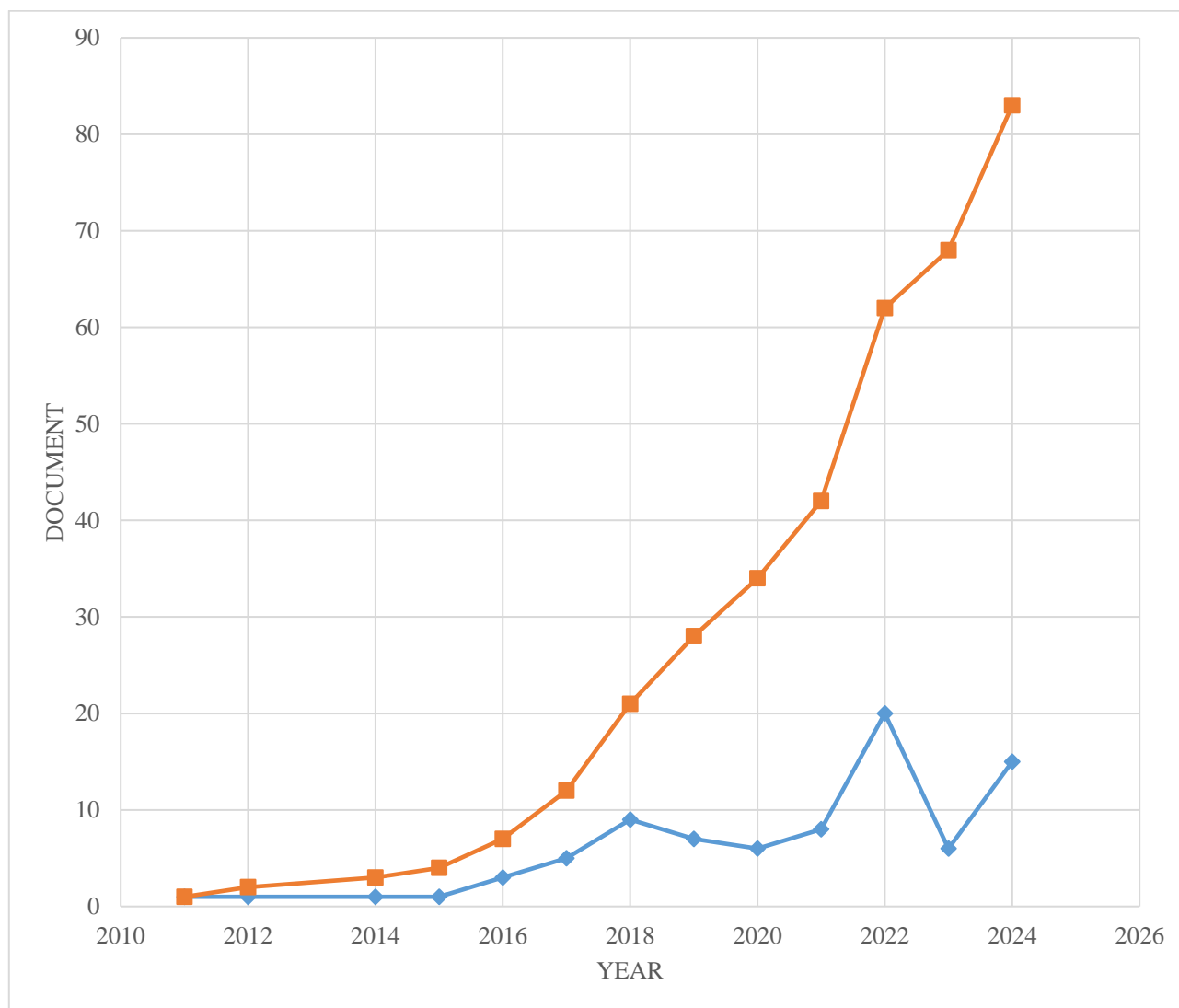


Figure 4 Year of publications for Christian Service University (CSU) research

4.4. Subject Area

The subject area (Figure 5) analysis of Christian Service University (CSU) research output demonstrates a wide disciplinary spread. Based on 126 Scopus-indexed subject classifications (note: a single publication may be indexed under multiple subject areas), the data show that the Social Sciences dominate CSU's research portfolio, accounting for 21 publications (16.67%). This is followed closely by Medicine with 18 publications (14.29%) and Nursing with 15 publications (11.90%). Other prominent fields include Business, Management and Accounting (11 publications; 8.73%), Economics, Econometrics and Finance (10 publications; 7.94%), and Arts and Humanities (8 publications; 6.35%). The presence of Engineering (7 publications; 5.56%) and Agricultural and Biological Sciences (6 publications; 4.76%), while Multidisciplinary research also accounts for 6 publications (4.76%). Subject areas with smaller shares include Decision Sciences and Environmental Science (each with 5 publications; 3.97%), Computer Science (4 publications; 3.17%), and Biochemistry, Genetics and Molecular Biology, Energy, and Mathematics (each with 2 publications; 1.59%). Niche fields such as Earth and Planetary Sciences, Health Professions, Pharmacology, Toxicology and Pharmaceutics, and Psychology record just 1 publication each (0.79%).

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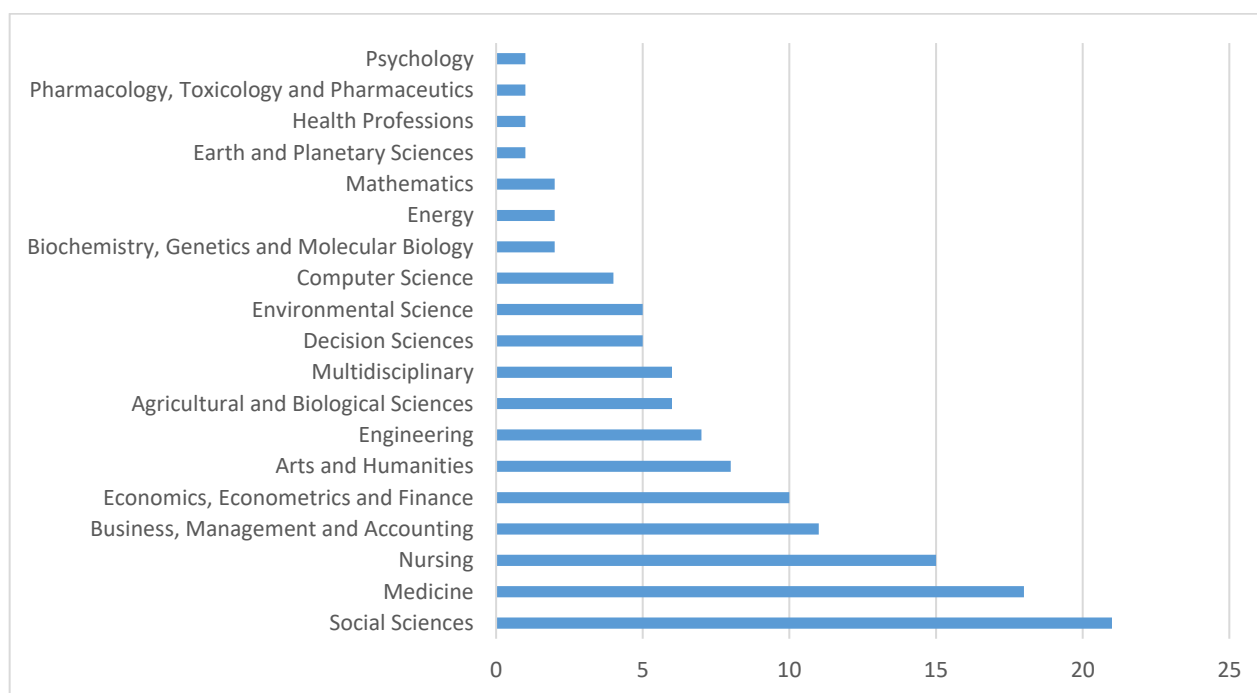


Figure 5: Subject area analysis of Christian Service University (CSU) research output

4.5. Most Active Source Titles

Table 1 demonstrates the most active source titles for Christian Service University (CSU) research, with a notable concentration in a few key titles. Out of the 83 publications examined, Plos One and Sage Open Nursing emerge as the joint leading publication outlets, each accounting for 4 publications (4.82%). Following these, BMC Pregnancy and Childbirth and the International Journal of Africa Nursing Sciences each have 3 publications (3.61%). A cluster of journals, including Acta Theologica, BMC Women’s Health, Cogent Business and Management, HTS Teologiese Studies/Theological Studies, Journal of Multidisciplinary Healthcare, Marketing in Developing Nations: Contemporary Developments, Cases and Problems in Africa, Asia and the Middle East, and SN Social Sciences, each published 2 articles (2.41%) from CSU researchers. The remaining journals are represented by a single publication each (1.20%), spanning a wide disciplinary range. These include conference proceedings such as the *2020 17th International Computer Conference on Wavelet Active Media Technology and Information Processing (ICCWAMTIP 2020)*, and journals covering public health, African studies, emergency medicine, science and technology innovation, aerospace engineering, and even niche fields like aquatic entomology (*Aquatic Insects*).

Table 1 Most active source titles for Christian Service University (CSU) research

Source Title	Total Publications (n=83)	Percentage (%)
Plos One	4	4.82
Sage Open Nursing	4	4.82
BMC Pregnancy and Childbirth	3	3.61
International Journal of Africa Nursing Sciences	3	3.61
Acta Theologica	2	2.41
BMC Women S Health	2	2.41
Cogent Business and Management	2	2.41
Hts Teologiese Studies Theological Studies	2	2.41
Journal of Multidisciplinary Healthcare	2	2.41

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Source Title	Total Publications (n=83)	Percentage (%)
Marketing in Developing Nations Contemporary Developments Cases and Problems in Africa Asia and the Middle East	2	2.41
SN Social Sciences	2	2.41
2020 17th International Computer Conference on Wavelet Active Media Technology and Information Processing Iccwamtip 2020	1	1.20
Advances in African Economic Social and Political Development	1	1.20
Advances in Public Health	1	1.20
African Geographical Review	1	1.20
African Journal of Applied Research	1	1.20
African Journal of Emergency Medicine	1	1.20
African Journal of Science Technology Innovation and Development	1	1.20
Aircraft Engineering and Aerospace Technology	1	1.20
Aquatic Insects	1	1.20

4.6. Keywords Analysis

Figure 6 displays the keyword analysis of Christian Service University (CSU) research, highlighting the main thematic and methodological focus areas emerging from 570 keywords. The most frequently used keyword is “Ghana” with 38 occurrences (6.67%). This is followed by “Human” (27 occurrences; 4.74%) and “Article” (20 occurrences; 3.51%). Gender-specific terms such as “Female” (19; 3.33%) and “Male” (13; 2.28%) indicate research that often incorporates sex-based analyses or demographic profiling. Age-related descriptors, “Adult” (17; 2.98%), “Middle Aged” (7; 1.23%), and “Aged” (6; 1.05%), further point to studies targeting various life stages.

Methodologically, keywords like “Content Analysis” and “Qualitative Research” (each 9; 1.58%), along with “Semi-Structured Interview” (8; 1.40%), highlight a significant presence of qualitative approaches in CSU research. Other recurring methodological terms include “Cross-Sectional Studies”, “Data Analysis”, and “Human Experiment” (each 6; 1.05%), reflecting a balance between observational, analytical, and experimental designs. The presence of “Major Clinical Study”, “Nurse”, and “Risk Factor” (all 6; 1.05%) underlines CSU’s contribution to health-related research, particularly in nursing and epidemiology.

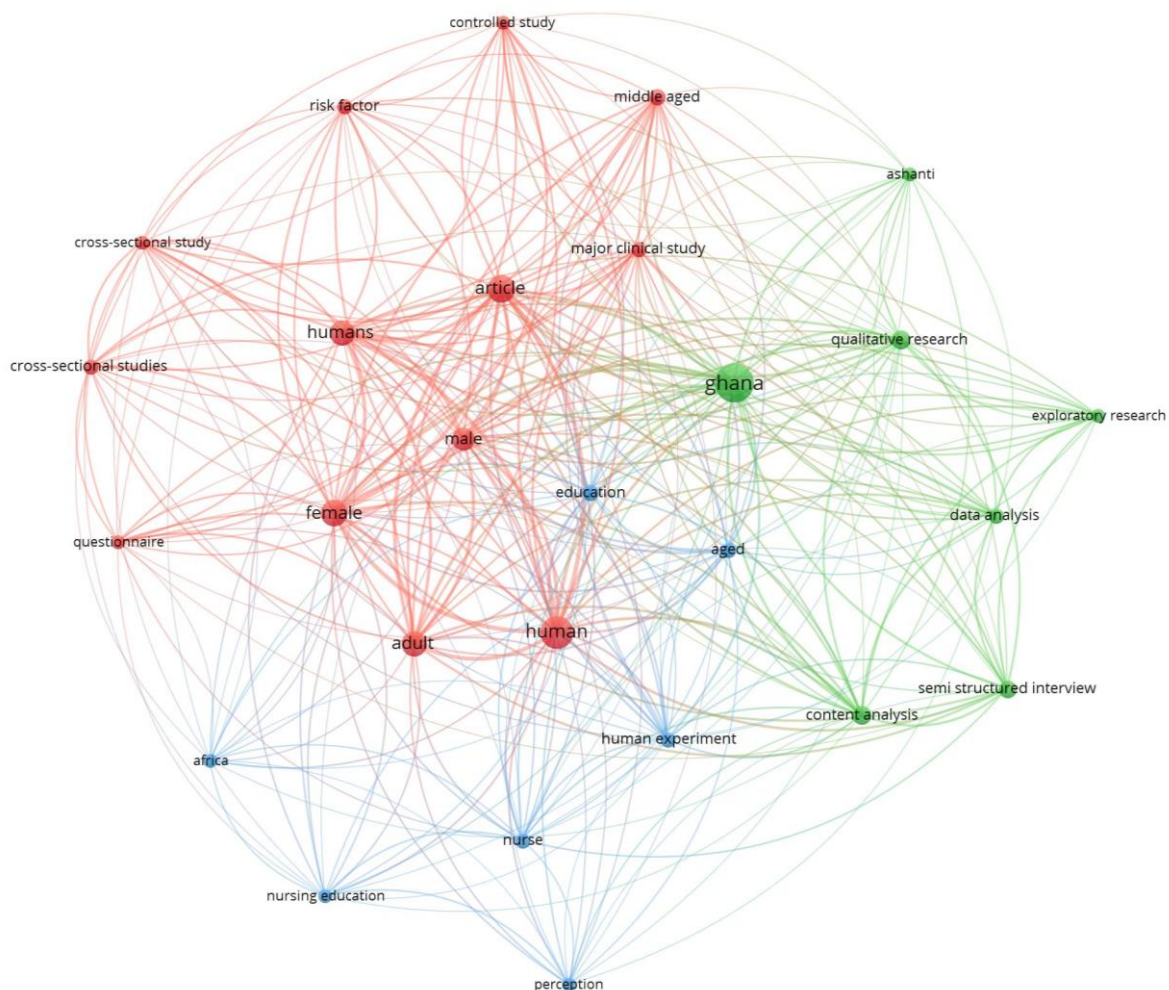


Figure 6 Keyword analysis of Christian Service University (CSU) research

4.7. Geographical Distribution of Publications - Most Influential Countries

Figure 7 illustrates the geographical distribution of Christian Service University (CSU) research publications. It reveals a strong national and regional presence, alongside meaningful international collaboration. Ghana is the most dominant contributor, accounting for 82 publications (55.03%). Internationally, notable contributions come from South Africa (11 publications; 7.38%), Australia (9; 6.04%), Canada (8; 5.37%), and China (8; 5.37%). The United Kingdom (6; 4.03%) and the Netherlands (4; 2.68%) also feature prominently. Smaller but significant contributions are seen from South Korea, Switzerland, and the United States (each 3; 2.01%), as well as from countries such as Indonesia, New Zealand, and Portugal (each 2; 1.34%). A diverse range of other nations, including Hong Kong, Kenya, Liberia, Nepal, Nigeria, and Spain, make up the remaining contributions (each 1; 0.67%).



Figure 7 Geographical distribution of Christian Service University (CSU) research publications

4.8. Authorship

The analysis of the most productive authors (Table 2) in Christian Service University (CSU) research output highlights key contributors driving the institution’s scholarly activities. Out of a total of 322 documents, Atakro, C.A. emerges as the most prolific author with 16 publications (4.97%), closely followed by Akuoko, C.P. with 15 publications (4.66%). Adatara, P., ranks third with 10 publications (3.11%), while Baidoo, S.T., Garti, I., and Menlah, A. each have 8 publications (2.48%). Authors such as Addo, S.B., Nkukpornu, E., and Obodai, J. have each produced 6 publications (1.86%). Other notable contributors include Aboagye, J.S. and Armah, E., with 5 publications each (1.55%). Several authors, including Afaya, A., Agyare, D.F., Amoah-Gyarteng, K.G., Blay, A.A., Boateng, D., Boni, G.S., Nkukpornu, A., and White, P., have each produced 4 publications (1.24%).

Table 2 Most productive authors in Christian Service University (CSU) research output

Author’s Name	No. of Documents (n=322)	Percentage (%)
Atakro, C.A.	16	4.97%
Akuoko, C.P.	15	4.66%
Adatara, P.	10	3.11%
Baidoo, S.T.	8	2.48%
Garti, I.	8	2.48%
Menlah, A.	8	2.48%
Addo, S.B.	6	1.86%
Nkukpornu, E.	6	1.86%
Obodai, J.	6	1.86%
Aboagye, J.S.	5	1.55%

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Armah, E.	5	1.55%
Afaya, A.	4	1.24%
Agyare, D.F.	4	1.24%
Amoa-Gyarteng, K.G.	4	1.24%
Blay, A.A.	4	1.24%
Boateng, D.	4	1.24%
Boni, G.S.	4	1.24%
Nkukpornu, A.	4	1.24%
White, P.	4	1.24%

4.9. Most Influential Institutions

Table 3 shows the analysis of the most influential institutions contributing to Christian Service University (CSU) research shows a strong dominance of collaborations within Ghana, with some notable international partnerships. Out of a total of 1,309 publications, Christian Service University leads significantly with 62 publications (22.88%). The Kwame Nkrumah University of Science & Technology (KNUST) follows closely with 45 publications (16.61%). Other key Ghanaian collaborators include the University of Health and Allied Sciences with 10 publications (3.69%), Valley View University with 8 (2.95%), and the University of Cape Coast with 7 (2.58%). Internationally, institutions such as the Queensland University of Technology (6 publications, 2.21%) and the University of Pretoria (5 publications, 1.85%) feature prominently.

Several hospitals and health service organisations, including Suntreso Government Hospital, Ghana Health Service, Cape Coast Technical University, and Volta Regional Hospital, each contributed between 3 and 4 publications, highlighting the role of clinical and applied research collaborations.

The remaining contributors, such as University Medical Center Utrecht, University for Development Studies, Tema General Hospital, and various specialised institutions, each account for 2–3 publications.

Table 3 Most influential institutions contributing to Christian Service University (CSU) research

Institution	Total Publications (n=271)	Percentage (%)
Christian Service University or Christian Service University College	64	23.62
Kwame Nkrumah University of Science & Technology	45	16.61
University of Health and Allied Sciences, Ghana	10	3.69
Valley View University	8	2.95
University of Cape Coast Ghana	7	2.58
Queensland University of Technology	6	2.21
University of Pretoria	5	1.85
Suntreso Government Hospital	4	1.48
Ghana Health Service	4	1.48
Cape Coast Technical University	4	1.48
Volta Regional Hospital	3	1.11
University Medical Center Utrecht	3	1.11
University for Development Studies, Ghana	3	1.11
Tema General Hospital	2	0.74
University College of Agriculture and Environmental Studies	2	0.74

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Seventh-Day Adventist Hospital, Kumasi, Ghana	2	0.74
Trust Mother and Child Hospital	2	0.74
Chartered Institute of Marketing CIM	2	0.74
Burman University in Lacombe	2	0.74

4.10. Citation Analysis

4.10.1. Citation metrics

The citation metrics for Christian Service University (CSU) research publications provide a clear picture of the institution’s scholarly impact over time. Covering the period from 2011 to 2024 (14 citation years from 2011 to 2025), the dataset includes 83 papers, which have collectively received 970 citations. This translates to an average of 69.29 citations per year and 11.69 citations per paper.

In terms of author contributions, the data shows an average of 212.39 citations per author and 27.22 papers per author, indicating that a relatively small number of active researchers are making substantial contributions to the university’s research output.

Impact indicators further highlight the research influence, with an h-index of 17, meaning 17 papers have each been cited at least 17 times, and a g-index of 28, which places greater weight on highly cited publications and demonstrates the presence of several papers with strong citation performance.

Table 4 Citation metrics for Christian Service University (CSU) research publications

Metrics	Data
Publication years	2011-2024
Citation years	14 (2011-2025)
Papers	83
Citations	970
Citations/year	69.29
Citations/paper	11.69
Citations/author	212.39
Papers/author	27.22
h-index	17
g-index	28

4.10.2. Highly cited articles

The highly cited articles from Christian Service University (CSU) research highlight the institution’s most impactful scholarly contributions across diverse fields, particularly in health sciences, public health, and social research.

The most cited publication, “Barriers to early presentation and diagnosis of breast cancer among African women living in sub-Saharan Africa” by Akuoko et al. (2017), has accumulated 144 citations (18 per year). Other notable works include Amankwaa et al.’s systematic review and meta-analysis on mobile health interventions for antiretroviral therapy adherence (2018) with 71 citations (10.14 per year) and Atakro et al.’s (2019) study on clinical placement experiences of nursing students in Ghana, which has garnered 46 citations (7.67 per year).

Recent contributions, such as Djimesah et al.’s (2022) analysis of the technology acceptance model for Ghanaian crowdfunding stakeholders (36 citations, 12 per year) and Olutuase et al.’s (2022) review of medicines and vaccines supply chain challenges in Nigeria (35 citations, 11.67 per year).

The dataset also features significant works addressing breast cancer patient coping strategies (Benson et al., 2020), midwives’ challenges in rural Ghana (Adatarara et al., 2021), urban planning and climate change resilience (Asibey et al., 2022), supplier evaluation and selection models (Kusi-Sarpong et al., 2018), and unsafe abortion practices (Atakro et al., 2019).

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Table 5 Highly cited articles from Christian Service University (CSU) research

Authors	Title	Year	Cites	Cites Per Year
C.P. Akuoko, E. Armah, T. Sarpong, D.Y. Quansah, I. Amankwaa, D. Boateng	Barriers to early presentation and diagnosis of breast cancer among African women living in sub-Saharan Africa	2017	144	18
I. Amankwaa, D. Boateng, D.Y. Quansah, C.P. Akuoko, C. Evans	Effectiveness of short message services and voice call interventions for antiretroviral therapy adherence and other outcomes: A systematic review and meta-analysis	2018	71	10.14
C.A. Atakro, E. Armah, A. Menlah, I. Garti, S.B. Addo, P. Adatara, G.S. Boni	Clinical placement experiences by undergraduate nursing students in selected teaching hospitals in Ghana	2019	46	7.67
R.B. Benson, B. Cobbold, E. Opoku Boamah, C.P. Akuoko, D. Boateng	Challenges, Coping Strategies, and Social Support among Breast Cancer Patients in Ghana	2020	39	7.8
P. Adatara, P.A. Amooba, A. Afaya, S.M. Salia, M.A. Avane, A. Kuug, R.S.-E. Maalman, C.A. Atakro, I.T. Attachie, C. Attachie	Challenges experienced by midwives working in rural communities in the Upper East Region of Ghana: a qualitative study	2021	38	9.5
I.E. Djimesah, H. Zhao, A.N.D. Okine, Y. Li, E. Duah, K. Kissi Mireku	Analyzing the technology of acceptance model of Ghanaian crowdfunding stakeholders	2022	36	12
V.O. Olutuase, C.J. Iwu-Jaja, C.P. Akuoko, E.O. Adewuyi, V. Khanal	Medicines and vaccines supply chains challenges in Nigeria: a scoping review	2022	35	11.67
M.O. Asibey, F. Mintah, I.O. Adutwum, R.S. Wireko-Gyebi, J.N. Tagnan, L.L. Yevugah, K.O. Agyeman, A.J. Abdul-Salam	Beyond rhetoric: urban planning-climate change resilience conundrum in Accra, Ghana	2022	31	10.33
S. Kusi-Sarpong, M.L. Varela, G. Putnik, P. Ávila, J. Agyemang	Supplier evaluation and selection: A fuzzy novel multi-criteria group decision-making approach	2018	29	4.14
C.A. Atakro, S.B. Addo, J.S. Aboagye, A. Menlah, I. Garti, K.G. Amoa-Gyarteng, T. Sarpong, P. Adatara, K.J. Kumah, B.B. Asare, A.K. Mensah, S.H. Lutterodt, G.S. Boni	Contributing factors to unsafe abortion practices among women of reproductive age at selected district hospitals in the Ashanti region of Ghana	2019	28	4.67

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5.0 DISCUSSION

5.1. Publication Trends

The results highlight a gradual increase in CSU's Scopus-indexed publications between 2013 and 2023, with 2023 recording the highest output. This mirrors the general rise in scholarly productivity across African universities as they strengthen research capacity and prioritise publication in high-impact journals (Onyancha, 2020; Owusu-Nimo & Boshoff, 2017). The relatively low output before 2018 may be linked to challenges such as limited funding, weak institutional support, and low prioritisation of indexed publishing barriers, also reported in other African universities (Alemna et al., 2000; Nwagwu, 2013). The post-2019 surge suggests a positive shift, possibly driven by institutional policies to promote research, enhanced collaborations, and the growing importance of publication metrics for accreditation and rankings (Ryazanova & Jaskiene, 2022; Zainab et al., 2012).

5.2. Disciplinary Contributions

The dominance of authors from the Department of Theology underscores its central role in CSU's research landscape, reflecting the University's origins as a faith-based institution (Christian Service University, 2025b; Daniels & Gustafson, 2016). However, this disciplinary concentration may highlight uneven research capacity across faculties. Similar imbalances, where a few departments drive most research, have been observed in other institutions due to disparities in staff expertise, funding, or research infrastructure (Agasisti et al., 2012; Pastor & Serrano, 2016). This calls for strategic investment to strengthen research capacity across diverse disciplines, ensuring a more balanced and representative scholarly output.

5.3. Collaboration Patterns

Co-authorship analysis revealed significant collaboration with scholars from Nigeria, the United States, and South Africa, consistent with broader African research trends where international partnerships enhance visibility, funding access, and publication quality (Masaiti & Mboyonga, 2022; Yao, 2021). Internationally co-authored papers often achieve higher citation rates due to wider dissemination and diverse expertise (Adams, 2012; Wang et al., 2024). Nonetheless, the relatively modest share of international collaborations compared to local outputs suggests CSU could further boost research impact by strengthening global networks while balancing them with domestic and regional partnerships.

5.4. Thematic Research Areas

The keyword analysis revealed dominant themes in theology, Christian education, and leadership, reflecting CSU's mission and academic identity. However, the narrow thematic scope points to opportunities for diversification into fields aligned with national development priorities and global research agendas, such as health sciences, environmental studies, and technology (Chen & Xiao, 2016; Confraria et al., 2024). Evidence from other African universities shows that thematic diversification increases relevance, fosters funding opportunities, and attracts wider collaboration (Onyancha, 2021; Owusu-Nimo & Boshoff, 2017). For CSU, expanding into interdisciplinary and applied research could enhance both societal and scholarly impact.

5.5. Citation Impact and Research Visibility

Citation analysis shows that while some CSU works, particularly in health and theology, have achieved significant recognition, overall citation counts remain modest. This aligns with earlier findings that African research often struggles with limited global visibility due to barriers such as publishing in less-visible journals, restricted open access, and exclusion from elite collaborative networks (Boshoff,

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2010; Nwagwu, 2013; Toivanen & Ponomariov, 2011). Strategies to improve citation impact include prioritising open-access publishing, targeting higher-impact journals, and engaging in strategic dissemination (Kankam et al., 2024; Majhi et al., 2023; Suber, 2012). Moreover, capacity-building initiatives, interdisciplinary projects, and structured mentorship could enhance both research quality and output.

5.6. Synthesis

Overall, this bibliometric study demonstrates that CSU has made commendable progress in expanding its scholarly footprint, particularly in theology and related fields. However, gaps remain in research diversity, collaboration, and global visibility. Addressing these gaps through institutional support, funding, and strategic partnerships could enable CSU to strengthen its contribution to local and international scholarship (Adakawa, 2022; Aguinis et al., 2021; Boshoff, 2010).

6.0 RECOMMENDATIONS

Based on the findings, it is recommended that Christian Service University (CSU) adopt deliberate strategies to enhance the visibility, collaboration, and impact of its research outputs. One key step is to promote research visibility and accessibility by encouraging open-access publishing and strengthening the use of institutional and subject-specific repositories. Leveraging digital platforms such as Google Scholar, ResearchGate, and ORCID can also help to boost the online presence of CSU researchers and increase the discoverability of their work.

Another priority is the strengthening of collaboration networks. While CSU already engages in meaningful partnerships within Ghana and abroad, greater emphasis should be placed on fostering interdisciplinary and cross-institutional collaborations. Expanding such networks will not only increase opportunities for co-authorship but also improve the global visibility and relevance of CSU's research.

Institutional support systems should also be enhanced to sustain and expand research productivity. The establishment of reliable internal research funding mechanisms, alongside proactive engagement with external funding agencies, will provide researchers with the resources needed to conduct high-quality studies. Additionally, regular training and capacity-building programmes in advanced research methodologies, grant proposal writing, data analysis tools, and academic writing should be prioritised for faculty members and postgraduate students. These initiatives will contribute to improving both the quality and volume of CSU's scholarly output.

Finally, CSU should strengthen its engagement with society by aligning research priorities with pressing national and regional development needs. Strategic partnerships with government agencies, industry stakeholders, and non-governmental organisations will ensure that research outputs not only hold academic significance but also generate tangible, real-world impact. Such an approach will reinforce CSU's role as a key contributor to knowledge creation and application in Ghana and beyond.

7.0 CONCLUSION

The analysis of Christian Service University's (CSU) research outputs reveals a steadily growing and impactful scholarly presence, particularly in the fields of public health, healthcare delivery, and socio-economic development. The institution's most influential works addressing issues such as breast cancer awareness, mobile health interventions, clinical training in nursing, and healthcare supply chain management demonstrate both contextual relevance and international recognition. These high-impact contributions reflect CSU's ability to generate research of sustained interest and practical applicability. Overall, CSU's research landscape is characterised by a strong emphasis on addressing real-world problems, notable collaborations with both local and international institutions, and a meaningful contribution to academic discourse and policy development. These strengths position CSU as an

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emerging research hub in Ghana, with considerable potential to expand its scholarly influence through interdisciplinary research, capacity building, and strategic partnerships.

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