IJoL International Journal of Librarianship

ISSN: 2474-3542 Journal homepage: https://journal.calaijol.org

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To cite this article:

Ogondiek, J. W. (2025). Bibliometric Analysis of Research Productivity and Impact at the University of Dodoma: A 15-Year Review of Publications, Collaborations, and Knowledge Dissemination. *International Journal of Librarianship*, *10*(1), 69-88. https://doi.org/10.23974/ijol.2025.vol10.1.450

INTERNATIONAL JOURNAL OF LIBRARIANSHIP, 10(1), 69-88
ISSN: 2474-3542

Bibliometric Analysis of Research Productivity and Impact at the University of Dodoma: A 15-Year Review of Publications, Collaborations, and Knowledge Dissemination

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ABSTRACT

This study provides a bibliometric analysis of research publications from the University of Dodoma (UDOM) between 2007 and 2022, offering a comprehensive evaluation of the institution's scholarly output. By examining citation metrics and academic publications, the research reveals key patterns that shed light on the effectiveness and impact of UDOM's research initiatives. The study highlights significant authors and explores collaborative networks that contribute to enhancing research productivity. It also assesses how UDOM's research outputs contribute to its international ranking performance, serving as indicators of academic quality. Furthermore, the analysis underscores the university's commitment to both academic excellence and societal impact, demonstrating its alignment with global research standards and its broader role in advancing knowledge across diverse sectors.

Keywords: Bibliometrics, Research output, University of Dodoma, Scholarly impact, Research productivity

INTRODUCTION

Research productivity is essential for societal progress and national development, often measured by publications and research articles. In academia, Universities as higher institutions, play a crucial role as primary hubs for conducting, nurturing, and disseminating knowledge and research to the society (Purcell et al., 2019) indeed, universities are hubs for knowledge transfer and acquisition, supplying skilled labor for social development through teaching, research, and community services (Kazoka & Wema, 2020; Mauricio, 2023). Moreover, Universities and academic institutions are increasingly evaluated based on their publication output, which also influences funding and staff promotion (Ahmi, 2021; Wahid et al., 2020). Therefore, academic researchers within universities have a responsibility to generate knowledge that informs both local communities and the broader academic sphere regarding social, cultural, and economic well-being since research outputs are the measure of universities' contribution to the community (Budur et al., 2024). Through generating knowledge, universities can significantly enhance decision-making scenarios, as the validation of decisions through scientific knowledge increases their legitimacy and fosters credibility in nurturing societal well being (Ainsworth et al., 2020).

Moreover, research conducted by academic staff possesses the potential to significantly influence communities by addressing critical societal issues (Nathan & Shawkataly, 2019). Furthermore, research outputs serve as a marker of university quality and a measure of the institution's contribution to society (Masango, 2015; Polas, 2024). Universities that are known for their robust research activities are often ranked higher in global university rankings, which can lead to increased visibility and prestige. But beyond rankings, the true measure of a university's quality lies in its ability to produce research that makes a tangible difference in the world (Hazelkorn & Gibson, 2017). Through technological innovations, policy recommendations, or cultural insights, research that has a real world impact underscores the university's role as a key contributor to societal progress (Raphael & Lwoga, 2017). As such, researchers within academic institutions have a fundamental obligation to conduct studies that inform both the local community and the broader academic sphere on matters related to social, cultural, and economic well-being (Kadikilo et al., 2023). HoweverBottom of Form, there remains a significant gap in understanding the research performance and output of academic institutions in Tanzania, particularly regarding the University of Dodoma (UDOM).To address this gap, bibliometric analysis, which helps in understanding trends in academic literature and measuring research impact (Andrés, (Andrés, 2010; Chellappandi & Vijayakumar, 2018; Islam & Widen, 2023), will be used to assess UDOM's productivity, visibility, impact, and collaboration (Padrós-Cuxart et al., 2016) since its establishment in 2007 to 2022. These indicators will help uncover the dynamics of UDOM's research productivity and its contributions to the academic community and broader society.

Similarly, as bibliometric analysis provides critical insights into the impact and influence of research outputs by uncovering connections across diverse fields and highlighting emerging trends (Donthu et al., 2021; Hernández-Torrano & Ho, 2021; Nathan & Shawkataly, 2019; Verma & Gustafsson, 2020), as well as evaluating the influence of publications within the academic community (Aksnes et al., 2019; Matcharashvili et al., 2014), this analysis will help identify the most influential contributors within the university's academic community and assess the overall impact of their scholarly contributions.

Understanding these dynamics is crucial for optimizing resource allocation, fostering collaboration, and enhancing the university's reputation and influence. Additionally, by evaluating the citation impact of influential authors' work, this study seeks to offer valuable insights into the broader discourse on scholarly excellence and effective knowledge dissemination strategies.

MATERIALS AND METHODS

Bibliometric analyses require a bibliometric data source. This study used a bibliometric approach to assess the pattern of growth of the research publications output of the university of Dodoma Staff from 2007 to 2022. Data were extracted from SCOPUS, produced by Elsevier. The retrieval was from 2007 to 2022. SCOPUS was used because it indexes quality research outputs and it provides adequate coverage of African research (Ocholla et al., 2012; Raphael & Lwoga, 2017). The data was extracted and downloaded from SCOPUS by using institutional affiliation as the search term. Finally, we retrieved a total of 1080 articles that were published by UDOM scholars, and they were finally used for analysis.

RESULTS

Annual Growth of Publications by UDOM Staff

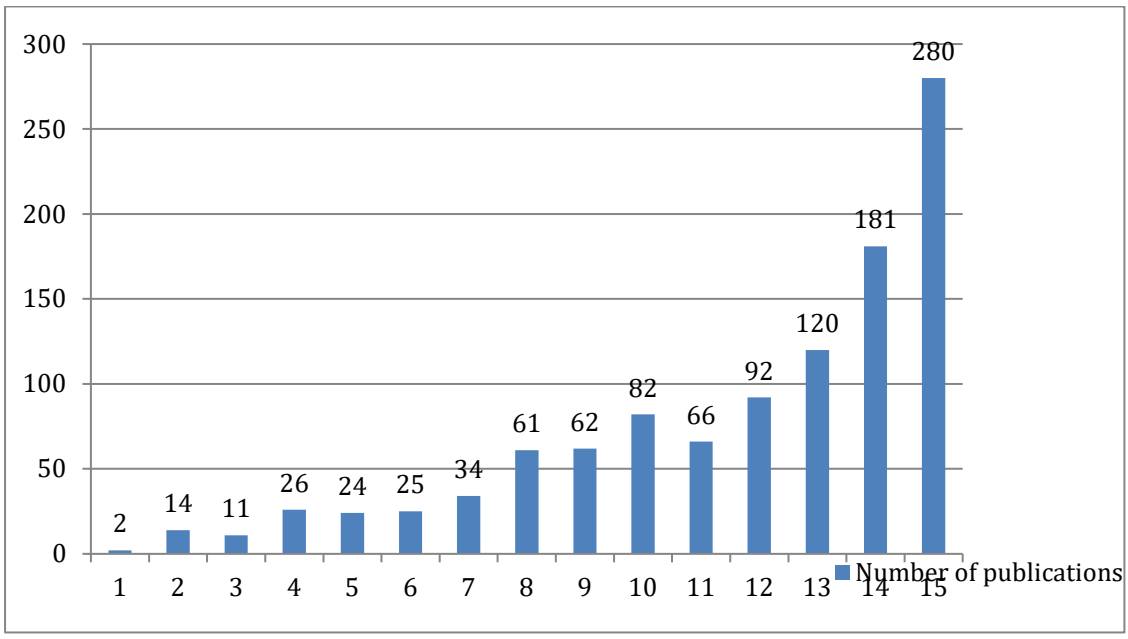

Figure 1: Annual Growth of Publications by UDOM Staff

Figure 1 illustrates the publication trends subsequent to the establishment of the University of Dodoma in 2007. In 2008, two articles were published. The data indicates a fluctuating pattern in annual publication numbers, with both increases and decreases. For example, there was an increase in publications from 62 in 2017 to 82 in 2018, followed by a decline to 66 in 2019, and then a subsequent rise to 92 in 2019. Starting from 2019, there was a gradual and consistent increase, indicating positive progress. The most significant growth occurred in 2021 and 2022, with a notable increase of 61 publications in 2021 and 99 publications in 2022, marking totals of 181 and 280 publications, respectively.

Figure 2 presents a comprehensive overview of the journals predominantly utilized in the research output of the University of Dodoma (UDOM) academic staff.

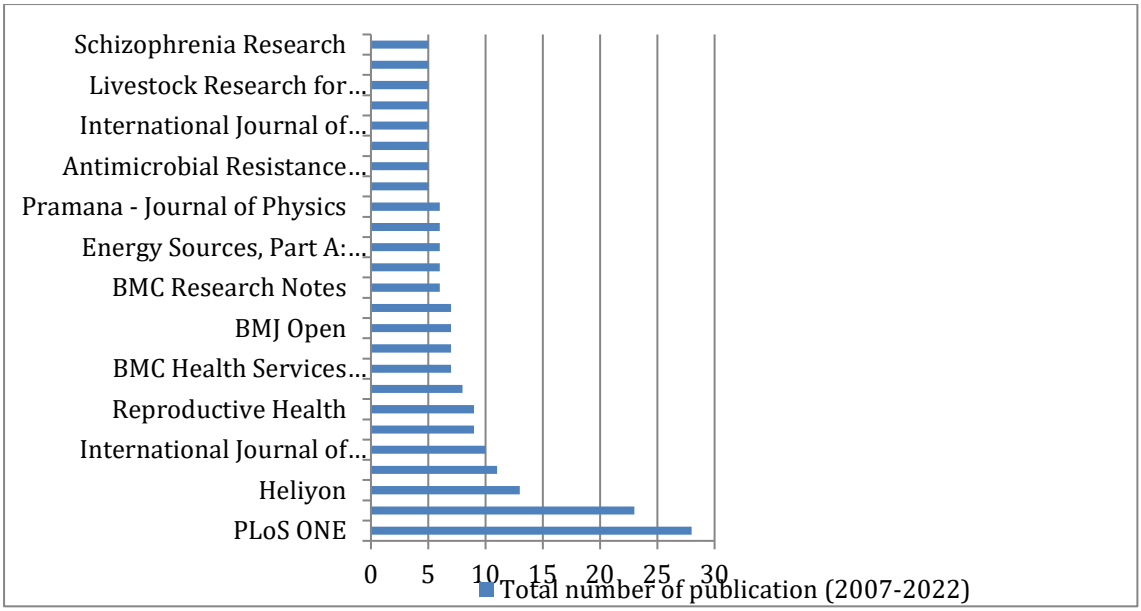

Figure 2: Journal sources for UDOM academic staff (2007-2022)

Among the journals listed, PLoS ONE emerges as the most frequently utilized, with 28 articles attributed to its publication. Following closely is the Tanzania Journal of Health Research, which features 23 articles, indicating its significant contribution to the scholarly endeavors of UDOM. Other notable journals include Heliyon, BMC Pregnancy and Childbirth, and the International Journal of Surgery Case Reports, each showcasing substantial engagement with UDOM research, with 13, 11, and 10 articles, respectively.

Table 1: Journals with High Citations

Name of Journal	Number of citation	Number of articles
PLoS ONE	364	28
Reviews in Aquaculture	237	1
eLife	180	1
Schizophrenia Research	167	5
IEEE Transactions on Power Delivery	161	6
Astrophysics and Space Science	145	3
Reproductive Health	141	9
Applied Geography	129	1
Cancer	126	1
Groundwater for Sustainable Development	111	1
Communications in Statistics - Theory and Methods	97	4

Tanzania Journal of Health Research	94	23
Physica B: Condensed Matter	87	4
World Mycotoxin Journal	87	1
Tropical Medicine and International Health	82	8
Journal of Structural Geology	80	1
Ecosystems	79	1
BMC Pregnancy and Childbirth	78	11
BMC Public Health	78	7
Cogent Food and Agriculture	71	3

In the academic community, highly cited journals play a crucial role in influencing the academic community, shaping research agendas, and driving scientific discourse They propel advancements in various fields. Table 1 presents data on the most cited journals, such as "PLoS ONE," "Reviews in Aquaculture," and "eLife," each with significant citation counts. "PLoS ONE" leads the list with 364 citations, establishing itself as a prominent open-access platform for multidisciplinary research. Its high citation count signifies widespread recognition and utilization of the knowledge shared through its pages. This journal not only shares scientific findings but also democratizes access to knowledge, fostering collaboration and innovation across disciplinary boundaries.

On the other hand, Reviews in Aquaculture, a specialized publication focusing on thorough reviews and critical analyses of developments in aquaculture research, has only one article in the dataset, yet it boasts an impressive 237 citations. This suggests that the research presented in this publication is highly pertinent and influential in the aquaculture industry. The publication serves as a valuable resource for academics, decision-makers, and industry professionals who seek to stay up to date on the latest advancements and best practices in aquaculture science and technology.

Another noteworthy journal is "eLife," renowned for its commitment to publishing high-impact research across the life sciences. Despite having only one article, it has received 180 citations, highlighting the quality and impact of its published research. The journal not only shares research findings but also contributes to scientific advancement by providing a platform for groundbreaking discoveries and promoting collaboration across different disciplines. Additionally, "eLife" represents a shift towards open-access publishing models, emphasizing accessibility, transparency, and reproducibility to enhance the rigor and credibility of scientific inquiry.

Beyond these specific journals, the overall trend of highly cited publications reflects broader dynamics within the scientific community. Journals like "Schizophrenia Research," "Reproductive Health," and "Tropical Medicine and International Health" highlight the importance of specialized outlets in addressing pressing societal challenges and advancing specialized knowledge domains. Furthermore, the presence of journals such as "IEEE Transactions on Power Delivery" and "Communications in Statistics - Theory and Methods" underscores the interdisciplinary nature of contemporary research, emphasizing the need for cross-pollination of ideas and methodologies across diverse fields.

Table 2: Ranked list of UDOM prolific Authors 2008-2022

author	Author initials	article count	sum_citation	hindex	ginidex	hcindex	hnorm	count_rank	citation_rank	hi_rank	gi_rank	hci_rank	hnorm_rank	ranks_average	overall_rank
Mpondo	BCT	34	407	14	20	12	1	2	1	1	1	2	1	1.33	1
Vuai	SAH	40	287	11	16	11	1	1	3	2	3	3	1	2.17	2
Rao	GS	31	317	11	17	11	1	3	2	2	2	3	1	2.17	2
Kibusi,	SM	31	275	11	16	13	1	3	4	2	3	1	1	2.33	3
Ntwenya,	JE	15	215	9	15	7	1	7	6	3	4	5	1	4.33	4
Bintabara	D	15	168	7	13	8	1	7	10	5	5	4	1	5.33	5
Sunzu	JM	19	118	7	11	11	1	4	15	5	6	3	1	5.67	6
Srinivasa Rao	G	16	108	8	11	8	1	6	18	4	6	4	1	6.5	7
Nyahongo,	JW	9	187	7	9	5	1	12	7	5	8	7	1	6.67	8
Anatory	J	9	172	7	9	5	1	12	9	5	8	7	1	7	9
Ernest	AI	12	117	7	11	6	1	9	16	5	6	6	1	7.17	10
Laxmikant	C	9	136	7	9	6	1	12	12	5	8	6	1	7.33	11
Munisi	DZ	14	82	7	9	7	1	8	23	5	8	5	1	8.33	12
Nyundo	AA	12	83	6	10	6	1	9	22	6	7	6	1	8.5	13
Moshi	FV	14	80	5	9	7	1	8	24	7	8	5	1	8.83	14
Elisadiki	J	6	122	5	6	6	1	15	13	7	11	6	1	8.83	14
Nnko	HJ	10	80	6	9	7	1	11	24	6	8	5	1	9.17	15
Anjaiah	J	5	119	5	5	5	1	16	14	7	12	7	1	9.5	16
Meremo	AJ	9	75	7	9	6	1	12	28	5	8	6	1	10	17
Mwansisya	TE	5	111	5	5	5	1	16	17	7	12	7	1	10	17
Shemsanga	C	9	66	6	9	8	1	12	31	6	8	4	1	10.33	18
Ismail	A	8	76	6	8	6	1	13	27	6	9	6	1	10.33	18
Tenge	AJM	3	164	3	3	3	1	18	11	9	14	9	1	10.33	18
Msabi	MM	10	66	6	9	6	1	11	31	6	8	6	1	10.5	19
Ngonyoka	A	7	76	6	7	7	1	14	27	6	10	5	1	10.5	19
Rupia	EJ	1	237	1	1	1	1	20	5	11	16	11	1	10.67	20

Peter	KH	4	95	4	4	4	1	17	19	8	13	8	1	11	21
Gibore	NS	9	63	6	8	6	1	12	33	6	9	6	1	11.17	22
Shayo	A	1	180	1	1	1	1	20	8	11	16	11	1	11.17	22
Mwampagatwa	IH	15	49	5	7	5	1	7	37	7	10	7	1	11.5	23
Sandi	F	3	93	3	3	3	1	18	20	9	14	9	1	11.83	24
Safari	I	6	63	6	6	6	1	15	33	6	11	6	1	12	25
Munyogwa	MJ	11	42	5	7	6	1	10	42	7	10	6	1	12.67	26
Kombe	GG	10	45	5	7	5	1	11	40	7	10	7	1	12.67	26
Msoffe	PLM	5	66	4	5	4	1	16	31	8	12	8	1	12.67	26
Mahenge	B	4	72	4	4	4	1	17	29	8	13	8	1	12.67	26
Macheyeki	AS	2	87	2	2	2	1	19	21	10	15	10	1	12.67	26
Mtumwa	AH	5	62	5	5	5	1	16	34	7	12	7	1	12.83	27
Shimba	MJ	4	67	4	4	4	1	17	30	8	13	8	1	12.83	27
Mwinuka	L	6	49	5	6	4	1	15	37	7	11	8	1	13.17	28

The dataset in Table 2 exhibit varying levels of productivity and impact of UDOM authors. Mpondo, B.C.T. emerges as the most prolific author, with 34 articles and 407 citations, reflecting a high h-index of 14 and g-index of 20. Following closely are Vuai, S.A.H. and Rao, G.S., each with 40 articles and 287 citations, demonstrating h-indexes of 11 and 17, respectively. These authors rank among the top contributors based on both the number of documents published and the citations received. Notably, Kibusi, S.M. with 31 articles and 275 citations, also commands attention with an h-index of 11 and an impressive g-index of 16.

Also, Ntwenya, J.E. and Bintabara, D. are identified with 15 articles each, accompanied by impressive citation counts of 215 and 168, respectively. This underscores their substantial impact and influence within their respective fields. Similarly, Sunzu, J. M. and Srinivasa, Rao G. are noted for their prolific output, with 19 and 16 articles, respectively, and significant citation counts, reflecting their contributions to advancing academic discourse (Brown et al., 2021).

Furthermore, Nyahongo, J.W. and Anatory, J., with 9 articles each, demonstrate impactful scholarly output as evidenced by their notable citation counts and h-indices, indicative of their scholarly influence and contributions to the academic community. These authors' prolific publication records and high citation metrics highlight their role in shaping and advancing their fields of study, underscoring the importance of their research contributions in academia.

On the other hand, Ernest A.I.'s scholarly impact is underscored by their significant publication record of 12 articles and 117 citations, coupled with an impressive h-index of 7, indicating substantial recognition within their field (Smith & Johnson, 2020). Furthermore, emerging scholars like Munisi, D.Z., Nyundo, A.A., Moshi, F.V., Mwampagatwa, I.H., and Macheyeki, A.S., though fewer in published articles, demonstrate promising trajectories with notable citation impacts, reflecting their growing influence in academia.

Table 3: Ranking of Highly Cited Articles

Publication	Name of Journal	Author	Citation Number	Tanzania institution
Antibiotic use in aquaculture, policies and regulation, health and environmental risks: a review of the top 15 major producers.	Reviews in Aquaculture	Lulijwa R., et al. (2020).	237	The University of Dodoma
Genomic epidemiology of artemisinin resistant malaria.	eLife	Amato R., et al. (2016).	180	National Institute For Medical Research
Factors influencing adoption and continued use of long-term soil and water conservation measures in five developing countries.	Applied Geography	de Graaff J., et al. (2008).	129	The University of Dodoma
Breast Cancer Early Detection: A Phased Approach to Implementation.	Cancer.	Ginsburg O., et al. (2020).	126	Ministry Of Health & Social Welfare, Tanzania
Fluoride occurrence in groundwater systems at global scale and status of defluoridation state of the art.	Groundwater for Sustainable Development	Kimambo V., et al. (2019).	111	University of Dar es Salaam
Charged anisotropic models for quark stars.	Astrophysics and Space Science	Sunzu J.M., et al.(2014).	90	The University# of Dodoma,
Outbreak of an acute aflatoxicosis in Tanzania during 2016.	World Mycotoxin Journal.	Kamala A., et al. (2018).	87	Tanzania Food & Nutrition Centre
Sediment properties as important predictors of carbon storage in Zostera marina meadows: A comparison of four European areas.	PLoS ONE.	Dahl M., et al. (2016).	82	Sokoine University of Agriculture
Geodynamic significance of the TRM segment in the East African Rift (W-Tanzania): Active tectonics and paleostress in the Ufipa plateau and Rukwa basin.	Journal of Structural Geology.	Delvaux D., et al. (2012).	80	Geological Survey of Tanzania
Blue Carbon Storage in Tropical Seagrass Meadows Relates to Carbonate Stock Dynamics, Plant-Sediment Processes, and Landscape Context: Insights from the Western Indian Ocean.	Ecosystems.	GullstrÃ. M., et al. (2018).	79	Sokoine University of Agriculture

Citation analysis provides insightful information on the impact of research that depends on citations from other scholars. Table 3 lists the papers that have been cited the most, with counts derived from SCOPUS data. One standout article, authored by Lulijwa et al. in 2020 and titled "Antibiotic use in aquaculture, policies and regulation, health and environmental risks: a review of the top 15 major producers, published in Reviews in Aquaculture has garnered an astounding 237 citations. The University of Dodoma is associated with this publication. The paper of Amato et al. (2016), "Genomic epidemiology of artemisinin resistant malaria," which was published in eLife, is noteworthy as well, having 180 citations and being connected to the National Institute for Medical Research (NIMR).

Table 4: Collaboration patterns of UDOM scholars between 2008 to 2022

Number of Authors	Number of publications
3	242
2	214
4	157
5	120
1	116
6	63
7	43
8	30
9	15
11	12
10	11
12	11
14	8
13	6
15	5
20	5
17	4
16	2
22	2
45	2
18	1
21	1
23	1

24	1
25	1
27	1
31	1
32	1
37	1
41	1
55	1
96	1

The collaboration patterns among scholars from the University of Dodoma (UDOM) between 2008 and 2022 provide intriguing insights into their research practices. As shown in Table 4, a substantial number of publications involve teams of three authors, totaling 242, closely followed by collaborations between two authors with 214 publications. This suggests a prevalent trend of teamwork and co-authorship among UDOM researchers. Larger teams comprising four to five authors also contribute significantly, with 157 and 120 publications respectively.

On the other hand, single-author publications, while less frequent at 116, still constitute a notable portion of UDOM's scholarly output. The data indicates a decrease in publication frequency as team size exceeds six authors suggesting a preference for smaller to moderately sized research teams at UDOM.

DISCUSSION

The objective of this present study is to conduct a bibliometric analysis of publications authored by UDOM academic staff in the Scopus database. This analysis is crucial for enhancing the impact of UDOM scholars on the worldwide repository of knowledge as the fact that research stands as a cornerstone activity at the University. Therefore, publications play a crucial role in shaping the university's scholarly footprint, through generating knowledge and addressing societal challenges.

UDOM academic staff publication trend from 2007 to 2022

The publication trend depicted in the provided data in Figure 1 illustrates a clear trajectory of growth and expansion in scholarly output over the past decade and a half. Commencing in 2008 with just two publications, the trend demonstrates a steady increase in the number of articles published each year, reflecting the dynamic nature of academic research and the evolving landscape of scientific inquiry. However, the early years, spanning from 2008 to 2011, witness modest growth, with publication numbers gradually rising from single digits to the mid-twenties. This initial phase likely mirrors the nascent stage of research initiatives, as scholars lay the groundwork for future investigations and establish the foundations of their academic works.

According to Fussy (2024) low research production is caused by the lack of commitment to pursue research due to lack of role models to engage emerging researchers to engage in research issues (Masango, 2015), inadequate research capabilities and expertise (Badr, 2018), funding gaps, lack of motivation, and institutional discord (Kadikilo et al., 2024). Adding on the similar array, (Ngongalah & Rawlings, 2018) highlighted three primary challenges to research in Africa: financial constraints, limited enthusiasm for research, and governments' underutilization of research outcomes. These factors collectively contribute to a reduced output of research, limiting the advancements in knowledge and innovation across various fields. Therefore, joint efforts from universities, governments, and funding bodies is required to enhance support for research capacity building, foster a culture of research excellence, and enhance the utilization of research outcomes to drive sustainable development and innovation locally and globally.

Additionally, year 2014 experienced a notable trend of accelerating publications with significant rise to 34 publications, followed by successive years of robust growth, culminating a remarkable increase in 2021 with 181 publications as well as 280 articles in 2022. The rise reflects culmination of factors, including increased funding opportunities (Kadikilo et al., 2023), collaboration networks both within and across institutions and disciplines the growing recognition of the importance of academic dissemination through peer-reviewed publications, as well as commitment to advancing knowledge by addressing contemporary challenges through rigorous academic inquiry (Charles, 2024; Kadikilo et al., 2023; Kazoka & Wema, 2020; Patrício & Santos, 2019).

Therefore, for a newly established university like UDOM, the university management should consider prioritizing mechanisms that encourage and support the production of peer-reviewed publications. Such include, fostering a culture of research, offering rewards for publication, and developing infrastructure to facilitate the sharing of findings

UDOM academic staff publishing outlets

Furthermore, the study reveals a diverse array of journals, spanning various disciplines, reflecting the interdisciplinary nature of research conducted at UDOM. Journals such as Global Ecology and Conservation, Reproductive Health, and Tropical Medicine and International Health underscore UDOM's commitment to addressing global health and environmental challenges. Moreover, BMC Health Services Research, BMC Public Health, and BMJ Open highlight UDOM's engagement with health services and public health research, indicative of its contribution to addressing pressing societal issues.

The table also elucidates UDOM's diverse academic contributions in esteemed journals such as the Proceedings of the 4th WSEAS International Conference on Finite Differences - Finite Elements - Finite Volumes - Boundary Elements (F-and-B '11), IEEE Transactions on Power Delivery, and Pramana - Journal of Physics. These publications underscore UDOM's commitment to advancing knowledge across diverse domains, including engineering, physics, public health, and environmental studies as well as its interdisciplinary approach to research and its commitment to addressing local, regional, and global challenges through scholarly inquiry and dissemination. According to Díaz (2023), Nathan & Shawkataly (2019) and Raphael & Lwoga (2017), publishing in highly reputable and cited journals enhances institutional recognition, researcher’s recognition,

credibility, and impact within the academic community; academic promotion (Fox & Mathers, 2000), funding for grants and research projects, strategic partnerships as well as shaping scientific discourse. Additionally, contributing to these journals allows the institution to fulfill its civic mandate by addressing contemporary global challenges, while simultaneously advancing academic discourse and contributing to the global knowledge base.

Therefore, to encourage scholars to publish in prestigious journals, institutions should implement a comprehensive strategy that emphasizes both intrinsic and extrinsic benefits. One approach is to foster a research culture that prioritizes scholarly excellence and impact, encouraging researchers to view their work as part of a larger effort to advance knowledge and address global challenges (Wahid et al., 2020). Recognition within the academic community serves as a strong motivator, as publications in highly regarded journals often lead to greater visibility, credibility, and influence (Díaz, 2023; Nathan & Shawkataly, 2019; Raphael & Lwoga, 2017). Institutions can capitalize on this by establishing clear pathways for academic advancement that are directly linked to high-quality publications.

In the light of the above mentioning, university management through its respective research directorates should emphasize researchers on adherence to high research standards in the global research community and producing groundbreaking, rigorous works as impactful research often leads to greater citations and influence over time. Also, as many university ranking systems rely on number of publications in top tier journals, the ambition to improve UDOM position in international rankings, rely on quality publications in top tier journals. Again, strong network resulting from high impact journals will connect researchers and foster joint research projects, co-authored publications, and increased institutional recognition (Donthu et al., 2021)]. This also applies to all higher learning institutions who intend to remain relevant to local and global research landscape and in solving societal issues.

The UDOM prolific authors

This study further investigated the performance of UDOM scholars by examining both the citations received and the number of documents published. As highlighted by Haustein & Larivière (2015), citation analysis is an indisputable metric for measuring the intellectual influence of scholarly work, showcasing how the number of citations a paper garners signifies its scientific importance and contribution to advancing knowledge. The findings in Table 2 elucidates varying levels of productivity and impact of authors at the University of Dodoma (UDOM), Metrics such as the number of publications, citations, and indices like the h-index and g-index provide critical insights into an author's scholarly impact (Denadai et al., 2014; Donthu et al., 2021; Haustein & Larivière, 2015). The productivity of authors, as depicted in Table 2, serves as a key indicator of their influence within their respective fields. According to Nieminen et al. (2006) high publication counts, coupled with significant citation rates, not only reflect prolific output but also underscore the academic impact of the work. In scholarly contexts, both the quantity of publications and their citation frequency signify the research's relevance and contribution to advancing knowledge (Aksnes et al., 2019).

Moreover, the h-index and g-index are crucial metrics for assessing research quality and an author's reputation (Díaz, 2023). These indices gauge not only the volume of work but also its

sustained influence over time, making them vital indicators for career advancement, securing competitive grants, and achieving institutional recognition (Hirsch, 2005). Therefore, authors with high h-indexes and g-indexes are better positioned for academic promotions, leadership roles in research projects, and opportunities for prestigious funding. Their sustained contributions to scholarly discourse validate their expertise, reinforcing their influence within their discipline. Therefore, researchers should position themselves to achieve this endeavour.

The results imply that the rise of prolific authors significant demonstrates their capacity to shape discourse in their fields, influence peers, and contribute to the accumulation of knowledge by enhancing academic influence and knowledge dissemination both within and beyond the institution (Denadai et al., 2014). This growth not only strengthens their presence on academic platforms but also contributes to the global knowledge repository. According to Nieminen et al. (2006), high publication and citation rates signify the academic relevance and broader impact of research, while Aksnes et al. (2019) emphasize that such metrics highlight the authors' role in advancing their respective disciplines. Therefore, the growth of prolific authors not only strengthens institutional prestige but also contributes to the overall advancement of scientific and scholarly knowledge.

Author collaboration

Moreover, the prevalence of articles with two or three authors in the dataset highlights a significant trend in scholarly collaboration. This observation suggests that a substantial amount of research is conducted through partnerships between a limited number of researchers, whether they are colleagues within the same institution or collaborators across different organizations (Ocholla et al., 2012). Such collaborations facilitate the exchange of ideas and expertise, potentially enhancing the quality and impact of research outputs (Ninkov et al., 2022). As noted by Bornmann & Daniel (2008) the presence of multiple authors in top publications can influence citation counts due to various factors such as journal accessibility, publication quality, and author visibility. This underscores the multifaceted nature of citation metrics, where the collaborative efforts reflected in joint authorship can contribute to the visibility and recognition of scholarly work within the scientific community (Wahid et al., 2020). Thus, partnerships among researchers play a crucial role in advancing knowledge and fostering impactful research outcomes (Jones, 2021).

Articles authored by a single individual also constitute a substantial portion of the dataset. While solo-authored papers may be less common in certain fields, they nonetheless represent independent research efforts and the unique contributions of individual scholars. On the other hand, articles with higher numbers of authors, such as those involving four or more contributors, highlight the significance of teamwork and collective effort in contemporary research endeavors. Collaborations among multiple authors enable the pooling of diverse skills, resources, and perspectives, often leading to more comprehensive and impactful research outcomes (Aksnes et al., 2019; Ninkov et al., 2022). Arguing on the issue of authorship inflation, Tilak et al. (2015) noted that the individual desire to advance in academic career and the increasing pressure to publish, which is fuelled by promotion policies and incentive systems are the causative factors for authorship inflation.

Moreover, the data includes a few instances of articles with exceptionally high numbers of authors, such as those involving seven or more contributors. High author counts in scientific publications reflect a notable trend in contemporary scientific research indicating large-scale collaborative efforts or interdisciplinary research initiatives. These collaborations foster innovation and exchange diverse perspectives, highlighting the growing complexity of scientific investigation. Lungeanu et al. (2014) argue that collaborative efforts in research promote innovation by enabling the exchange of diverse perspectives and expertise across different fields.

The trend underscores the increasing complexity and interconnectedness of scientific inquiry, as researchers from various disciplines collaborate to address complex challenges and explore new frontiers of knowledge. Infact, Andrés (2010) adds that academic work relies on teamwork, just as industrial production does. However, Tilak et al. (2015) and Camp & Escott (2013) ascertain that authorship proliferations especially in medical fields is mainly caused by increased complexity of research, pressure to publish, and the putative roles of those who contributed to collecting data.

The scholarly implication of collaboration in research productivity highlights the growing complexity and interconnectedness of scientific inquiry, as researchers from diverse disciplines come together to tackle multifaceted challenges and explore new areas of knowledge. This trend underscores the importance of teamwork in academic work, paralleling its role in industrial production (Andrés, 2009). Collaborative efforts often enhance research productivity by combining expertise and resources, leading to more comprehensive and innovative solutions. However, as noted by Tilak et al. (2015) and Camp & Escott (2013), the proliferation of authorship, particularly in fields such as medicine, is driven by the increasing complexity of research, the pressure to publish, and the various contributions of individuals involved in data collection. These factors not only reflect the collaborative nature of modern research but also underscore the need to address issues related to authorship attribution and the distribution of credit in collaborative endeavours.

In general, the significant volume of scientific publications produced by UDOM from 2008 to 2022 underscores the university's commitment to research excellence and its crucial role in advancing societal progress through knowledge creation and dissemination. Academic researchers within universities are urged to contribute to the global academic discourse, to elevate the intellectual reputation of their institutions, making them as recognized centers of knowledge and innovation (Kadikilo et al., 2024). In fact, Institutions known for their robust research activities are often seen as leaders in education and innovation as research serves as a marker of university quality.

Therefore, prioritizing increased funding to support researchers at higher education institutions is crucial for sustaining and expanding their essential contributions to scientific advancement and economic development (Jones, 2021). This highlights the need to advocate for policies that secure increased government funding for Tanzanian universities and research institutes (Fussy, 2024). Such financial support is vital for fostering greater collaboration among researchers, policymakers, and service providers, thereby bridging the gap between research findings, policy formulation, and practical implementation. This alignment has the potential to

significantly enhance evidence-based decision-making and promote sustainable development, ultimately improving social welfare and strengthening Tanzania's global standing in research.

Local and international collaborations must be prioritized to maximize the impact of scientific outputs. Such collaborative efforts not only enhance the visibility of research but also promote interdisciplinary innovations and insights (Budur et al., 2024; Kadikilo et al., 2023). These initiatives are crucial for translating research findings into actionable policies and practices that effectively address societal challenges and positively impact communities. By embracing integrated approaches, the University of Dodoma and Tanzania as a whole can leverage their research strengths to achieve lasting socio-economic benefits while securing a more prominent presence on the international research stage. This strategic alignment will not only advance academic excellence but also contribute to the sustainable development of the region.

The selection of publication venues in highly cited journals is crucial for researchers, as these journals significantly elevate the visibility and importance of their work, thereby enhancing its recognition and potential impact on future research directions (Donthu et al., 2021; Kadikilo et al., 2023). This strategic decision not only benefits individual researchers but also enriches the broader scholarly dialogue by ensuring that significant discoveries reach a wider audience, ultimately contributing to the advancement of knowledge. Consequently, researchers at the University of Dodoma (UDOM) should aspire to publish in highly cited journals to enhance the recognition and ranking of their work, as well as to maximize the societal impact of their research outputs. This commitment to high-quality publication will position UDOM as a leader in the academic community and facilitate meaningful contributions to societal challenges.

CONCLUSION

The findings of this paper imply that the University of Dodoma (UDOM) has a dynamic and evolving research landscape that is characterized by a growing specialization in various academic fields. The emphasis on citation metrics highlights the importance of recognizing and promoting high-impact research to enhance the university's academic reputation. Additionally, the identification of key authors and their collaborative efforts suggests that fostering strong research networks and partnerships is crucial for sustaining and expanding UDOM's scholarly influence. These insights could guide the university's future strategic planning, particularly in prioritizing funding, nurturing emerging research areas, and building robust collaborative frameworks to further strengthen its academic profile and impact.

RECOMMENDATIONS

1. It is recommended that institutions encourage researchers to submit to top-tier journals by offering tangible incentives such as grant opportunities, research funding, and strategic partnerships. Additionally, institutions should implement structured mentorship programs to help early-career researchers navigate the complex publishing process and reduce barriers to entry in high-impact journals. By fostering an environment that promotes intellectual fulfillment, career development, and institutional support, institutions can motivate researchers to engage with leading academic platforms and contribute to the global body of knowledge.

2. It is recommended that institutions invest in training programs and workshops to enhance research skills and expertise among emerging scholars, as inadequate research capabilities significantly contribute to low research production. Additionally, implementing mentorship programs that connect emerging researchers with experienced academics can provide essential guidance, motivation, and role models, fostering a more vibrant research culture and ultimately increasing the quality of research productivity.
3. It is recommended that universities and research institutions collaborate with governmental and private sectors to secure substantial and sustained funding for research projects. Additionally, universities should create supportive environments that foster research activities by offering incentives for high-quality research. This includes enhancing access to research facilities and resources, as well as recognizing and rewarding significant contributions to research.
4. It is recommended that universities, in collaboration with the government, establish mechanisms for translating research findings into practical applications and policy decisions. This approach will motivate researchers to engage in critical research that addresses emerging societal challenges.
5. In order to foster interdisciplinary research, expand expertise, exchange of knowledge and resources, universities should strengthen partnerships with local and internal institutions, industry stakeholders and government agencies to align research with national priorities and address specific societal challenges within Tanzania.

References

Ahmi, A. (2021). *Bibliometric analysis for beginners: a starter guide to begin with a bibliometric study using Scopus dataset and tools such as microsoft excel, Harzing's publish or perish and VOSviewer software* (Pre print).

Ainsworth, G. B., Redpath, S. M., Wilson, M., Wernham, C., & Young, J. C. (2020). Integrating scientific and local knowledge to address conservation conflicts: Towards a practical framework based on lessons learned from a Scottish case study. *Elsevier*, *147*, 46–55. https://doi.org/doi.org/10.1016/j.envsci.2020.02.017

Aksnes, D. W., Langfeldt, L., & Wouters, P. (2019). Citations, citation indicators, and research quality: an overview of basic concepts and theories. *SAGE Open*, 1–17. https://doi.org/10.1177/2158244019829575

Andrés, A. (2009). *Measuring academic research: how to undertake a bibliometric study*. Woodhead Publishing Limited.

Andrés, A. (2010). *Measuring academic research: how to undertake a bibliometric study*. Woodhead Publishing Limited. https://doi.org/10.1533/9781780630182

Badr, M. Z. (2018). Challenges Facing Scientific Research in Developing Countries : 2 . Environment and Resources. *Egyptian Journal of Basic and Clinical Pharmacology*, *8*, 1–2. https://doi.org/10.11131/2018/101388

Bornmann, L., & Daniel, H. (2008). What do citation counts measure? A review of studies on citing behavior. *Journal of Documentation*, *64*(1), 45–80. https://doi.org/10.1108/00220410810844150

Budur, T., Abdullah, H., Rashid, C. A., & Demirer, H. (2024). The connection between knowledge management processes and sustainability at Higher Education Institutions. *J Knowl Econ*. https://doi.org/10.1007/s13132-023-01664-4

Camp, M., & Escott, B. G. (2013). Authorship Proliferation in the Orthopaedic Literature. *The Journal of Bone & Joint Surgery*, *94*(7). https://doi.org/10.2106/JBJS.L.00519

Charles, A. (2024). Barriers to research productivity of academics in Tanzania higher education institutions : the need for policy interventions. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2024.2351285

Chellappandi, P. D., & Vijayakumar, C. (2018). Bibliometrics, scientometrics, webometrics / cybermetrics, informetrics and altmetrics-An emerging field in library and information science research. *Shanlax International Journal of Education*, *7*(1), 5–8. https://doi.org/doi.org/10.5281/ zenodo.2529398

Denadai, R., Goldenberg, D. C., & Raposo-Do-Amaral, C. E. (2014). Bibliometric analysis of articles published in the Brazilian Journal of Plastic Surgery between 2005 and 2012. Part I: quantitative analysis of articles, authors, and geographical distribution. *Revista Brasileira de Cirurgia Plástica (RBCP) – Brazilian Journal of Plastic Sugery*, *29*(1), 2–9. https://doi.org/10.5935/2177-1235.2014rbcp0002

Díaz, J. R. G. (2023). Publishing in indexed journals with a high impact factor: Importance and strategies to achieve this. *Journal of the Selva Andina Animal Science*, *10*(2). https://doi.org/10.36610/j.jsaas.2023.100200072x

Donthu, N., Kumar, S., Pattnaik, D., & Lim, W. M. (2021). A bibliometric retrospection of marketing from the lens of psychology: Insights from Psychology & Marketing. *Psychology and Marketing*. https://doi.org/10.1002/mar.21472

Fox, N. J., & Mathers, N. (2000). *Surveys and Questionnaires SEE PROFILE*. https://www.researchgate.net/publication/270684903

Fussy, D. S. (2024). Development of research-intensive universities in Tanzania. *Journal of Applied Research in Higher Education*. https://doi.org/10.1108/JARHE-10-2023-0500

Haustein, S., & Larivière, V. (2015). The use of bibliometrics for assessing research: Possibilities, limitations and adverse effects. *Incentives and Performance: Governance of Research Organizations*, 121–139. https://doi.org/10.1007/978-3-319-09785-5_8

Hazelkorn, E., & Gibson, A. (2017). Global science, national research, and the question of university rankings. *Palgrave Communications*, *3*(1). https://doi.org/10.1057/s41599-017-0011-6

Hernández-Torrano, D., & Ho, Y. S. (2021). A bibliometric analysis of publications in the web of science category of educational psychology in the last two decades. *Psicologia Educativa*, *27*(2), 101–113. https://doi.org/10.5093/psed2021a19

Hirsch, J. E. (2005). An Index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences*, 16569–16572. https://doi.org/10.1073/pnas.0507655102

Islam, M. A., & Widen, G. (2023). Bibliometric analysis of the VINE Journal of Information and Knowledge Management Systems: 2000–2020. *VINE Journal of Information and Knowledge Management Systems*, *53*(3), 467–490. https://doi.org/10.1108/VJIKMS-07-2020-0126

Jones, B. F. (2021). The rise of research teams: benefits and costs in economics. *Journal of Economic Perspectives*, *35*(2), 191–216.

Kadikilo, A. C., Kulshrestha, R., Sahay, A., & Nayak, P. (2023). Research promotion strategies to enhance research productivity in Tanzanian higher educational institutions. *Review of Education*, *11*(3). https://doi.org/10.1002/rev3.3436

Kadikilo, A. C., Nayak, P., & Sahay, A. (2024). Barriers to research productivity of academics in Tanzania higher education institutions: the need for policy interventions. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2024.2351285

Kazoka, E. J., & Wema, E. (2020). An Analysis of the Factors Influencing Research Capacity Developments in Higher Education Institutions in Tanzania. *University of Dar Es Salaam Library Journal*, *15*(1), 45–66.

Lungeanu, A., Huang, Y., & Contractor, N. (2014). Understanding the assembly of interdisciplinary teams and its impact on performance. *Journal of Informetrics*, *8*(1), 59–70. https://doi.org/10.1016/j.joi.2013.10.006

Masango, C. A. (2015). Combating Inhibitors of Quality Research Outputs at the University of Cape Town. *Journal of Research Administration*, *46*(1), 11–24.

Matcharashvili, T., Tsveraidze, Z., Sborshchikovi, A., & Matcharashvili, T. (2014). The importance of bibliometric indicators for the analysis of research performance in Georgia. *Trames*, *18*(4), 345–356. https://doi.org/10.3176/tr.2014.4.03

Mauricio, M. F. (2023). Achievement and Aspiration of Local Colleges and Universities on the Research Agenda of Funding Institutions : Basis for Research Capability Building. *Merican Journal of Interdiciplinary Research and Innovation (AJIRI)*, *2*(3).

Nathan, R. J., & Shawkataly, O. Bin. (2019). Publications, citations and impact factors: Myth and reality. *Australian Universities Review*, *61*(1), 42–48.

Ngongalah, L., & Rawlings, N. N. (2018). *Research challenges in Africa – an exploratory study on the*.

Nieminen, P., Carpenter, J., Rucker, G., & Schumacher, M. (2006). The relationship between quality of research and citation frequency. *BMC Medical Research Methodology*, *6*(3), 1–8. https://doi.org/10.1186/1471-2288-6-42

Ninkov, A., Frank, J. R., & Maggio, L. A. (2022). Bibliometrics: Methods for studying academic publishing. *Perspectives on Medical Education*, *11*(3), 173–176. https://doi.org/10.1007/s40037-021-00695-4

Ocholla, D., Ocholla, L., & Onyancha, O. B. (2012). Research visibility, publication patterns and output of academic librarians in sub-Saharan Africa: The case of Eastern Africa. *Aslib Proceedings: New Information Perspectives*, *64*(5), 478–493. https://doi.org/10.1108/00012531211263102

Padrós-Cuxart, R., Riera-Quintero, C., & March-Mir, F. (2016). Bibliometrics: A publication analysis tool. *CEUR Workshop Proceedings*, *1567*, 44–53.

Patrício, M. T., & Santos, A. (2019). Collaborative research projects in doctoral programs: a case study in Portugal. *Studies in Higher Education*, *45*(3). https://doi.org/10.1080/03075079.2019.1607282

Polas, M. R. H. (2024). Publish or perish! challenges and strategies in publishing research papers in top tier academic journals. *Journal of Business & Management*, *2*(1), 11–22. https://doi.org/10.47747/jbm.v2i1.1593

Purcell, W. M., Henriksen, H., & Spengler, J. D. (2019). Universities as the engine of transformational sustainability toward delivering the sustainable development goals: "Living labs" for sustainability. *International Journal of Sustainability in Higher Education*, *20*(8), 1343–1357. https://doi.org/10.1108/IJSHE-02-2019-0103

Raphael, Z. S., & Lwoga, E. T. (2017). Research growth and citation impact of Tanzanian scholars: A 24 years scientometric study. *International Journal of Library and Information Science*, *9*(8), 66–77. https://doi.org/10.5897/ijlis2017.0786

Tilak, G., Prasad, V., & Jena, A. B. (2015). Authorship inflation in medical publications. *Inquiry (United States)*, *52*, 3–6. https://doi.org/10.1177/0046958015598311

Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *J Bus Res.*, *118*, 253–261. https://doi.org/10.1016/j.jbusres.2020.06.057

Wahid, R., Ahmi, A., & Alam, A. S. A. F. (2020). Growth and collaboration in massive open online courses: a bibliometric analysis. *International Review of Research in Open and Distributed Learning*, *21*(4), 292–322. https://doi.org/10.19173/IRRODL.V21I4.4693