Exploring the literature of diabetes in Nigeria: a bibliometrics study

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Abstract

This paper examines the increasing diabetes-related literature in Nigeria, using a bibliometric approach. The National Library of Medicine PubMed was used as the database for this exercise. A bibliometrics technique and Bradford–Zipf distribution were utilised. A list of periodical articles on diabetes in Nigeria published during 1966–2009 was compiled for the study. A total of 512 articles were identified. These articles were published in 57 journals. The 4-yearly distribution of literature indicated clearly that there was a rapid growth of the literature from the year 1986 onwards. The findings indicate that the literature of diabetes in Nigeria is in harmony with the Bradford–Zipf distribution.

Introduction

Among the killer diseases that are waging war against the survival, growth, and development of human beings globally, mention must be made of diabetes. It is an epidemic disease which can lead to severe chronic complications. Governments, NGOs, and information providers worldwide are now showing great concern and giving much attention to the disease. Awareness campaigns are being utilised in order to educate people on how to guard themselves against the disease; and help those already affected by the disease. Those who already have diabetes are advised on how to manage the disease and adopt lifestyles that will not aggravate the disease.

Diabetes in Africa is rapidly on the increase, especially among urban communities. The reason can be attributed principally to the nature of food consumed and lifestyles adopted. Sobnigwe and colleagues[1] have said that, 'the prevalence of diabetes mellitus and other non-communicable diseases is on the rise in African communities due to the ageing of the population and drastic lifestyle changes and accompanying urbanization and westernization.' Due to a lack of proper awareness and education, diabetes sufferers are particularly prone to complications and increased mortality. According to a report from the International Diabetes Federation (IDF), 'even though diabetes is as lethal as HIV/AIDS and cases in Africa have nearly doubled to more than 7 million within the past 15 years, the illness receives scant attention from donors or governments in Africa.'[2] This is true also of the Nigerian situation. Kolawole and colleagues have commented that, 'food exchanges, home blood sugar monitoring, continuous ambulatory insulin infusion by pump, and other modern therapies that are routinely employed in the care of diabetics in the developed world are only for a privileged few in a developing nation like Nigeria.'[3] Gray and colleagues are of the view that, 'like politics, all health and disease is local. Sound information on levels of health and illness in a specific geographic location is essential for an acceptable quality of patient care, primary care research and recruitment of health professionals to that location.'[4] According to Adefemi,[5] it has been estimated that the number of people with diabetes in Nigeria is presently over 1.5 million. This is an indication that, the disease is spreading widely and silently in the country.

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Bibliometrics

Bibliometrics refers to the study of information materials using relevant statistical and mathematical approaches. Egghe and Rousseau[6] said that 'bibliometrics is the study of documents and their bibliographic reference and citation structures.' Haiqi[7] expressed a similar view that 'bibliometrics is concerned with [application of] mathematics and statistical methods to media of communication and has become a well-established part of information research to the quantitative description of documents.' This goes in line with the comment of Marshakova-Shaikevich[8] that, 'bibliometrics was born in the 1960s and is aimed at the quantitative analysis of documentary output in science as a whole or in its fields.' Moed[9] comments that, 'during the past decades, there has been an increasing interest in the use of bibliometric indicators for assessing or monitoring scientific or technological activities. Bibliometrics involves the quantitative analysis of bibliographic data derived from scientific documents.' The flexibility and applicability of the method provides it with an opportunity to penetrate the domain of science and technology, arts and social sciences disciplines.' Janeving[10] says that 'bibliometrics methods may be applied for the mapping of different aspects of science and technology systems and contrib-

ute to information research, political decisions, and the management of research.'

Bibliometrics offers a range of methods for evaluating research productivity,[11] for individuals and institutes.[12] Evaluative bibliometrics gives quantitative information on publications, citations, and other performance indicators.[13] Somogyi and Schubert[14] undertook bibliometric studies on diabetes in the USA, and felt that the main impact of medical research on health was related to the activity of experts 'willing to participate in the information mainstream of their profession.'[14] Falagas and colleagues[15] found that, at least with regard to parasitology, the research output from Africa was disappointingly low. Others have also emphasised the major research output by Western Europe and the USA.[16]

Bibliometrics has been applied to epidemiological research,[17] diabetes, and other non-communicable diseases,[18] acupuncture,[19] nutrition,[20] HIV/AIDS,[21] and neglected tropical diseases.[22] A wide variety of countries have also been involved,[23] and the technique is now widely accepted as a method of measuring literary output[24] which is logical and accessible.[25]

Study methods

The study considered periodical literature on diabetes in Nigeria. The literature was drawn out from the National Library of Medicine PubMed using Nigeria and Diabetes as MeSH terms. PubMed was selected because it is found to be comprehensive and representative in its coverage. Somogyi and Schubert[14] described it as, 'the most comprehensive medical literature database.' In this study the number of articles on diabetes in Nigeria produced by each journal was written down and the data presented in tabular form as shown in Table 1. In order to determine the core of productive journals Bradford`s Law was applied to the data in Table 1. Bradford[26] said, 'if the journals containing articles on a given subject are arranged in decreasing order of productivity of articles they carried on the subject, then successive zones of periodicals containing the same number of articles on the subject form the simple geometric series $1:n:n^2:n^3$.' The first zone is considered the core zone and contains the most productive journals. The succeeding zones are considered to have journals that decrease in their productivity of carrying articles on the subject. The Bradford–Zipf distribution refers to determining the extent to which articles on a subject are distributed or scattered in journals. The journals may not necessarily be in the same subject area. The terms 'submissions' and 'cumulative submissions' refer to the number of titles on diabetes produced by each journal and the cumulative number of titles produced by each journal. In Table 1, cumulative number of articles and cumulative percentage of articles can be seen clearly.

Results

Growth of the literature

Table 1 shows the spread of the periodical articles produced at a 4-year interval. It clearly indicates that about 90% (461 articles) of diabetes literature as published during 1986–2009. Figure 1 shows the growth of diabetes literature in Nigeria. As one can see, from the initial stage, the growth was very slow but gradually picked up. From the year 1986 the growth of the literature became exponential. These changes in the spread and growth of the literature clearly show that research in diabetes is gaining attention and interest from Nigerian scientists, medical practitioners, researchers, scholars, and information providers. This may be related to the general Nigerian population increase, as well as specific increases in diabetes prevalence.[27] There has also been a great increase in the number of teaching and research institutes in the country.

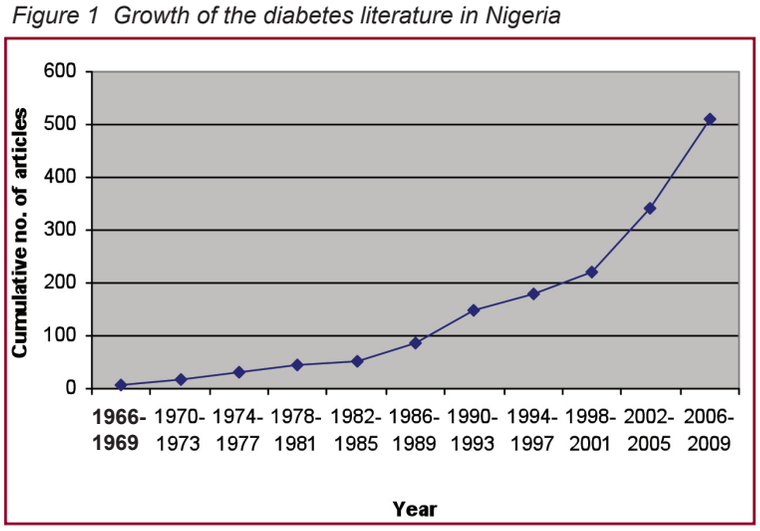
Bradford–Zipf distribution

The pattern of publication in the journals dealing with

Table 1 Four-yearly distribution of periodical articles on diabetes in Nigeria

Year	Number of articles	Cumulative number of articles	Percentage of articles	Cumulative percentage of articles
1966–1969	7	7	1.4	1.4
1970–1973	11	18	2.1	3.5
1974–1977	12	30	2.3	5.8
1978–1981	16	46	3.1	9.0
1982–1985	5	51	1.0	9.9
1986–1989	35	86	6.8	16.8
1990–1993	61	147	11.9	28.7
1994–1997	31	178	6.0	34.7
1998–2001	44	222	8.6	43.3
2002–005	118	340	23.0	66.3
2006–2009	172	512	33.6	100.0

Figure 1 Growth of the diabetes literature in Nigeria



diabetes clearly indicates that there is a tremendous scattering of the diabetes literature of Nigeria. Table 2 shows the list of 57 journals that published 512 articles relating to diabetes in Nigeria from 1966 to 2009. The journals are ranked according to their decreasing order of productivity in the literature. This means that the rankings start with the journal that published the highest number of articles on diabetes, followed by other journals in this manner up to the lowest journal that published articles on diabetes. From the data, nine journals were located within the core zone. These nine journals altogether contributed 184 articles or 36% of the total (see Table 2).

In order to determine the existence of a Bradford–Zipf distribution pattern, the journal rank numbers were plotted logarithmically on the X axis, while the cumulative submissions were plotted along the Y axis. In Figure 2, after the initial rise, the relationship is linear, which clearly shows that the literature is growing and vastly scattered and that a Bradford–Zipf relationship exists in the diabetes literature. Interestingly, this has also been shown in the nutrition literature of Bangladesh.[28]

Discussion

Diabetes literature in Nigeria is expanding very rapidly. The growth of the literature has implications for the healthy living of Nigerians. This is because the more cases and reports received about the disease in the country, the more the literature grows and expands. The growth of the literature also relates to an increase in the population and the expansion of higher institutions.

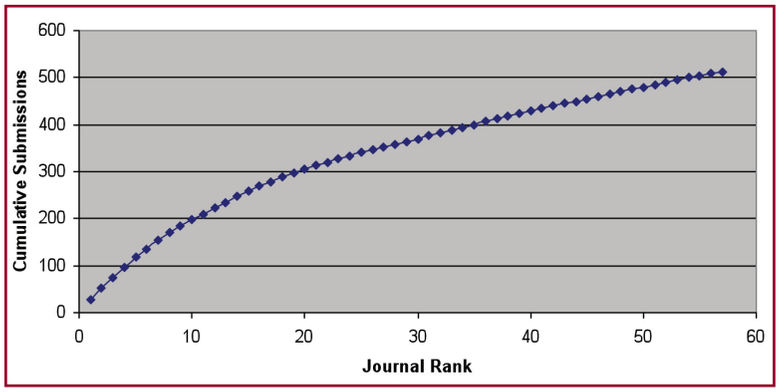
A collaborative effort needs to be exercised by medical doctors, health and allied workers to combat the spread of diabetes. Issa and colleagues [29] hold the view that 'a close collaboration and adequate liaison is essential to ensure better quality of life of patients with this chronic medical illness.'

Control and prevention of diabetes also requires a 'multidisciplinary

Table 2 Ranked order of periodicals that produced four or more articles on diabetes

Rank	Submissions of articles on diabetes	Cumulative submissions of articles on diabetes	Journal title
1	27	27	Annals of Epidemiology
2	26	53	Diabetes
3	22	75	International Journal of Obesity
4	22	97	Ethnicity & Disease
5	20	117	Atherosclerosis
6	19	136	Molecular Vision
7	18	154	Investigative Ophthalmology
8	16	170	American Journal of Kidney Disease
9	14	184	Diabetes Research & Clinical Practice
10	13	197	Acta Obstetricia et Gynecologica Scandinavica
11	13	210	Central African Journal of Medicine
12	13	223	Food Nutrition Bulletin
13	12	235	Disability & Rehabilitation
14	12	247	Planta Medicina
15	11	258	American Journal of Tropical Hygiene
16	11	269	Journal of Ethnopharmacology
17	10	279	National Medicine Association
18	10	289	Evidence-Based Complimentary & Alt Medicine
19	09	297	Clinical Genetics
20	09	306	Diabetes Care
21	07	313	Acta Bio Medical
22	07	320	Phytomedicine
23	07	327	Trans Royal Society Tropical Med & Hyg
24	07	334	Nigerian Journal of Clinical Practice
25	06	340	Nigerian Journal of Medicine
26	06	346	Journal of Alzheimer Disease
27	06	352	International Journal of Import Resources
28	06	358	West African Journal of Medicine
29	06	364	International Urology Nephrology
30	06	370	Tropical Doctor
31	06	376	West African Medical Nigerian Practice
32	06	382	Journal of Bioscience
33	06	388	Nigerian Postgraduate Medical Journal
34	06	394	Alzheimers Disease Association Journal
35	06	400	Archive Gynecology Obstetrics
36	06	406	European Journal of Pharmacology Biopharm
37	06	412	BMC Neurology
38	06	418	African Health Sciences
39	06	424	Biological Trace Element Research
40	06	430	Ann Tropical Paediatrics
41	05	435	Contraception
42	05	440	British Journal of Psychiatry
43	05	445	East African Medical Journal
44	05	450	African Journal of Medical Science
45	05	455	Journal of Contemporary Practice
46	05	460	Cardiovascular Journal of South Africa
47	05	465	Medicine
48	05	470	Pakistan Journal of Biological Science
49	05	475	Quarterly Journal of Medicine
50	05	480	Clinical & Experimental Pharmacology Physiology
51	05	485	Tropical Geography of Medicine
52	05	490	Nigerian Quarterly Journal of Medicine
53	05	495	Child Adoles Psych Mental Health
54	05	500	Journal of Human Hypertension
55	04	504	BMC Endocrine Disorders
56	04	508	Nigerian Quarterly Journal of Hospital Medicine
57	04	512	Natural Health

Figure 2 Bradford–Zipf distribution of diabetes literature in Nigeria



and multisectorial entegrated approach,'[30] concentrating on a community and primary care approach. Education, lifestyle, and behaviour change are also vital elements of control and prevention,[31] as is a firm scientific research research base.[32]

Library and information services are also a vital part of combatting diabetes.[33,34] The bibliometric approach we have described in this paper will help to fight diabetes, and improve the treatment and life quality of those with the disease. Healthy nations rely on useful, relevant, and accessible information to survive and prosper.

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