Scientometric Analysis of the Nigerian journal of Parasitology (NJP) from 1992 – 2018

DOGARA, Mustapha Musa,

Department of Biological Sciences, Federal University
Dutse, P.M.B. 7156, Dutse, Jigawa State,
Nigeria
mmdogara@yahoo.com *and* musadogara2013@gmail.com

AGBEDE, Rowland Ibrahim Shehu,
Department of Veterinary Entomology and Parasitology, Faculty of Veterinary Medicine,
University of Abuja, P. M. B. 117, Gwagwalada, Federal Capital Territory, Abuja, Nigeria
risaagbede@yahoo.co.uk

GBAJE, Shiloba Ezra
University Library, Federal University Lokoja, P. M. B. 1154, Lokoja, Kogi State, Nigeria
shiloba@yahoo.com

&

SULEIMAN, Muhammad Inuwa
sulaiman.muhd@yahoo.com

Abstract

This paper described the growth and development **NJP***, a publication of the Parasitology and Public Health Society of Nigeria as well as pattern of its publications from 1992 – 2018. Hard copies and some soft copies of twenty three (23) editions running into thirty five (35) volumes were analyzed using simple frequencies and presented in figures and a table. The journal has improved in its physical outlook and quality. It moved from a yearly publication to twice in a year (March and September), is now self-sustaining and could be accessed online. A total of six hundred and sixty nine (669) articles were published in the thirty five (35) volumes. Six hundred and thirty two (632) were research articles, ten (10) short communications, twenty five (25) reviews, one (1) case report and a memorial lecture. Twenty six (26) of the volumes have editorials out of which four (4) were written by guest "editors". From 1992 – 2006, most of the articles published were on tropical diseases such as malaria and intestinal helminthiases that are endemic in Nigeria while from 2007- 2018, the articles published were from diverse areas of parasitology and public health. Multiple-authorship was the dominant feature among contributors to the journal. Most of the authors are from universities and research institutions in Nigeria, a few were from overseas. The journal is listed in Scopus data base, but Citescore, SJR and SNIP have not been assigned to the journal and its Impact Factor computed by ResearchGate have low values. It is recommended that the society should be publishing the journal quarterly or monthly in a year. It should also address the issue of assigning Citescore, SJR and SNIP in the Scopus data base in order to improve its national and international rating.*

Keywords: Journal, Research, Disease, Parasitology, Public Health, Edition, Volume, Article

Introduction

Research is an important tool that if properly utilized brings about sustainable development in a nation. Scientific publications play an important role in expanding the frontiers of scientific knowledge usually obtained through research and its usage. That is why one of the criteria by which advances in contemporary science can be judged is the ever-increasing volume of scientific information (Plotkin and Fridman, 1975). Journal is an important medium through which advances in scientific knowledge is recorded and disseminated to the society. This is demonstrated by the rapid rate at which journals are springing up. For example, Dornholdt *et al*. (2003) opined that the total number of scientific journals (and hence published articles) doubles every 10 – 15 years and today already approaches 200,000. When the current rapid advances in scientific knowledge is considered; and that Information and Communication Technology (ICT) has made the art of publication much easier, this statement is now a gross under estimation. Journals are a time-tested and revered form of learning; they are also gifts of knowledge and experience from the past on which to improve the present and prepare for the future (Feitelberg, 1987). The implication of this is that the quality and quantity of journal publications in a nation is a reflection of its level of research and by extension of its development.

Parasitology studies deals with a broad group of infectious diseases with different incidences worldwide. Most of these diseases occur more commonly in areas with poor hygiene, where they represent a major public health problem (Bungiro and Capello, 2004; Okyay *et al.*, 2004). Unfortunately developing nations have low research productivity in the field of Parasitology (Falagas, Papastamataki and Blitziotis, 2006). Perhaps this explains the low level of growth of biomedical journals including parasitology in developing nations. Research production in general in Africa is skewed, South Africa accounts for one-third, Nigeria and Egypt jointly account for another one-third and the rest is shared among the remaining fifty countries (Falagas, Papastamataki and Blitziotis, 2006).

The NJP is publication of the Parasitology and Public Health Society of Nigeria (PPSN) (formerly Nigerian Society for Parasitology). It began publication in the early 1980s. It initially publishes focusing mainly articles on the seven major tropical diseases that are most commonly prevalent in Africa. However with its change in name to include public health and expansion; it now publishes on wide range of issues on parasitology and public health.

The Journal is devoted primarily to pure and applied research and provides a medium for the publication of investigations in all aspects of Parasitology. The Journal publishes original research and technical studies carried out in the country (Nigeria), as well as works and documents from foreign researche which are of interest to Nigeria. The NJP publishes original research works on Parasitology including epidemiology, vector biology, public health, disease prevention, molecular and biochemical parasitology, drug test, diagnostics parasitology, control, socio medicine and international health.

So far, since the Journal began its publication in the 1980s there has been no effort to examine its growth and development in its three decades of its existence. It is important for the readers to be aware of the progress made so far as well as challenges facing the journal so that the PPSN could come up with policies and actions that will enhance the overall quality and currency of the journal in Nigeria and globally. Therefore, the aim of this paper is to analyze

published materials from 1992 – 2018. This will provide the publishers with information that will enable them make informed decision on how to enhance the national and international impact and rating of the journal.

Objectives of the study

The following objectives were formulated to guide in the analysis of the **NJP** during the period under review. They were to:

1. determine the contributors that contributed to the growth and development of the journal.
2. describe the physical outlook of the journal that is the coverage, logo, size, print size and format of the journal.
3. determine the numbers and types of articles published in the Journal.
4. establish the trend of authorship and authorship affiliations of the articles published in the journal.
5. ascertain the degree of collaboration among the authors that made contribution to the journal.
6. examine the distribution of authorship by country.
7. identify the scientometric indices of the journal such as SJR (SCImago Journal Rank), SNIP (Source Normalized Impact Per Paper), Citation, Self – citation and Total Citation from Scopus-data base.

MATERIALS AND METHODS

Research Design

The design adopted is the analytical and descriptive type. This involved the collection of twenty three (23) back editions (1992, 1993, 1998, 1999, 2000 - 2018) running into thirty five (35) volumes and analyzing their contents. The analysis includes all research articles (full-length and short-length types), editorials, book reviews and letters to the editor. Other materials consulted and examined were the constitution of the society, Guidelines to contributors and PPSN 2009-2011 strategic plan. The website of the journal under African Journal OnLine (AJOL) and its Impact Factor computed by ResearchGate were also consulted.

Procedures

The issues of the journal were examined to identify the innovations made by the different editor-in-chiefs and the composition of the editorial boards during the period under review. The outlook of the various issues of the journals were studied in order to provide a vivid description of its physical nature especially the major design changes in the journal during the period under review. All the volumes of the issues were analyzed to determine the number and type of articles published in the journal. All the articles contributed in the volumes of the journals were examined to determine trend in authorship (single and multiple authorship) and their affiliations. The data obtained was analyzed using simple frequencies and presented in form of figures and a table. The degree of collaboration among the contributors to the journal was determined using the formula of K. Subramanyam (1983) as shown below.

$$C = \frac{\mathrm{Nm}}{\mathrm{Nm} + \mathrm{Ns}}$$

Where C = Degree of collaboration

Nm = Number of multiple authors
Ns = Number of single authors

Results

Contributors to the sustenance and growth of the journal

Contributors to the sustenance of the NJP are the entire members led by the executive council of the society. The sustenance of the journal right from birth up to 2005 was entirely through subscription and page-charges paid by members (Mafiana, 2005). In addition, funds raising activity were organized during the annual launching of the journal where individuals, institutions (universities and research institutions) and other corporate organizations contribute towards the sustenance of the journal(Agbede, 1998, 1999). In such fund raising exercise, the contribution of the senior members – life members and fellows of the society was always a noticeable feature.

It was the effort of members of the society that sustained the yearly publication of the NJP on or before September up to 2005. As observed by Agbede (1998), the cost of publication is a major problem; there is a need to exploit alternative sources of funding for the journal. This position was also re-echoed by Professor Chiedu F. Mafiana, the editor-in-chief from 2005 - 2009 in 2005 whose effort yielded a publication arrangement with a Publisher Textflow Limited based in Ibadan, Nigeria, which made it possible to regularly publish the journal not only once a year, but twice a year (March and September issues).

The other categories of persons that helped in sustaining the journal were the Editor-in-chiefs and members of the editorial board. The journal had five Editor-in-Chiefs during the period under review namely; Professor Luke D. Edungbola (1988-1997), Professor R. I. S. Agbede (1997 - 2005), Professor Chiedu F. Mafiana (2005 - 2009), Professor Dora O. Akinboye (2009 - 2013) and Professor Sammy H. O. Sam-Wobo (2014 - date). The editorial board of the NJP comprised different specialists in the field of parasitology drawn from the membership of the society. From 1990 – 1997, the membership of the board ranged from 5 - 6 persons, but in 1998 it was expanded to 10. In 1999 the number dropped to eight and remained so up to 2004. The number was then raised to ten from 2005 – 2009. From 2010 - 2013 the membership is either eight or nine while from 2014 – date the number is six. .

Physical Description of the journal

From 1990 – 2004 the cover-page of the journal has basically maintained the same outlook. The colouration of the cover-page is made up of two colours blue and white stripes. The colouration arrangements which are of equal sizes are made up of a white stripe sandwiched in-between the two blue stripes. However, there were variations in the deepness of the blue colour in the various volumes. The publications from 1992 – 2004 had lighter blue while those from 2005 – 2009 had dark blue colours as shown in Plates I and II respectively. This trend has been maintained till today.

The ISSN number, volume number, year of publication number of pages and name of the journal appear on the upper blue stripe. The logo appears on the middle white, while the name of the society on the lower blue portion. However, the practice of reflecting ISSN and number of pages was discontinued in the process of improving the general outlook of the journal. The volume number and year of publication now appear on the lower blue portion of the cover page of the journal.

Currently, the journal has assumed an entirely new outlook. It has a larger vertical lighter blue stripe on top of a shorter white stripe. The title of the journal, volume, month and year of publication appear on the upper part of the cover page. On the left hand side of the page there is an inset of three pictures; blood smear with red blood cells infected with parasites in square box, *Schistosome* and an *Ascaris* in two separate rectangular boxes. The two upper pictures are located on the area of the blue stripe and the last on white stripe. At the middle right hand edge of the cover page is the society's logo. The name of the journal now appears on the left hand side of the white stripe. In addition, the logo of Education Trust Fund (ETF) that supported the production of the journal from 2011 – 2015 appeared just below the society's name as shown in Plate III. However from 2016 – date the logo ETF no longer appears since the journal is now able to sustain itself and is shown in Plate IV. The inner and outer sides of the back cover serves as the content pages. The logo and the name of the journal appear on the extreme top of the right hand side of the outer part of the back cover and the ISSN number appears on the extreme left hand side of same page.

The average sizes of the journal during the period under review from 1990 – 1997 was 17.60cm x 24.10cm, 1998 – 2004 it was 18.60cm x 24.80cm and from 2005 – 2009 is 21.60cm x 28.00cm. According to Mafiana (2005) latest change in size was done as part of the general effort to upgrade the journal to international standard. The average size of the journal now stood at about 20.70 x 29.50cm. The formatting style of the journal has not drastically change over the years and same applied to the font size of the texts. The entire texts and pictures continue to appear in black and white during the period under review. The style of presenting abstract is in block form and in italics. However, there is an improvement in the general quality of the journal from 2005 - 2011 especially with support from ETF. Since then the quality has not only been maintained, but also has improved.

As earlier stated, the journal at its formative period was mainly focused on the publication of scholarly articles on seven tropical diseases (Malaria, Onchorcerciases, Schistosomiasis, Dracunculiasis, Lymphatic Filariasis, Soil Transmitted Helminthiasis and African Trypanosomiasis) that are highly endemic in Nigeria. However, with the society's change in

name from NSP to PPSN and continuous quest to improve the quality of the journal, it publishes articles from diverse aspects of parasitology and public health.

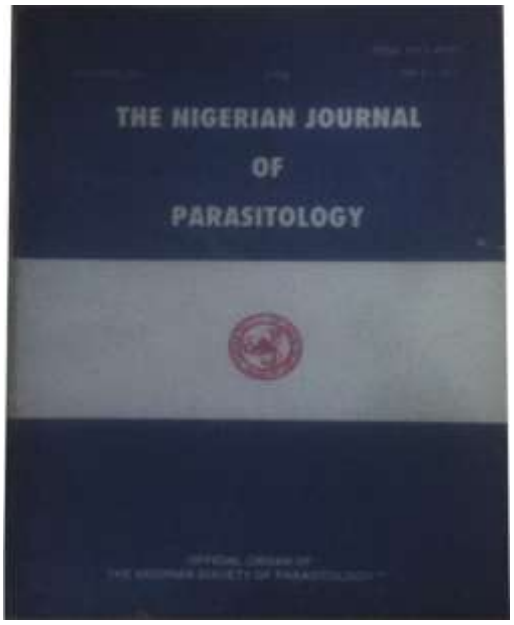


Plate I: Volume 23, 2002

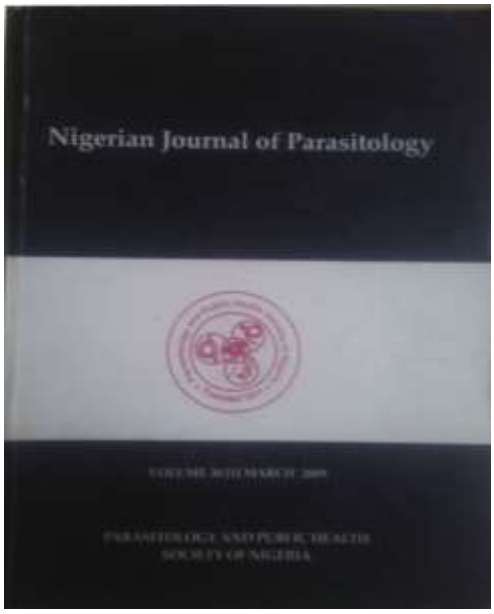


Plate II: Volume 30(1), March, 2009

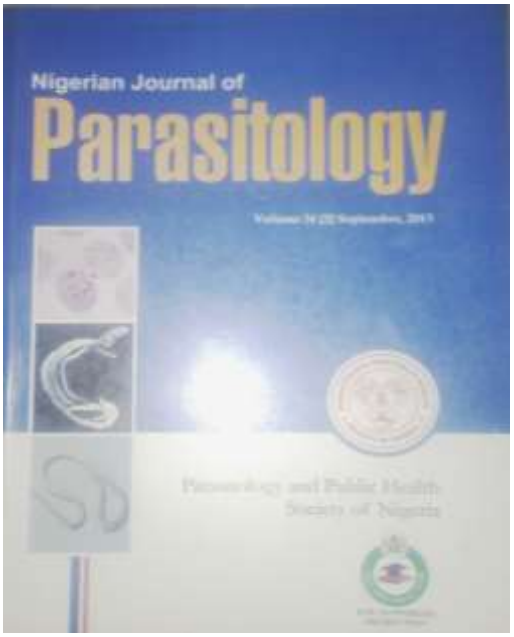


Plate III: Volume 34(2) Sept. 2013

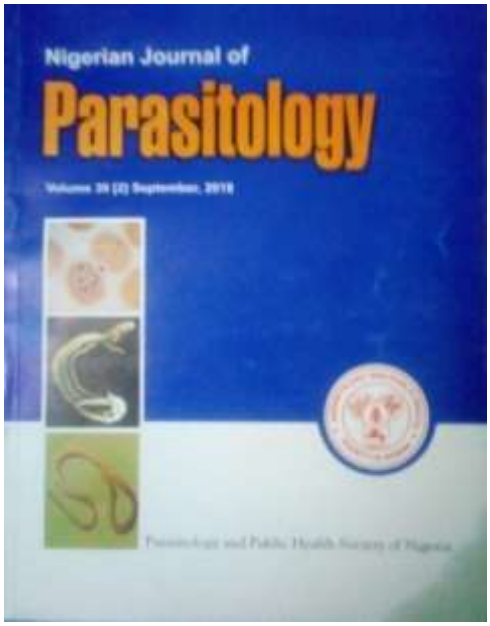


Plate IV: Volume 39 (2) Sept. 2018

Number and type of articles published in NJP

A total of six hundred and sixty nine (669) articles have been published in the thirty five (35) volumes of the journals examined (Figure, 1). The number of articles published varied from one year to another. From 1992 – 2006 when only a volume is produced per year the highest number articles were in 2001with 29 and the least was in 2005 with 11 articles. From 2007 - 2018, the number articles produced per year increased because two volumes were produced. The year with the highest number of articles was 2017 with 58 and the least was in 2010 with 25 articles. The only exception in this category was in 2014 where only an issue was produced which comprised articles of volumes one and two because there was no enough articles to publish in two separate volumes. Of the six hundred and sixty nine (669) articles published in the journal, six hundred and thirty two (632) were research articles, ten (10) were short communications, twenty five (25) review papers, one (1) was case report, one (1) a memorial lecture in honour of the first President of the Society Professor Olatunde Ogumba and one (1) conference briefs. Twenty seven (27) of the thirty five (35) volumes have editorials and four of them were written by "guest editors". From 2004 to date all the issues have authors' index and a section at the last page stating the aim and scope of the journal, and guidelines to contributors.

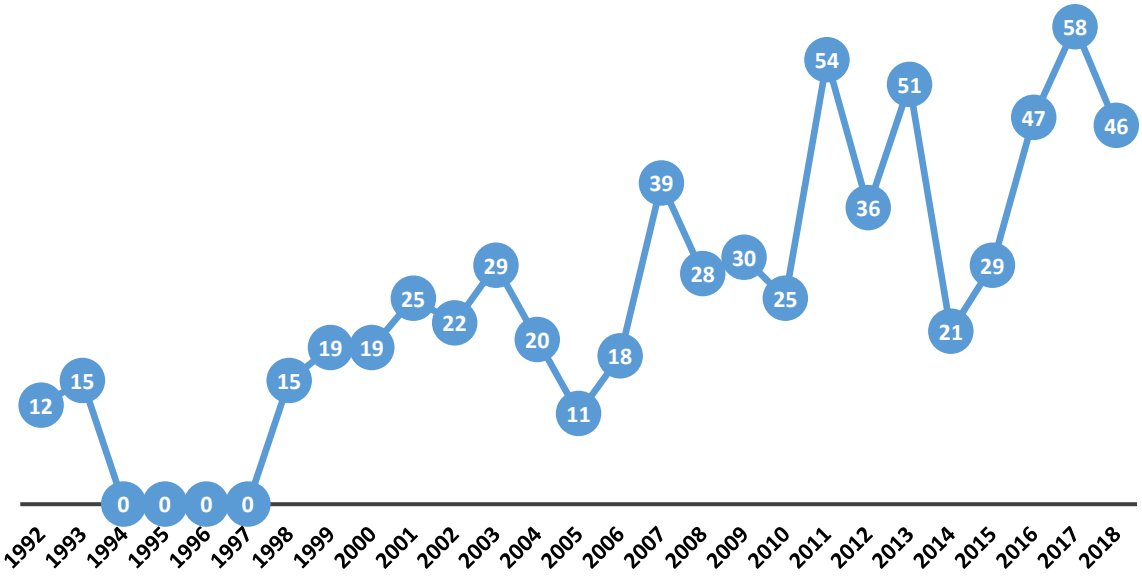


Figure 1: Number of Articles Published in NJP from 1992 -2018

Articles published in the journal mainly focused on major tropical diseases such as malaria, intestinal helminthiases, schistosomiases and onchorcerciases. The content of the journal was organized into sections with titles reflecting the major tropical diseases up to the year 2004. The number of articles per year during this period is shown in Figure, 2.

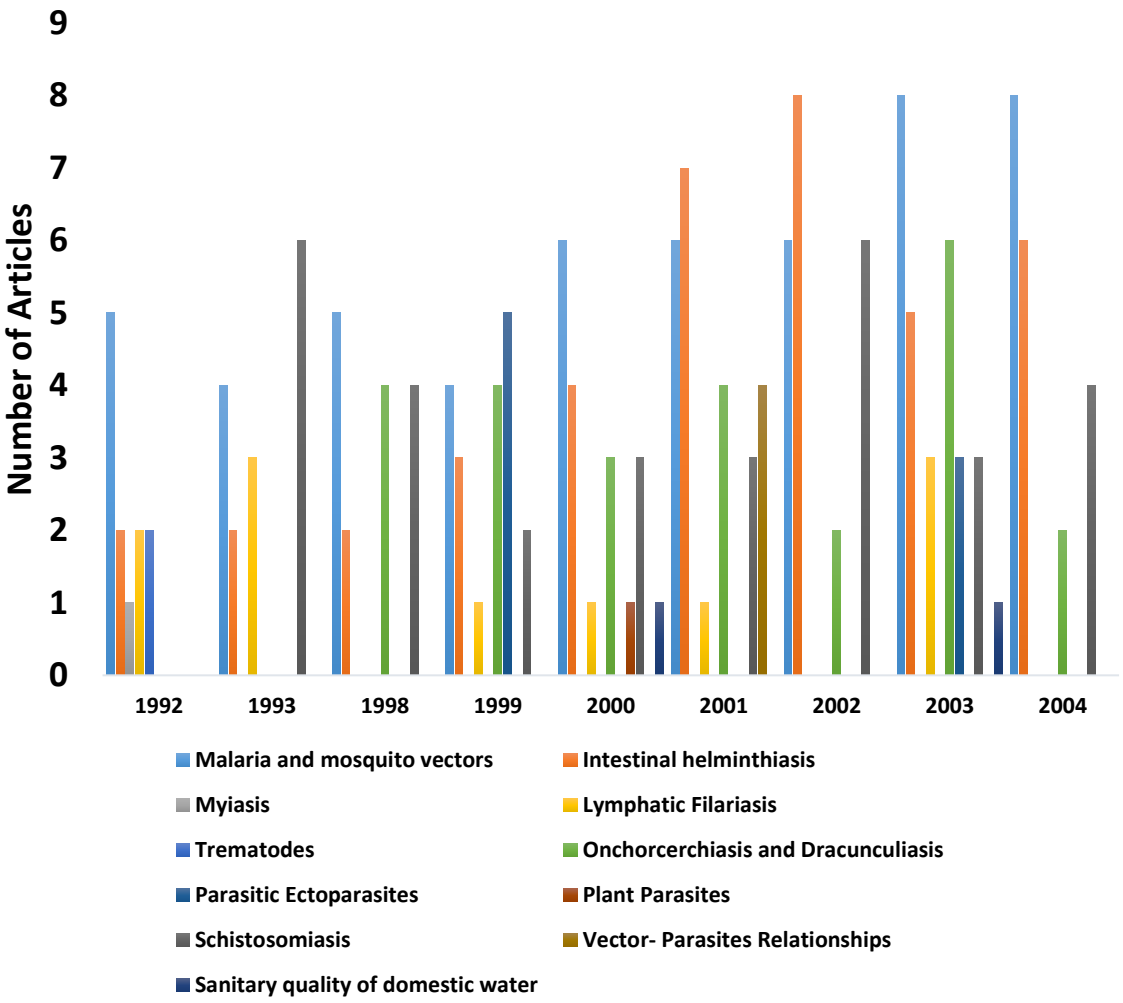


Figure 2: Number and type of articles published from 1992 - 2004

During this period, 1992 – 2004 analysis of the content of the articles revealed that the number of articles on malaria and mosquito vectors were the highest 50, followed by Intestinal helminthiases with 39 and then schistosomiasis with 31. The least number of articles were on myiasis, plant parasitic diseases and sanitary quality of domestic water with an article each.

The organization of the content of the journal into sections was discontinued in the issues published from 2005 – 2009 where articles from various aspects of parasitology were published. The analysis of the articles into various aspects of parasitology is presented in Figure, 3.

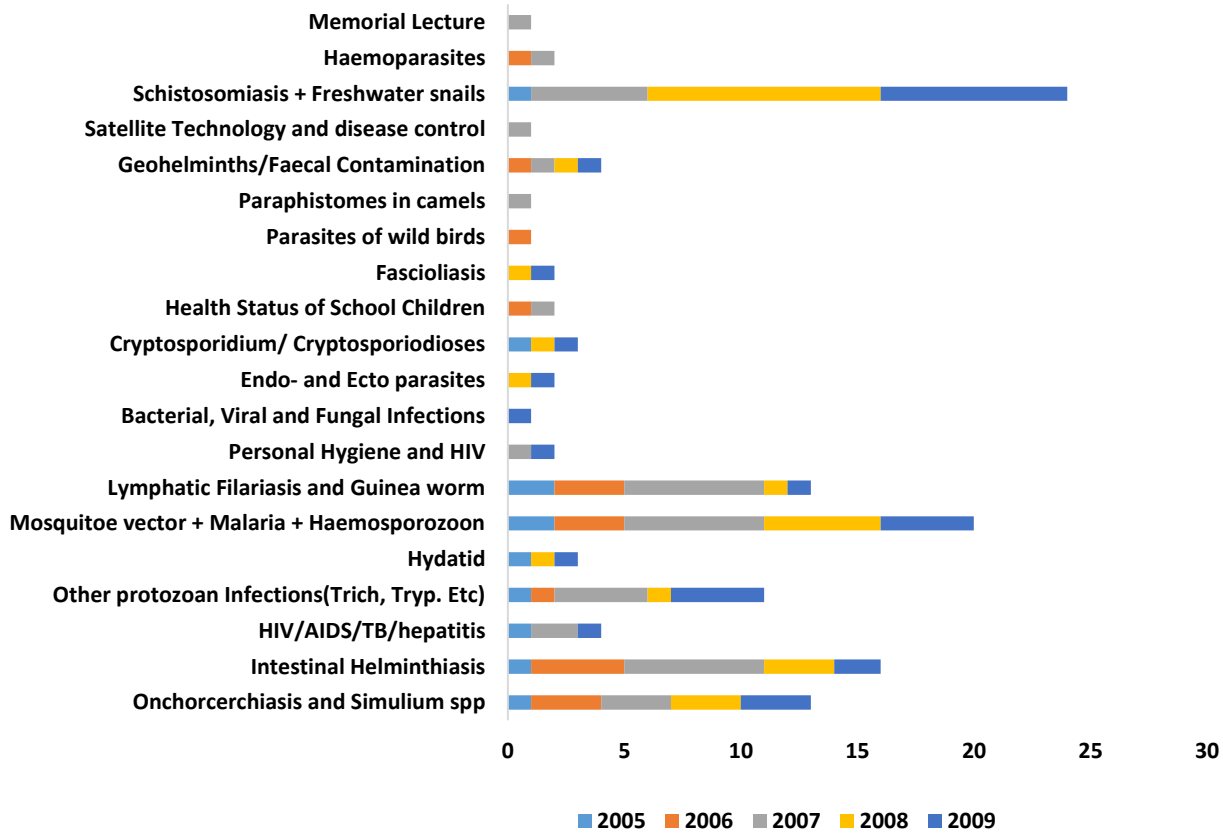


Figure 3: Number and type of articles published from 2005 - 2009

In spite of the publication of articles from diverse areas of parasitology, the publications on tropical diseases still top others in number. Schistosomiasis had the highest number 24, followed by malaria and mosquitoe with 20 and then intestinal helminthiases with 16. The areas with least number of publications include personal hygiene and HIV, satellite technology and disease control, paraphistomes of camels, parasites of wild birds and bacterial, viral and fungal infections with an article each.

From 2010 – 2013, the organization of the content into sections was re-introduced, but with the following four major titles: epidemiology, survey and diagnosis, pathology, chemotherapy and control, ecology, vector biology and life cycle and public health. The number articles based on this arrangement is presented in Table, 4.

Table 4: Number and type of articles published from 2010 - 2013

Journal Sections	2010	2011	2012	2013	Total (%)
Epidemiology, survey and diagnosis	16	31	31	41	119( )
Pathology, Chemotherapy and control	5	8	3	6	22( )

Ecology, Vector Biology and life cycle	1	8	1	2	12( )
Public Health	3	7	1	2	13( )
Total	**25**	**54**	**36**	**51**	**166( )**

The number articles according to sections revealed that the epidemiology, survey and diagnosis section had the highest, 119, followed by pathology, chemotherapy and control 22, public health 13 and ecology, vector biology and life cycle 12.Again from 2014 to date the organization of the content into sections was discontinued. The analysis of the articles based on various aspects of parasitology is presented in Figure, 5.

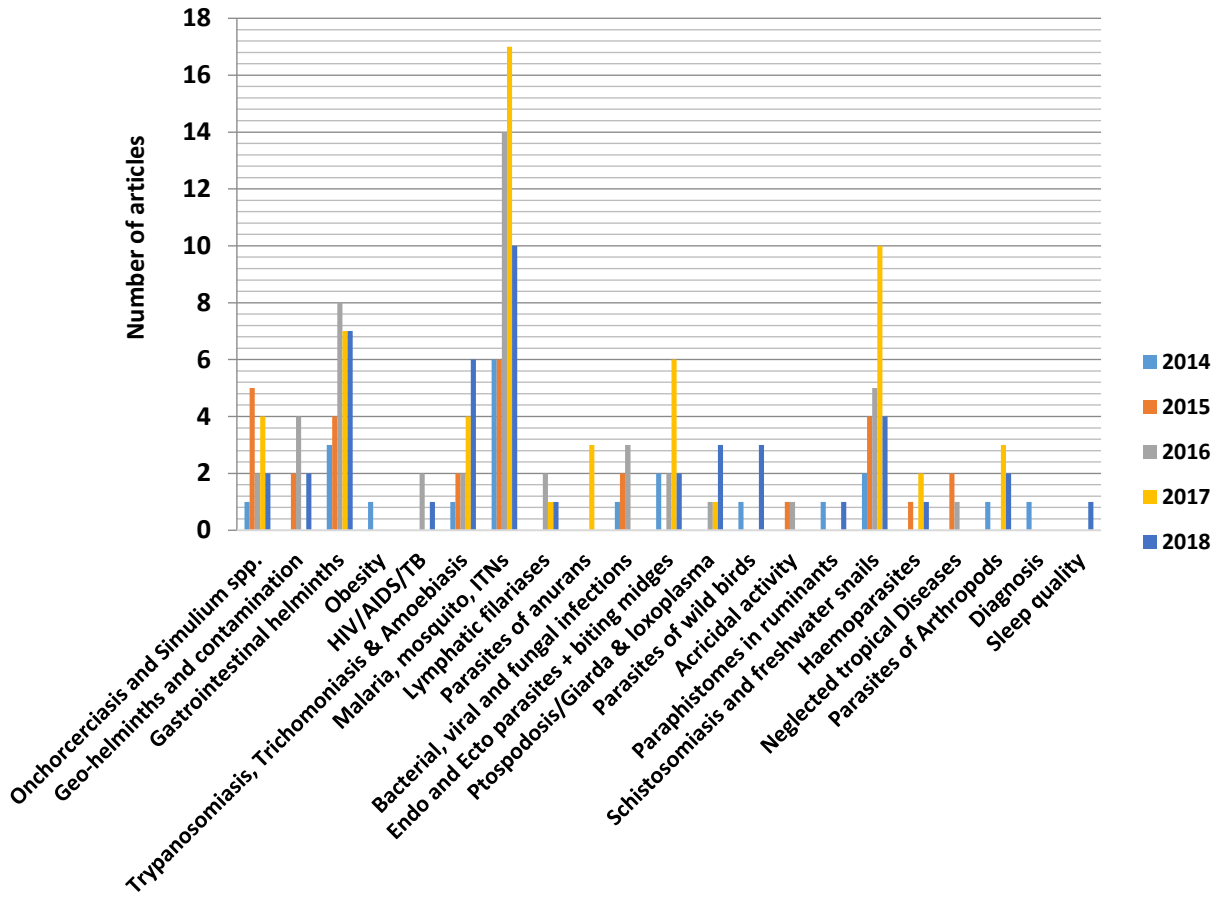


Figure 4: Number and types of articles published from 2014 - 2018

The number and types of articles published from 2015 – 2018 revealed that articles on malaria, mosquitoe and ITNs had the highest with 53, followed by those on gastro intestinal helminthes with 29, then schistosomiasis and freshwater snails with 24. Those areas with least number of articles each with just one were obesity, sleep quality and diagnosis. In general the number and types of articles on parasites related to neglected tropical diseases were more while articles on parasites of birds and amphibians and public health were few in number.

Pattern in Authorship and their institution of affiliations

The trend in authorship of articles is presented in Figure, 6. Multiple authorship were most common, with 149 articles authored by three authors, 142 by two, 91 by four, 67 by five and 42 by six. Articles authored by a single person had 42 while twelve and thirteen authors had one each. The article with highest number of authors was fourteen and they were two (2) in number.

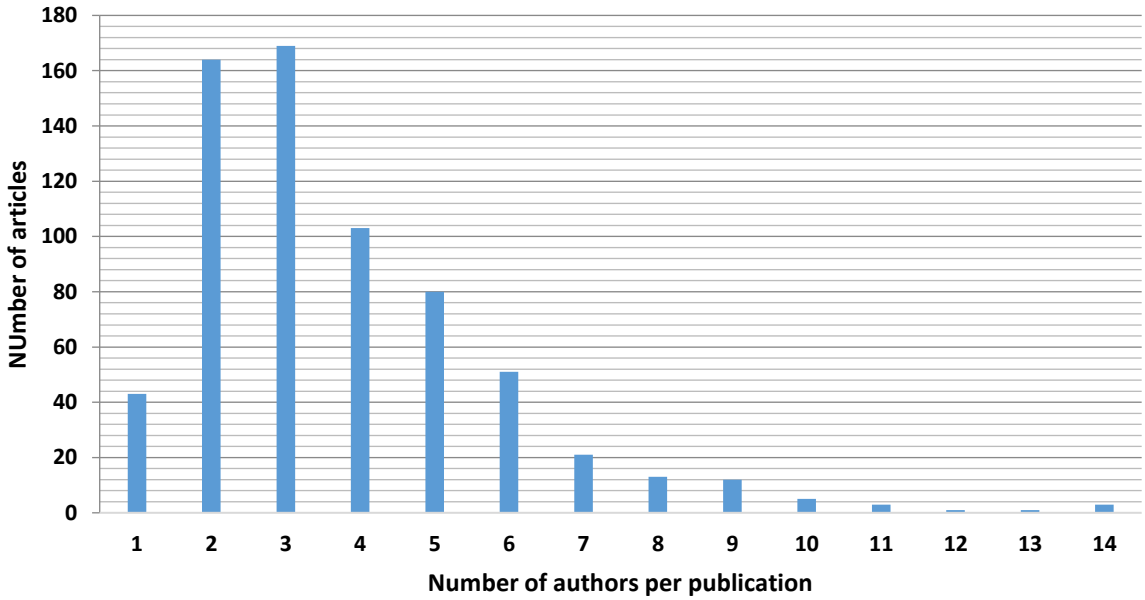


Figure 5: Trend in authorship of articles in NJP from 1992 - 2018

An overwhelming majority of the authors' institution of affiliations were the universities with a frequency of 574, followed by research institutions with 64, then Teaching/Specialist Hospitals with 48 and the Polytechnics and Monotechnics with 45. Others that followed were Ministries of Health/Health Agencies with 27, Non-governmental Organizations with 18, Colleges of Education with 13 and Private individuals with 1 as presented in Figure, 6.

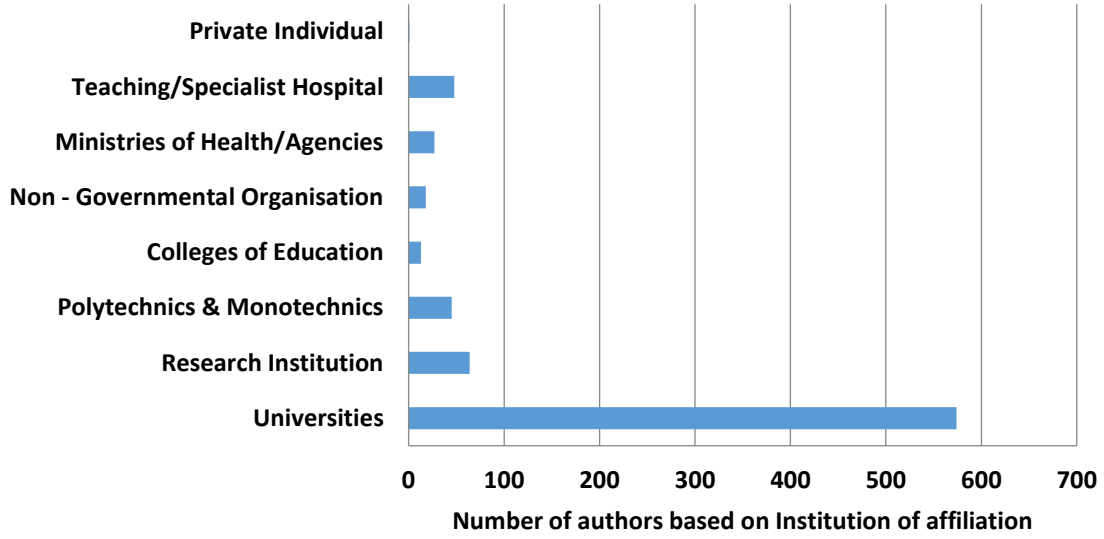


FIGURE 6: FREQUENCY OF AUTHORSHIP AND THEIR INSTITUTIONS OF AFFILIATION

Degree of collaboration among authors who contributed articles to the journal

Degree of collaboration $= \frac{542}{542+42} = \frac{542}{584} = 0.93$

The computed degree of collaboration indicated that there was high collaboration among contributors to the journal.

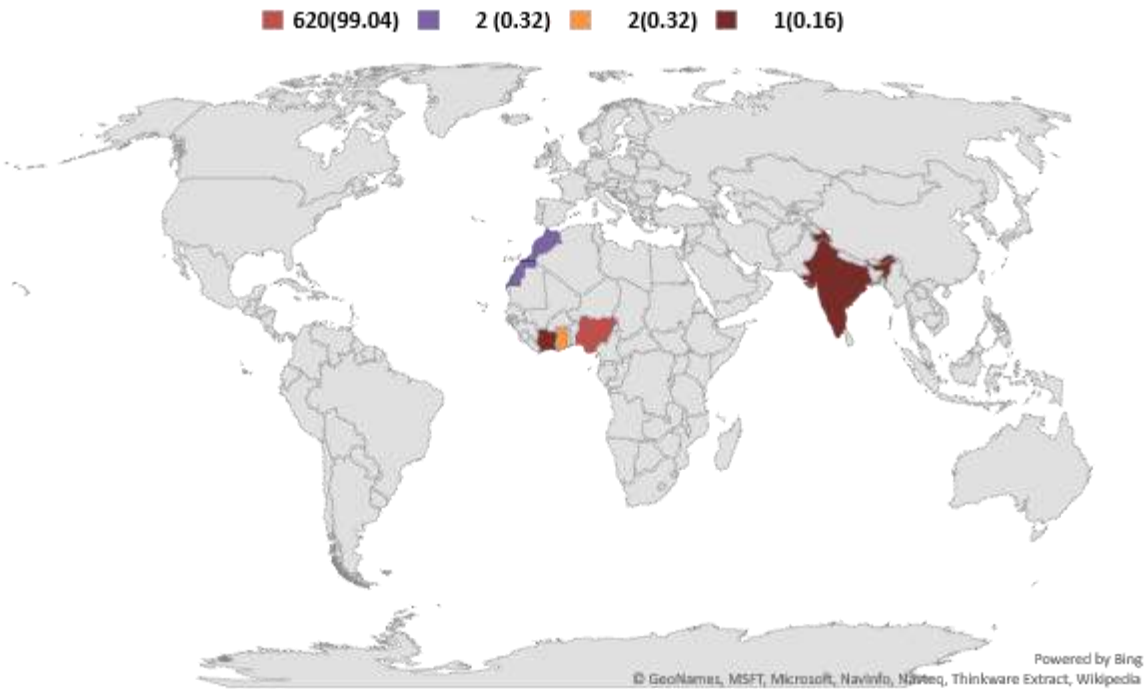


Figure 7: Distribution of articles by country of origin

As shown in Figure, 7 an overwhelming majority of the articles were contributed by Nigerians with 620(99.04%) followed by a tie between contributors from Morocco and Ghana with 2(0.32%) each and the least was from India and Cote d'ivore with 1(0.16%) each.

Citation and Impact Factor of the journal

Information obtained from Scopus data base revealed that the journal is listed in the data base, but the Citescore, SJR and SNIP from 2015 to date were not indicated; and that the journal was inactive from 2010 – 2011. Information on the Impact Factor (IF) of the journal was obtained from an analysis made by ResearchGate is shown in Figure 8 below. The source added that the IF for 2018 will be available in summer of 2019 and the computations were based on data that were not exhaustive, therefore the IF may not be completely accurate. In addition, there is also no data available with regard to cite half life, immediacy index, eigenfactor and article influence.

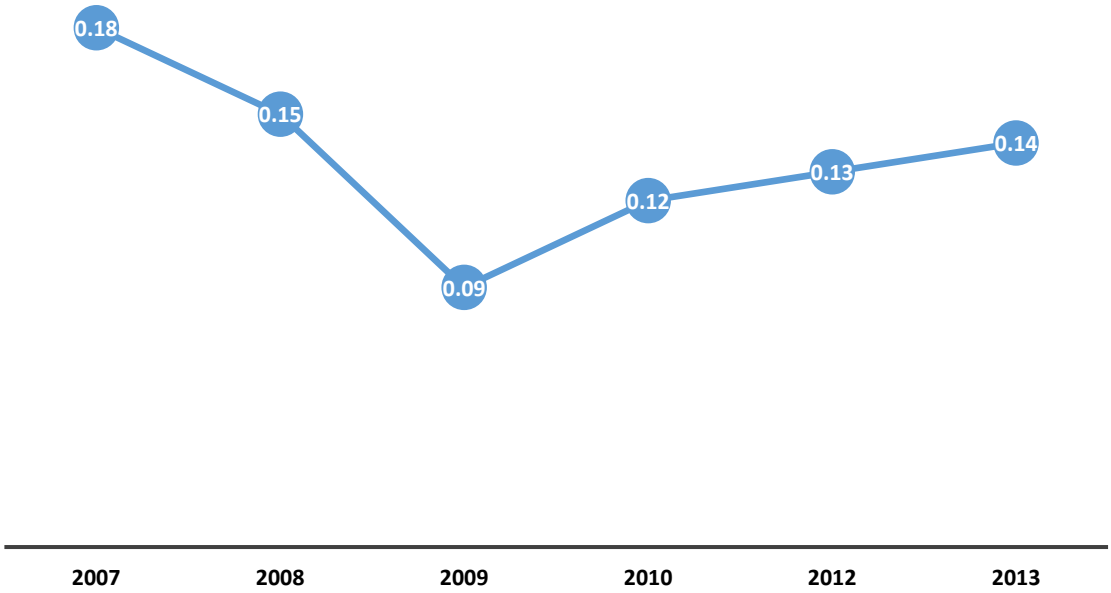


Figure 8: ResearchGate Journal impact history of NJP from 2007 -2013

Discussion

Lack of funds has been a major source of problem in sustaining the publication of NJP from 1990 - 2004. The entire members of the society especially the executive council and prominent members of the society such as the Editor-in-chiefs have contributed to the continuous sustenance of the journal which is in line with the way some journals have been sustained. For example, according to Domholdt *et al.* (2003) The Journal of Physical Therapy in Education, a publication of American Physical Therapy Association (APTA) had lack of finance as major stumbling block in the process of its establishment which was overcome through fund raising supported by more than 100 of its members and a few physical therapy practices. In addition, Siegfried, Busgeeth and Certain (2006) observed that many African Medical Journals have a small circulation, lack adequate funding, have a difficulty maintaining publication frequency and are rarely indexed in major databases. The search for alternative funding that succeeded in 2005 did not only make the journal to be published regularly once a year but is now published

twice a year. This is in line with international practice of sustaining a journal. The Educational Trust Fund support in production received from 2011 - 2016 has tremendously helped in improving the current form of the journal. It has also provided the opportunity for the journal to be able to sustain itself without seeking for donations from individuals or even corporate organizations. The journal is not only now able to sustain itself, but makes some gains that is used in supporting other activities of the society (Sam-Wobo personal communication).

Over the years there has been considerable improvement in the overall physical outlook and of course quality of the journal from 2005 -2018. This may not be unconnected with effort of the Editor-in-chiefs to take advantage of the availability of information technology facilities and their resolve to raise the status of the journal to international standards. This effort has now paid off since the journal is now online as one of those listed under the name African Journal On Line (AJOL).

The publication output of 669 articles of the journal in 35 volumes during the period under review is evidence that it has provided a platform for promoting scholarship in parasitology in Nigeria. More over 99.2% of contributors to the journal are Nigerians. From 1992 – 2004, the journal published articles mainly on tropical diseases especially those that are prevalent in Nigeria. This could be explained by the fact that these diseases are of high public importance. In addition, some of them such as malaria, lymphatic filariases and onchorcerciases have national eradication or control programs that continue to attract the interest of members of the PPSN in their effort to contribute their quota in these national eradication or control programs. This also coincided with national need of getting baseline information on these tropical diseases that was required for planning and executing national eradication or control programs. This explains why the content of issues of the journal produced during this period were organized in to sections reflecting these key tropical diseases with national eradication or control programs. The appearance of more articles from diverse areas of parasitology especially those that were produced in issues from 2005 - 2018 may be due to the effort made by the society in upgrading its physical outlook and quality. Another reason was that the society is now renamed Parasitology and Public Health Society of Nigeria (PPSN). The society is now attracting public health practitioners into its fold hence the increase of articles focusing on public health. However, still more articles were produced on tropical diseases.

Multiple authorships of published articles were the dominant feature in published articles, particularly for articles that were published from 2005 – 2018, thus indicating collaboration among researchers. This finding is in line with global trend as reported by Singh, (2014) for the Indian Journal of Pure and Applied Physics and by Paul and Deoghuria (2014) for the Indian Journal of Physics. The value of 0.93 obtained as degree of collaboration supports the existence of high level of collaboration among contributors to this journal. However, Suradkar (2016) reported that single authorship had the highest percentage than multiple in his analysis of the International Journal of Skin Therapy Letter.

The authorship institutional affiliations revealed that an over whelming majority were from the universities and then Research Institution is simply because research is one of the core activities of these two bodies in Nigeria. Therefore most researchers in parasitology and public health are domicile in universities and research Institutions. Others that follow and are also engaged in biomedical research are the Polytechnics, teaching/specialists hospitals and ministries of health/agencies. The distribution of the contributed articles according to country of origin showed 99.20% of the contributors are by Nigerians may not be unconnected with the fact that

it is the only journal that provides publishing platform to health professional other than physicians. In addition, the journal is yet to have Citescore, SJR and SNIP as indicated in the Scopus data base; and that the IF computed by the ResearchGate are not up to date and are very low. However once this challenge is overcome, the journal will attract the attention of more researchers willing to publish from other parts of the world especially now that its quality has been upgraded and can be accessed online.

Conclusion

The results of this analysis from 1992 - 2018 showed that NJP has considerably improved in its physical outlook and quality. Through the efforts of members of the society particularly the Editor-in-Chiefs, government support and the journal accessibility online, it is now able to sustain itself. In addition, it is now published twice in a year (March and September). During the period under review a total of 669 articles have been produced comprising 632 research articles, ten short communications, twenty five review papers, one case report and a memorial lecture. The articles published from 1992 – 2004 were mainly on tropical diseases such as malaria, onchorcerciases, intestinal helminthiases schistosomiases and lymphatic filariases that are highly endemic in Nigeria. From 2005 – 2018, the journal published articles from diverse areas of parasitology and public health, although articles on tropical diseases that are endemic in Nigeria still predominate. An overwhelming majority of its contributors are Nigerians and most of them come from universities and research institutions. For now the journal has effectively provided a publication platform especially for members of PPSN and is also beginning to attract a few contributors from other countries.

Recommendations

It is recommended that the PPSN should sustain the current achievement of the journal, that is self sustaining and also contributing to the growth and development of the society. The journal should strive to publish quarterly or even monthly. It should also make effort to see that Citescore, SJR and SNIP are assigned to it on yearly basis. This will certainly increase its national and international impact and rating.

References

African Journal onLine (undated). Nigerian Journal of Parasitology. Retrieved from https://www.ajol.infw/index.php/njpar.

Agbede, R. I. S. (1999). Editorial. *Nigerian Journal of Parasitology* (*Millennium Edition),* 20:1.

Agbede, R. S. I. (1998). Editorial. *Nigerian Journal of Parasitology,* 19:1.

Asad, A.1., Norisma, I., Rasim, M. A. and Ramiz, M. A. (2018). Bibliometric Analysis of IP&M Journal (1980–2015). *Journal of Scientometric Research,* 7(1), 54-62.

Bungiro, R. and Capello, M. (2004). Hookworm infection: new developments and prospects for control. *Current Opinion on Infectious Diseases, 17; 421 – 426.*

Dornholdt, E., Siefert, J., Cecelia, L. R. and Pamela, D. (2003). Journal of Physical Therapy education: Birth to 16 years. *Retrieved from file: //C/Documents and settings/user/desktop/journal of physical therapy education*.

Falagas, M. E., Papastamataki, P. A. and Bliziotis, I. A. (2006). A bibliographic analysis of research productivity parasitology by different world regions during a 9 year period (1995 – 2003). *British Medical Council Infectious diseases, 6 : 56.*

Feitelberg, S. B. (1987). The meaning and challenge of a journal. *Journal of Physical Therapy Education, 1(1):3.*

Filip, B. (2016). A scientometric analysis of selected GIScience Journals. *International Journal of Geographical Information Science,* 30(7), 1302–1335.

Gayatari, P. and Swapan, D. (2014). Indian Journal of Physics: A scientometric analysis. *10th International Conference on Webometrics, Informetrics and Scientometrics & 15th COLLNET Meeting 2014*.

Hassan, S. and Ehsan, M. (2018). The productivity and characteristics of Iranian Biomedical Journal (IBJ): A Scientometric Analysis. *Iranian Biomedical Journal,* 22(6): 362 – 366.

Mafiana, C. E. (2005). Editorial. *Nigerian Journal of Parasitology,* 26:1.

Mafiana, C. E. (2009). Editorial – Valedictory. *Nigerian Journal of Parasitology*, 30(2) : 1.

Nattar, S. (2009). Indian Journal of Physics: A scientometric analysis. *International Journal of Library and Information Science,* 1(4) : 055-061.

Okyay, P., Ertungs, S. Guttekin, B., Onen, O. and Besser, E. (2004). Intestinal parasites prevalence and related factors in school children, a western city sample – Turkey. *BMK Public Health*, 4: 64.

Parasitology and Public Health Society of Nigeria (2015). *RC 171791 Constitution of Parasitology and Public Health Society of Nigeria*.

Plotkin, S. Y. and Fridman, G. L. (1975). *Analysis of the material published in the Journal Poroshkoravya Metallurgiya (Soviet Powder Metallurgy and Metal Ceramics).* Plemum Publishing Corporation, 227 West 17th Street, New York N.Y 10011.

Price, G. (1966). *In The Science of Science (Russian Translation),* IL Moscow.

Priya, A. S. (2016). Scientometric Analysis: International Journal of Skin Therapy Letter. *International Journal of Computer Science and Mobile Computing*,5(9) : 140-149.

ResearchGate(undated). RG Journal impact history of Nigerian Journal of Parasitology. Retrieved from https://www.researchgate.net/journal/1117-4145_Nigerian_Journal_of_Parasitology.

Sadik, B.M. & Muneer, A. (2018). Publication pattern analysis in Indian Journal of Information Sources and Services (IJISS): A Scientometric Approach. *International Conference on "Rejuvenating Libraries for Information Access in the Digital Era".* Retrieved from: https://www.researchgate.net/publication/325988740 [accessed Dec 26 2018].

Sammy O. H. Sam-Wobo (2015). *Editorial Policy: Conduct, Reporting, Editing and Publishing of Scholarly Works*. *A guideline for biological authors*. Nigerian Journal of Parasitology.

Siegfried, N., Busgeeth, K. & Certain, E. (2006). Scope and geographical distribution of African Medical Journals active in 2005. *South African Medical Journal, 96(6):533-538.*

Subramanyam, K. (1983). A bibliographic study of research collaboration: A review. *Journal of Information Science*, 6(1), 33 – 38.

Uthman, O. A. (2008). Editorial - Performance, priorities and future of biomedical research publications in Africa. Need for networks between scientists in developed and developing countries. *Pan African Medical Journal Countries. Retrieved from http: //www.panafrican-med-jounral.com/content/editorial/1/5*.

Uthman, O. A. & Uthman, M. B. (2008). Geography of Africa Biomedical publications: An analysis of 1996 – 2005 pubmed papers. *African Journal of Food, Agriculture, Nutrition and Development*, 8(2). *Retrieved from file //C/Documents and Settings/User/Desktop/Bioline international office sites.*