Medical Education in Nigeria: Status and travails of medical publications

Stanley N C Anyanwu

SUMMARY

It is generally accepted that the level of healthcare delivery in a society is directly related to the amount of research and dissemination of research information. Journals are a veritable tool in driving research and in continuing medical education..Fundamental tenet of academia is an obligation to disseminate acquired knowledgeJournal publications rank very high in the hierarchy of sources for decisions on healthcare funding, research endeavours and patient carePrevious studies have alluded to the underdeveloped CME and poor reading culture among Nigerian doctors. A review of the role of Nigerian medical publications in world literature shows a level probably similar to our Health status indices with poor per capita contribution to world knowledge. Only 9 journals published within Nigeria are in PUBMED with 8 having 2010 articles. Of the 45 Medical journals listed in AJOL from Nigeria only 12 have any articles in 2010. A review of causes implicated the following poor funding, poor infrastructure, poor distribution systems, poor institutional support and sharp author and editorial practices. Remedial factors highlighted included institutional commitment to philosophy of research and publications, institutional review boards and measures to eliminate common author-associated fraudulent practices like plagiarism, duplicate publication, salami slicing and others. Editor / reviewer/ author training programs should be instituted. The use of current technology like etBLAST, Cross-Ref, Plagiarism checker, Google scholar and others to check widespread author sharp practices are recommended.

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INTRODUCTION

Although Claude Organ, former editor of Archives of Surgery was quoted to have argued that there are too many journals contributing to proliferation of too much writing about too little information[1], it is generally accepted that the volume and quality of scholarly medical articles are directly related to the quality of medical education and medical practice in a community. Uthman and Uthman[2] have suggested that scientific publications play an important role in the scientific process providing a key linkage between knowledge production and use. A fundamental tenet of academia is an obligation to disseminate acquired knowledge. Research findings, Boyer says becomes consequential only as it is understood by others[3]. Doctors who are relatively more skilled in writing than in patient care attract higher wider world recognition than their peers.

From: Department of Surgery, NnamdiAzikiwe University Teaching Hospital, Nnewi. sncanyanwu@yahoo.com

Impact of medical journals

Journal publications rank very high in the hierarchy of sources for decisions on healthcare funding, research endeavours and patient care. According to Beattie and colleagues[4], in resource-poor settings, in-country national research and publications change pattern of medical practice. In addition medical publications serve as veritable mode of continuing medical education. Osler admonishes physicians of Plato's aphorism that more than any other profession they should embrace education as a life long process. This process Osler insists should include reading of foreign publications and foreign travels which inoculate against the vice of blind nationalism.[5] While this need is evident,, the optimal systems to encourage or enforce physician involvement in continuing medical education, the best methods to deliver the education and to monitor its outcome are yet to be established. Current methods include

- Voluntary formal programs including examinations
- Dissemination of information [internet, intranet, journal-based clinical cases and questions]
- Patient information

In Nigeria journal dissemination of information seems the most acceptable option.

Quantum of research publications:

The low scholarly output from low-income countries has attracted considerable amount of international attention over the years[6]. Freeman and Robbins[7] have noted that with few publications low income countries have limited involvement in the global debates on healthcare especially when such policy decisions are based on best evidence, usually published as scrutinized information in journal articles. In a Lancet report, Horton[8] reported that 31 of the world's 193 countries produce 97.% of the world's cited papers. Out of this South Africa at 29 was the only African country represented. A current Thomson Reuters analysis of the leading world publications is give in Table 1.

Table 1: Volume of medical scientific publications by country [Top 20] 2009

Rank	Country	Papers	Citations	Citations per paper
1	USA	725,599	12,555,647	17.30
2	ENGLAND	171,841	2,682,198	15.61
3	GERMANY	177,162	2,275,824	12.85
4	JAPAN	166,752	1,740,012	10.43
5	CANADA	91,288	1,549,857	16.98
6	FRANCE	113,160	1,476,267	13.05
7	ITALY	102,870	1,457,706	14.17
8	NETHERLANDS	68,795	1,228,318	17.85
9	AUSTRALIA	63,589	899,131	14.14
10	SWEDEN	47,119	796,105	16.90
11	SWITZERLAND	42,282	723,814	17.12
12	SPAIN	55,383	663,192	11.97
13	BELGIUM	32,595	568,636	17.45
14	DENMARK	24,496	443,589	18.11
15	SCOTLAND	23,863	420,265	17.61
16	FINLAND	22,461	414,671	18.46
17	PEOPLES R CHINA	50,360	397,326	7.89
18	AUSTRIA	26,425	364,346	13.79
19	ISRAEL	26,676	320,027	12.00

SOURCE: Essential Science Indicators[SM] database from Thomson Reuters.

Table 2: Number of articles indexed by PubMed from top 20countries, percentage of Africa publication and relative growth: 1996 – 2005 [Modified fromUthman and Uthman[2]]

	Number of articles (% within a calendar year)			Relative growth
	1996 - 2005	1996	2005	(%)
South Africa	11218 (29.9)	829 (34.0)	1536 (28.4)	85.3
Egypt	6557 (17.5)	414 (17.0)	956 (17.7)	130.9
Nigeria	4795 (12.8)	38 (1.6)	834 (15.4)	2094.7
Kenya	1887 (5.0)	189 (7.7)	246 (4.6)	30.2
Tunisia	1027 (2.7)	27 (1.1)	267 (4.9)	888.9
Zimbabwe	945 (2.5)	123 (5.0)	58 (1.1)	-52.8
Senegal	875 (2.3)	65 (2.7)	117 (2.2)	80.0
Morocco	863 (2.3)	33 (1.4)	141 (2.6)	327.3
Ethiopia	860 (2.3)	79 (3.2)	116 (2.1)	46.8
Tanzania	761 (2.0)	71 (2.9)	107 (2.0)	188.4
Uganda	761 (2.0)	43 (1.8)	124 (2.3)	50.7
Ghana	691 (1.8)	50 (2.10)	94 (1.7)	88.0
Ivory coast	516 (1.4)	24 (1.0)	55 (1.0)	129.2
Cameroon	512 (1.4)	24 (1.0)	83 (1.5)	245.8
Malawi	450 (1.2)	34 (1.4)	57 (1.1)	67.6
Sudan	442 (1.2)	34 (1.40)	68 (1.3)	100.0
Guinea	428 (1.1)	65 (2.7)	33 (0.6)	-49.2
Burkina fasso	365 (1.0)	22 (0.9)	39 (0.7)	77.3
Eritrea	337 (0.9)	34 (1.4)	54 (1.0)	58.8
The Gambia	335 (0.9)	31 (1.3)	33 (0.6)	6.5

Within Africa the leading countries in terms of publication volume is South Africa, Egypt and Nigeria which are also incidentally the most populous countries. Analyzing articles published in journals indexed in Pubmed and using first author affiliations, Uthman and Uthman[2] noted that within the period 1996-9005 South Africa contributed a third of all publications. More gratifying to us in Nigeria however is the 2000% quantum increase in articles from Nigeria. Indeed it is estimated that within 5 years using current trends Nigeria will equal or overtake South Africa in terms of Pubmed article publications. On a note of caution however the authors noted that using country population and GDP as measures the journal per capita output of The Gambia, Gabon and Botswana were higher.[2]

Journal visibility and indexing

Figure given above and those used by workers are usually obtained from Medline or Pubmed. While Pubmed has been frequently accused of being too rigorous, arbitrary, political or biased[9], it remains the most searched tool for biomedical articles. Visibility and indexing of journals in Pubmed has been slowly increasing for Sub-Saharan African journals from 10 in 1995 to 19 in 2004 and over 30 presently. Of this Nigeria and South Africa are contributing 9 journals each. The current status of the 9 Nigerian journals indexed in Pubmedis indicated in Table 3. The increase in indexed journals from Nigeria is salutary as it increases the visibility of Nigerian research. As seen from Table 3 about 500 articles are currently uploaded yearly from Nigerian-based, indexed journals. Unfortunately due to varied reasons mostly editorial and funding maintenance of indexing status has been difficult for 3 journals listed in Table 4 which are now out of Pubmed.

This low visibility of African journals in the Pubmed database has prompted Jimbaet al[10] to make a plea for inclusion of at least 1 biomedical journal from each country in the Pubmed database.

The ISI Web of knowledge covers more journals that Pubmed and more research fields. Unfortunately African representation is poorer with South Africa contributing the only 4 journals listed by October 2009. Other resources include CABI's Global Health database, Embase and Scopus. Newer local options include African Index Medicus and African Journals Online [AJOL]. The last, a pilot project started in 1998 and managed by the International Network for the Availability of Scientific Publication (INASP) aimed to promote the awareness and use of African- published journals in the sciences by providing access to tables of contents (TOCs) on the Internet. AJOL has really improved visibility of journals on all fields from Africa. Of the 390 journals listed as at June, 2010; there were 106 Health / Medical journals, 164 journals from Nigeria including 45 Medical journals. The listing requirements are less rigorous and articles are provided for a fee [for non-open access journals] to researchers. A major drawback is currency. Of the 45 listed journals 12are fairly current [with 2010 articles as at June 2010], another 13 had articles up to 2009 while the rest had 2008 articles or earlier.

Prior to 2004 about 70% of Nigerian authored works appeared in non-Nigerian based indexed journals. Perhaps contributing to the poor visibility of Nigerian journals in terms of indexing is the quality of articles published. In a review of what they considered 5 leading Nigerian journals [African journal of Medicine and Medical sciences, Nigerian Journal of Clinical Practice, Nigerian Postgraduate Medical Journal, Nigerian

Quarterly Journal of Hospital Medicine and West African Journal of Medicine] Adeyemo and colleagues[11] found that in the period 2005-2006 of the 580 articles published only 62 (11%) achieved level II or III evidence while a majority, 260 (45%) were classified as non-evidence of which 97 were case reports and 94 either questionnaire-based studiesor reports and guidelines. The authors advocated significant increase in funding of medical research to enhance patient care.

Table 3 : Nigerian journals currently listed in Pubmed

Journal	Latest Issue	Yearly Upload [2009]
African Journal Paediatric Surgery	August 2010	44
African Journal Med. Med. Sci.	March 2010	50
Afr J Repro. Health	Dec. 2008	17 (2008)
Annals of African Med.	June 2010	60
Niger. Journal Clin. Pract.	June 2010	110
Niger. Journal of Medicine	June 2010	96
Niger. Postgrad. Med. Journal	June 2010	52
Niger. Quart. Journal Hosp. Med	March 2010 (none in 2009)	52 (2008)
West Afr. Journal Med	June 2010	77

Table 4: Nigerian journals out of Pubmed

Journal	Year entered Pubmed	Year out of Pubmed	Total articles uploaded
Nigerian Medical Journal	1964	1979	383
Nigerian Journal of Paediatrics	1981	1993	7
Trop. J. Obs. Gynae	1988	1990	19

Table 5: Fairly current on AJOL [June, 2010]

Journal	Current Volume Uploaded
Afr. Journal Paed Surgery	7 (1)
Afr. Journal Reprod. Health	14(1)
Nigerian Hospital Practice	5(5)
Nigerian Journal Clin. Med	3(1)
Nigerian Journal. Clin Pract	13(2)
Nigerian Journal of Medicine	19(2)
Niger. Journal Orth. Trauma	9(1)
Niger. Journal Plastic Surgery	6(1)
Niger. Journal Psychiatry	8(2)
Nigerian Medical Pract.	57 (5-6)
Nigerian Medical Journal	51(1)
West Afr. Journal Medicine	29(1)

Ownership of publications

A striking feature of current journals is the ownership structure. Most are owned by medical association affiliates and by specialist medical associations. Excepting the West African Medical Journal and the Nigerian Postgraduate Medical journal owned by postgraduate training colleges only the Universities of Ibadan for African Journal of Medicine and Medical Sciences and University of Lagos for Nigerian Quarterly Journal of Hospital Medicine are represented in the current index journal listing. This is the exception from other parts of the world where universities take the lead in the establishment and nurturing of scientific publications.

Problems of Nigerian Medical publications:

Medical publications in Nigeria are bedeviled with a myriad of problems including but not limited to journal production, distribution problems, poor funding, poor staffing, Reviewers and Editorship issues and Authorship problems. Most journals have very poor circulation base. Only the Nigerian Medical journal with circulation of 5000 and the Nigerian journal of Clinical Practice with circulation of 2,000 can boast of a consistent print run in excess of 1000. Eke and Nkanginieme[12] bemoaned the status of current journals in Nigeria with poor availability in libraries of even the host institutions, poor communication facilities, poor editing, poor administrative office support staff in a scenario of lack of reading culture. A closer look at these problems reveal that on funding for instance, of the common sources of funds listed below:

- Paid subscriptions and member dues,
- Advertising and sponsorship,
- Licensing fees
- Author fees and sale of reprints
- Externally funded supplements
- Continuing Medical Education fees
- Royalties from library online sources [AJOL, OVIDetc]
- Grants [Industry, Government or Foundations

Most Nigerian journals depend on author fees and association subventions to survive. These have the added disadvantages of publishing some poor quality articles from authors willing to pay, to the fortunes of journals being tied to health of the owner society. Despite the attractions of externally funded supplements and industry grants medical journals should be circumspect about accepting funding from other sources.

With promotion-driven urge to publish or perish, authors and willing editors have had to bend a few rules. Common author infractions include duplicate publications also called redundant publications, dual publication or overlapping publication, salami slicing, data fabrication and gratuitous or gift authorships[13]. Many author infractions come under the heading of plagiarism which the American Medical Association style manual[14] lists as:

- Direct : verbatim lifting of passages without enclosing the borrowed materialin quotation marks and crediting original source
- Mosaic: borrowing ideas and opinions from an original source and a few verbatim words or phrases without crediting the original author
- Paraphrase: restating phrase or passage, providing the same meaning in different form without attribution to the original author
- Insufficient acknowledgement: Noting the original source of only part of what is borrowed or failing to cite the source material in such a way that a reader will know what is original and what is borrowed

In addition ICMJE[15] has suggested that to qualify to be listed as an author, individuals must meet all 3 of the following

- Substantial contributions to conception and design, or acquisition, analysis or interpretation of data.
- Drafting or revising for important intellectual content
- Final approval of published version

Editors:

Most editors are unpaid volunteers using their personal offices or homes with their personal resources in the running of journals. Editors and reviewers commonly act as gatekeepers and critics to scientific literature[13]. Common editorship problems include

- Poor or biased selection of reviewers
- Poor training and commitment by Reviewers. Many reviewers are unable to access or use the internet and many expect payment
  Editors and reviewers may have poor grasp of subject matter
  Journal policies may influence what is published
- Bias for or against particular authors
- Influences by current trends and fads
- Language barriers
- Specialty barriers
  These may result in publication delays or publishing low quality articles. To assist Editors and Reviewers in their onerous task the following online assistance are available

a. etBlast, an online facility developed at the University of Texas Southwestern to search for plagiarized articles. A match of more that 44% in Abstract usually indicates some form of plagiarism
b. Plagiarism checker
c. Google scholar
d. CrossRef, a subscription only resource for journals to assess whether an article is under simultaneous assessment by another journal or has been published.

RECOMMENDATIONS

There is need for strong philosophical commitment to research and publications by both government and its agencies and by institutions. This will include Health Ethics Research committees and provision of a percentage of budget to research and publications.

Provisional of adequate infrastructure by agencies establishing journals. The internet revolution has changed publication and knowledge acquisition in the way the printing press did in the middle ages. The 3rd world cannot afford being left behind. Fortunately capital outlay for broadband connections and computers are within reach. Online publishing and open access provisions are strongly recommended for all journals to increase visibility and impact. Journals should apply synergy and pooling of resources especially in Copy editing services and Distribution services and encourage utilization of available resources and assistance from agencies like AJOL, African Journal Partnership Project, Forum of African Medical Editors, Council of Science Editors, World Association of Medical Editors, BMJ-HINARI and others. These agencies will help in the areas of support for further training for Editorial and support staff in form of short-term linkages to more established journals.

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