

Measuring the impact of local research: a case of the Medical Journal of Zambia

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Abstract:

Knowledge production is critical to the success of the health care industry. Knowledge production requires a publication outlet in which the knowledge product may be published and made available to the relevant constituency. Once knowledge is produced, it requires utilisation, and critically that the manner in which knowledge is utilised is required for the continuous process of knowledge production. However, it is difficult to measure the impact of a journal that has not been indexed in major international databases. How then, does one decide how important such a journal is to its local community? How does one measure the impact of a journal that does not have traditional measuring metrics, a journal without an Impact Factor? In academia, impact factor metrics have been the internationally accepted norm of measuring research output impact. The Medical Journal of Zambia is a journal that is published by the Medical Association of Zambia, a membership body of Medical Doctors in Zambia. The Medical Journal of Zambia is published every year on a quarterly basis, with articles in different medical specialties as well as those that are at the intersection of medicine, health and the social economic, environment and political sphere. This paper looks at alternative ways of measuring the impact of local research output by utilising the Medical Journal of Zambia as a case study.

Keywords: Impact Factor, Knowledge Production, Research, Research Output, Zambia

Introduction

Research impact is a subject that is of interest to many people in the knowledge production process. The interest applies at both an institutional as well as at a researcher level. People do not produce knowledge just for the sake of producing that knowledge, they want to know whether that knowledge has been utilised, implemented by society and ultimately changed their lives. Journals are produced for the same reasons that articles that are published in those journals are used by people to make a positive change in their lives. In this case, the knowledge contained in a journal such as the Medical Journal of Zambia (MJZ) should be utilised by medical and health practitioners to improve their clinical practice and ultimately for the continued well-being of the Zambian society. And by improving their clinical practice, they improve the services they offer to both patients and the public.

The Medical Journal of Zambia

The Medical Journal of Zambia is a journal that is published by the Medical Association of Zambia (ZMA), a membership body of Medical Doctors in Zambia. The Medical Journal of Zambia is published every year on a quarterly basis, with articles in different medical specialties as well as those that are at the conjunction of medicine, health and the social economic, environment and political sphere. It is a “peer-reviewed quarterly journal intended for the publication of papers from all specialities of medicine (Internal Medicine, Surgery, Paediatrics and, Obstetrics and Gynaecology) and their subspecialties, basic sciences, public health, social medicine and medical politics”. Its mandate is to be the:

- “dissemination forum for medical and allied research as well as clinical opinion and practice,
- “source of medical information for evidence-based patient care and public health for its readership,
- “provide medical researchers, biomedical scientists, clinicians and all allied health worker professionals with a forum to enhance their publication skills, and
- source of local continuing education to almost all health care professionals in Zambia (Kachimba, 2010).

The need for publishing locally by Zambia authors cannot be emphasised enough; when one looks at the publishing focus of the Medical Journal of Zambia. It is important that local authors publish in local journals for their local audience, but this should not mean that 100% of a local journal’s authorship should only be from within the country; there should be a balance between local articles and those coming from international authors; it is critical that there is a cross pollination of ideas. It follows therefore, that local Zambian authors should also be encouraged to publish in international journals. In this context, Smart, Pearce and Tonukari (2004, p. 330) have argued that:

“Most African journal editors and African scholars see potential advantages in publishing within their own region. If academic publishing is seen as an exchange of ideas and information among scholars working in the same area rather than as a tool for promotion up the academic ladder, it is clear that a regional pool of ideas governed by the interests of those living there is desirable. If this sounds parochial, consider how surprised Canadian scholars would be to find their publications largely dominated by the interests and theories of Malaysians rather than their own”.

The Medical Journal of Zambia was first published in 1967, published in Ndola by the Associated Reviews Limited, three years after Zambia got its independence on behalf of the Zambia Medical Association. This also occurred one year after the University of Zambia (UNZA) Medical School was established, as evidenced by the fact that for a long time the journal has been associated with the school although it has been, and it is still owned and published by the Zambia Medical Association. This association with the University of Zambia Medical School has been established mainly because, for a long time, the Editor-in-Chief of the journal was a faculty member of the University of Zambia School of Medicine. What that means is that the journal secretariat has been held by the UNZA School of Medicine. However, the UNZA School of Medicine's site of practice is the University Teaching Hospital, the largest tertiary level hospital. They share the same physical premises. The journal is currently published online only, with the print version ceasing publication in 2010. The Medical Journal of Zambia is not indexed in major international databases and therefore does not enjoy the benefits of traditional measuring metrics.

Since some journals in Africa, just like the Medical Journal of Zambia, are not indexed in major databases such as those of the Medline, Scopus, Web of Science and other internationally recognised indexing databases, it is sometimes difficult to measure and track its impact by using traditional measurement metrics of citation impact. Making local research output visible has been problematic for both researchers and institutions especially in sub Saharan countries. This is because of a myriad of factors, such the difficulty with which researchers in most African countries find themselves in, that is to break through and have their articles published in A-list international journals. It is important therefore that the Medical Journal of Zambia considers other alternative journal measurement metrics in order to be able to indicate its impact. It is also important that metrics that look at citation data, page views and downloads are used to indicate use of the importance of a journal and its responsibility to its local community.

The argument of this paper is that there are other measurement metrics of a journal that can be used and are important to a journal than necessarily following the traditional citation metrics.

Objectives of this paper

This paper looks at alternative ways of measuring the impact of local research output by utilising the Medical Journal of Zambia as a case study.

Methodology

The paper adopted a theoretical review of the literature from online and hard-copy literature and used the Medical Journal of Zambia as a case study, combined with personal reflections of the authors.

Medical Journal of Zambia Web Presence

In today's publishing context, presence on the web is critical to spreading one's message. And the Medical Journal of Zambia is no exception. It is currently published as an open access journal as well as having its own home webpage (<https://www.mjz.co.zm/index.php/mjz>). See Fig. 1. Web presence increases a journal's visibility and possible downloads of the journal's articles. However, what will not be known is how those downloaded are utilised.

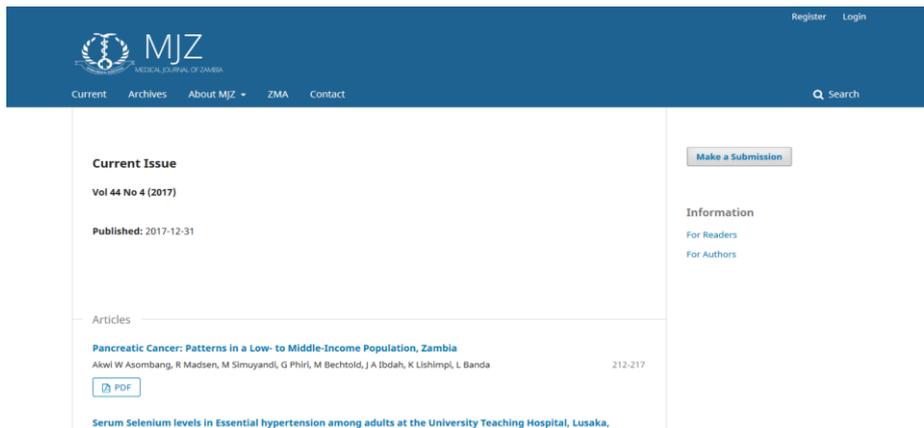


Fig. 1. Medical Journal of Zambia Webpage
<https://www.mjz.co.zm/index.php/mjz>

African Journals Online (AJOL)

The African Journals Online (AJOL) Programme was established in 1998 to “index and promote African-published journals using the Web” (Smart, 2005). According to their website, the AJOL site is useful in several ways:

- browse peer-reviewed journals from Africa,
- download full text articles from journal homepages,
- search for an article by title, author/s or keywords,
- and find other information sources and more resources for researchers and journals (African Journals Online, n.d.).

AJOL has enabled the Medical Journal of Zambia and other journals from Africa to publish full text articles online and thereby provide a wider platform from which readers could access the full-text articles. AJOL hosts “521 Journals, including 246 open access journals”, “has 13,359 issues containing 158,879 abstracts and there are 153,108 full text articles for download, of which 95,349 are open access” (African Journals Online, n.d.). See Fig 2.



Fig. 2. African Journal Webpage showing MJZ
<https://www.ajol.info/index.php/mjz>

African Journals Partnership Mentorship Programmes

The African Journals Partnership Programme (AJPP) is a mentorship programme between African journals and journals in the United Kingdom (UK) and the United States of America (USA). The programme was founded on the premise that “valuable research being carried out in African countries is often not available to a wider international audience. A central goal therefore is to strengthen participating African journals enough to be accepted into MEDLINE and other scholarly indexes, resulting in wider availability of African health and medical research to the world” (African Journals Partnership Programme, 2016). See Table 1. In this programme, the Medical Journal of Zambia partnered with the New England Journal of Medicine. Some of the activities that the AJPP used to achieve the quality of the journal articles and their visibility are listed in Table. 1. The ultimate objective of these activities has been to increase African journals’ citation impact. The programme is funded by the United States National Library of Medicine and the Fogarty International Centre of the United States of America (USA), National Institutes of Health (NIH). More recently the Elsevier Foundation has come on board to further strengthen the partnership with the aim of increasing the “reach, quality and discoverability of African research” (Schemm, 2014).

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|---|
| <ul style="list-style-type: none">▪ “Identifying equipment and facility needs▪ Identifying editorial needs▪ Providing computer hardware and software and initial training▪ Organising workshops on how to manage a journal▪ Providing training on improving business plans and developing strategic plans for effective and sustainable publishing operations▪ Establishing internships in the African journals' editorial offices to mentor and train a next generation of editors▪ Identifying and supporting Internet providers to host the journals' websites▪ Providing training on managing, improving, and maintaining journals' websites▪ Providing training for editors, clinicians, and scientists about how to communicate science and the importance of making research visible▪ Providing support for managing editors/business managers▪ Providing training for authors in statistics, data presentation, and data interpretation including how to use the National Library of Medicine (NLM) databases” (African Journals Partnership Programme, 2016) |
|---|

Table 1. AJPP Activities
<https://ajpp-online.org/>

African Index Medicus Database

The Medical Journal of Zambia is indexed in the African Index Medicus Database (AIM). The African Index Medicus database is an index that aims to “give access to information published in or related to Africa and to encourage local publishing” (World Health Organisation, n.d.). AIM is a product of the Association for Health Information and Libraries in Africa (AHILA) and the World Health Organisation who have come together to produce “an international index to African health literature and information sources” (World Health Organisation, n.d.). This database has been established to solve the many challenges that most African journals face in finding themselves indexed in international indexing bibliographic databases. See Fig. 3.



Fig. 3. African Index Medicus Database
<http://indexmedicus.afro.who.int/>

In establishing this database, the World Health Organisation (n.d.) has in this regard argued that “very few African health and biomedical information sources are included in the world’s leading bibliographic databases and there is a wealth of untapped information in books, reports and studies from international development agencies, nongovernmental organisations and local institutions”. This platform enhances African journals visibility and citation potential and ensures that if African biomedical literature and knowledge is known to people from outside the African continent, it might be utilised to a greater extent. Additionally, because Africa is such a vast continent, AIM will facilitate biomedical knowledge visibility and usage with fellow African countries. See Fig. 3. The Medical Journal of Zambia is indexed in the African Index Medicus Index database as shown in Fig. 4 giving bibliographical description of individual articles in the journal and where full text articles are available, this has been accommodated in the AIM database.

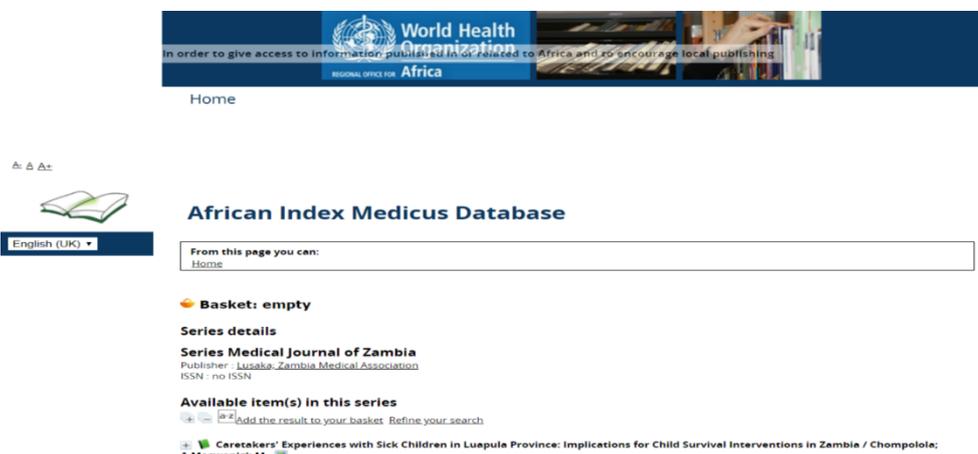


Fig. 4. MJZ on African Index Medicus database
[http://indexmedicus.afro.who.int/aim/opac_css/index.php?lvl=coll_see&id=3306
 &page=2&nbr_lignes=32&l_typedoc=a](http://indexmedicus.afro.who.int/aim/opac_css/index.php?lvl=coll_see&id=3306&page=2&nbr_lignes=32&l_typedoc=a)

Google Scholar

The Medical Journal is indexed by freely available databases such as Google Scholar. Google Scholar is a service of Google that indexes scholarly publications and enables one to “search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites” (Google Scholar, n.d.). See Fig. 5.

The screenshot shows a Google Scholar search for 'medical journal of zambia'. The search results are filtered to 'Articles' and show approximately 127,000 results. The first three results are listed below:

- Choice of place for childbirth: prevalence and correlates of utilization of health facilities in Chongwe district, Zambia** [PDF] [ajol.info](#)
 AN Hazemba, S Siziya - *Medical Journal of Zambia*, 2008 - [ajol.info](#)
 To determine the prevalence and correlates for utilization of health facilities for childbirth in a rural Chongwe district, Zambia. Design: A cross sectional study was carried among 250 mothers who had delivered babies within one year prior to the survey. A Backward multiple ...
 ☆ 99 Cited by 38 Related articles All 2 versions ⌕
- Factors associated with late antenatal care attendance in selected rural and urban communities of the copperbelt province of Zambia** [PDF] [ajol.info](#)
 I Banda, C Michelo, A Hazemba - *Medical Journal of Zambia*, 2012 - [ajol.info](#)
 Background: Despite antenatal care services being provided free of charge or sometimes at a minimal cost in Zambia, only 19% of women attend antenatal care by their fourth month of pregnancy, as recommended by World Health Organization (WHO). An estimated 21% of ...
 ☆ 99 Cited by 32 Related articles All 2 versions ⌕
- [PDF] Knowledge, attitudes and compliance with Tuberculosis treatment, Lusaka, Zambia** [PDF] [ajol.info](#)
 P Mweemba, C Haruzwishe, S Siziya, P Chipimo... - *Medical Journal of ...*, 2008 - [ajol.info](#)
 More than 1.5 million TB cases occur in sub-Saharan Africa every year. Lack of compliance to TB treatment has contributed to the steady rise of TB incidence in Zambia. The prevalence of TB was 511 per 100,000 population in 2000. Much of the increase in incidence has been ...
 ☆ 99 Cited by 24 Related articles All 6 versions ⌕

Fig. 5. MJZ on Google Scholar
https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=%22medical+journal+of+zambia%22&oq=medical

Research Gate Journal Impact

ResearchGate, despite its shortcomings, is another tool that indicates citation impact. It is a social networking site that is used by professional to share information. According to this site the Medical Journal of Zambia (Med J Zambia) Research Gate Journal Impact is 1.00 as reflected in Fig. 6 and Table 2. ResearchGate shines a light on articles that are shared on the platform and thereby increases the probabilities of those articles being cited by other researchers.

The screenshot shows the ResearchGate journal impact page for the Medical Journal of Zambia (Med J Zambia). The page displays the following information:

- Medical journal of Zambia (Med J Zambia)**
- RG Journal Impact: 1.00 ***
- *This value is calculated using ResearchGate data and is based on average citation counts from work published in this journal. The data used in the calculation may not be exhaustive.
- RG Journal impact history**

Year	RG Journal impact
2018	Available summer 2019
2012	1.00
2011	0.43

- Additional details**

Cited half-life	data not available
Immediacy index	data not available
Eigenfactor	data not available
Article influence	data not available
Website	
Other titles	Medical journal of Zambia
ISSN	0047-651X
OCLC	11429896

Fig. 6. MJZ on ResearchGate
https://www.researchgate.net/journal/0047-651X_Medical_journal_of_Zambia

Research Gate (RG) Journal Impact: 1.00 *	*This value is calculated using ResearchGate data and is based on average citation counts from work published in this journal. The data used in the calculation may not be exhaustive.
Research Gate (RG) Journal impact history	
2018 RG Journal impact	Available summer 2019
2012 RG Journal impact	1.00
2011 RG Journal impact	0.43

Table 2. MJZ on ResearchGate

https://www.researchgate.net/journal/0047-651X_Medical_journal_of_Zambia

Alternative Journal Measurement Metrics

Alternative Journal Measurement Metrics have been recommended to help highlight the work that is being done by journals that are not being indexed in traditional databases. These alternative measurement metrics called Altmetrics has been enabled by the increasing usage of online platforms which has been made possible by the advent of the Internet. Altmetrics “measures the number of times a research output gets cited, tweeted about, liked, shared, bookmarked, viewed, downloaded, mentioned, added to favourites, reviewed, or discussed. It harvests these numbers from a wide variety of open source web services that count such instances, including open access journal platforms, scholarly citation databases, web-based research sharing services, and social media” (Loria, n.d.). This “alternative - often article-level - metrics tracks web usage to quantify research impact” (Curtin University, 2018). Additionally, the metrics includes:

- “Abstract views and downloads
- Blogs and media coverage
- Social media e.g. Twitter, Google+
- Collections e.g. Mendely, Connotea and CiteULike” (Curtin University, 2018).

Discussion

African researchers are faced with a myriad of problems when it comes to publishing; the problems of inadequate infrastructure and finance, lack of publication outlets and inappropriate dissemination channels. There is also a lack of knowledge and skills within the publishing industry, i.e. skills on authorship, copyright, where to publish and what choices to make when the manuscript is finally ready for publishing, which journal to finally send the manuscript to, whether locally or internationally. All these are problems that plague African authors. As argued by Smart, Pearce and Tonukari (2004, p. 330) “apart from financial problems, there are many infrastructural and cultural factors that affect the dissemination of quality information and have resulted in a poorly developed information economy and a lack of representation within the international research community”. It follows, therefore that after one has been able to publish despite these problems, it is important that we know how that article has been utilised. Perhaps the question to ask is: what has been the impact of that one published article on Zambian society? This question cannot be adequately answered by traditional measurement metrics and more recently by alternative measurement metrics of Altmetrics.

Although traditional measurement metrics of bibliometrics, citation analysis and other alternative measurement metrics are important in trying to establish the impact of a journal, this paper argues that it is perhaps imperative that measuring the impact of a journal goes beyond these metrics. In discussing these alternative metrics, this paper will discuss the manner in which the journal itself sees its impact would be felt by their constituents. In this

regard, Kachimba (2010) at the African Journal Partnership Project Annual Review and Planning Meeting held from 8-19 May 2010 in Atlanta, Georgia, United States of America looked at the impact of the MJZ through several perspectives, namely:

- “Impact with respect to its publication scope
- Impact with respect to its readership and circulation
- Impact with respect to calibre of its authors” (Kachimba, 2010).

Following on from the above yardstick, we argue that the following aspects are important in measuring the impact of the Medical Journal of Zambia:

- **Impact on Policies in the Health Sector**

Use of the research output contained in the Medical Journal has changed policies in the health care sector. These changes can be either targeted towards the health care provider, the health officials in the Ministry of Health, the health care seekers and the general populace at large in the country.

- **Impact on Treatment Guidelines**

Local articles should reflect changes in treatment guidelines as adopted by the country’s Ministry of Health. This is helpful as medical practitioners can reflect on the treatment regimens in their practice. This is because a local article discussing the treatment of a particular ailment might be more relevant to the local context as opposed to what is happening in other countries.

- **Impact on Case Management**

Case management may sometimes differ and, therefore the relevance of local articles discussing the management of a particular disease in one part of Zambia might be more relevant to another area or town in Zambia than a city in other regions of the world such as Asia, Europe, Latin America, United Kingdom or the United States of America.

- **Impact on Education**

Research output is important in the knowledge management chain. In order for health practitioners to perfect their practice, they require access to knowledge. It is also important for health practitioners to access information that is relevant to their studies, be they ordinary studies, specialist studies or Continuous Professional Development (CPD).

- **Impact on Knowledge Production**

Medicine is a very dynamic field that requires one to keep up-to-date with information. It is important that Zambia’s local knowledge not only impacts the health care delivery process, but is continuously used in the local knowledge production process. This is only possible if Zambian authors are encouraged to write on Zambian health issues, issues that affect Zambians and that these articles are published in a local Zambian journal such as the Zambia Medical Journal.

Conclusion

Local journal production is important to the success of any local knowledge production process. It is generally agreed that knowledge production underpins any profession and medicine is no exception. However, knowledge once produced needs to be utilised, and in order to know what the impact of the produced knowledge is on society, it needs to be measured. The measurement metrics must be appropriate to the context that it is measuring. It is important that the measurement metrics regard the impact of knowledge on society is

standardised, but we argue that it should be a combination of metrics that take the local environment into account. In the end, a traditional evaluative research conducted over time intervals would be able to indicate the importance and relevance of the Medical Journal of Zambia (MJZ) to Zambians.

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