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Bibliometric Analysis of Web Presence of Veterinarians in Ahmadu Bello University, Zaria.

Lawal Shuaibu[1], Dr. Rajeev Vashistha[2]

[1]*Shehu Idris College of Health Sciences and Technology Makarfi, Kaduna State, Nigeria.*
[2]*Head of Department; Library and Information Science, NIMS University Rajasthan, India.*

ABSTRACT

Bibliometric is a systemic way of counting articles, research based publication. This paper aims to extract all the available web publications by the veterinarians of the faculty of veterinary medicine, Ahmadu Bello University, Zaria. It was discovered that out of 131 academic staff in the faculty, department of veterinary surgery and medicine excel with a total number of 47 publications of web presence, presenting 28.48% of the total publications while the department of parasitology and entomology were said to be the least with 18 articles representing 10.91%. All the articles were said to be in co-authorship with various departments either within the faculty or outside the faculty. Department of veterinary pathology and microbiology were said to be the top collaborators. The articles were also discovered to be mostly in textual form with graphical illustrations. It is recommended that all previous publications, lecture notes and other various publications that will be of interest to researchers should be posted to the web as well as regular update of the departmental portals and the university at large so as to keep information seekers with up to date information.

I.INTRODUCTION

A university is an institution of higher education, which grants academic degrees in a variety of subjects in both undergraduate and postgraduate areas. The word *university* is derived from the Latin *universitas magistrorumet scholarium*, roughly meaning 'Community of teachers and scholars' (Marcia, 1997)

As affirmed by the United Nations, education is a human right and the primary agent of transformation towards sustainable development, increasing people's capacities to transform their vision for society into reality. Education teaches people to be better individuals, family members, community members and citizens (Ludovico and Patrizia, 2011)

Academic gatherings are the coming together of brains and minds for exchange of ideas, views, opinions and information on academic and professional issues. These gatherings include Seminars, symposia and colloquium. They also include conferences, workshops and other variants of these gatherings.

Contrary to the traditional way of disseminating information in the academia which involves physical presentation of papers and articles, the sudden emergence of Information Communication Technology (ICT) has

changed this traditional method of information dissemination by the use of electronic information devices. Japanese government, (2009) re-emphasize that current information is based on the premise that the use of electronic information will bring improvement in the quality of life of people. Information technologies pervade almost every aspect of our daily life. New advances in software and telecommunications lead organization to invest considerable resources in integrating technology to their operation.

The most significant impact of these modern way of information dissemination is the emergence of the World Wide Web (commonly shorten as the web and abbreviated as www).It is a system of interlinked hypertext documents accessed via the internet. Web pages that may contain text, videos and multimedia can be viewed and navigated using hyperlinks. The World Wide Web has become an important source Worldwide for scholarly literature and major force in reshaping the way information is distributed and used. The resources available on the web exceed, at least in number, those of our great libraries. Inktomi(1997) estimated that there were millions of documents on the web with an aggregate size of about a half terabyte. The sheer size of the web, and its explosive growth which shows no sign of slowing down, leaves little question regarding its importance to libraries and library patrons. This perhaps confirms the 2001 study on the available information on the web that, there were massively more than 550 billion documents on the web, accessible to everyone as announced by Google Software engineers (Jessy and Hajaj, 2008)

The development of internet in the library and information science (LIS) environment has changed dramatically. The way information is disseminated and also the library services are affected by this innovation. Markey (2007) in summarizing a quarter century of research findings about this innovation in information dissemination opined that:

"The world wide web has become the people
Encyclopaedia of choice. Google and other web
Search engines gives people a good start, and
In fact With Wikipedia link in hand, it gives them
a running start for building on their bare –
Bones, Basic knowledge of topic. The web *also*
Satisfied people's voracious appetites for full texts.
Instead of strolling in the library stocks to find a book ,
People want to stay in their homes and offices and
retrieve full texts with a click of a button"

From the content perspective, the web remains somewhat mystery. When asked about the reliability, accuracy and objectivity of the information they retrieved on the web, people express concern, but there is little evidence that they act on their concern (De Rosa et al, 2005 in Markey , 2007). Continuing Markey (2007) state that searching the web specifically and searching for information generally, conforms to the principle of least effort. The design of any information system should be the system's ease of use, Google and other search engines make ease of use their priority.

Electronic information includes the digital publication of e-books and electronic articles, and the development of digital libraries and catalogues. Electronic information has become common in scientific publishing where it has been argued that reviewed scientific journals are in the process of being replaced by electronic publishing, (Andrew, 1999).

Although publishing via the Internet (also known as online publishing or web publishing when in the form of a website) is nowadays strongly associated with electronic publishing. There are many non-network electronic publications such as Encyclopaedias on CD and DVD, as well as technical and reference publications relied on by mobile users and others without reliable and high speed access to a network. Ann, (n.d)

Encyclopaedia Britannica, (2009) sees the term "electronic publishing" as primarily used today to refer to the current offerings of online and web-based publishers; the term has a history of being used to describe the development of new forms of production, distribution, and user interaction in regard to computer-based production of text and other interactive media.

Thelwall, (2008) defines Bibliometrics analysis as a discipline measuring the properties of documents and, by extension, the generation, dissemination and retrieval of knowledge. The term bibliometrics was coined in 1958, but the field has been in constant evolution. At first its application was limited to library and information science schools, but its symbiotic relationship with IT is expanding its impact into new fields. Bibliometric analysis is the use of bibliographic information (titles, authors, date, author's address, references, etc that described published items) to measure and otherwise study various aspects of specific field of scholarly endeavour.

Bibliometrics analysis is developing innovative new methods to explore new research questions, and scholars schooled in other areas are contributing new methods and new questions. Thelwall, (2008) gives the importance of Bibliometric analysis in determining how much literature has been published in a given field of study, when and in what country has it been published?, what countries are the major contributors to this field?, what are the languages most frequently used by the items published in this field?, what journals cover the literature of the field?, which are the most important?, who are the key authors in this field?, what institution do these authors represent?, which articles are the most important?, how have the various contributors to the field influence each other. Bibliometrics offers a powerful set of methods and measures for studying the structure and process of scholarly communication. Citation analysis, the best known of bibliometric approaches, has become more sophisticated, and the advent of networked information technologies has led to quantitative and qualitative advances in other bibliometric methods. More content is available online in digital libraries, and more of it is in full text (and in other media including still and moving images, sound, and numeric data). More connections exist between documents, both in the form of citations and in the form of active hyperlinks that allow an information seeker to move between related documents (King, 1987). Bibliometrics is being applied in new ways, to ask new questions. Co-citation measures designed to identify relationships between print publications are being applied to frame the intellectual space of the Web (Larson, 1996). Similarly, impact factors, which were developed to assess the influence of a journal, an author, a laboratory, a university, or a country, are being applied to assess the influence of Web sites (Almind&Ingwersen, 1998; Ingwersen, 2000;). In addition to bibliometrics, scientometrics, and informetrics, we now have "cybermetrics" (the title of an electronic journal)

and "Web biometrics" (Almind and Ingwersen, 1997). Bibliometrics is now an accepted method in the sociology of science (Nederhof and Noyons,1992), especially by scholars whose inquiries are well served by quantitative methods and structural approaches.

Background Information on Ahmadu Bello University, Zaria.

Ahmadu Bello University was established in 1961 which transformed into the largest and the most extensive of all the universities in Sub-Saharan Africa. The University as of today has two campuses, thirteen Faculties, a Postgraduate School, business school and 82 academic departments. It also has five Institutes, six Specialized Centres, a Division of Agricultural Colleges, a School of Basic and Remedial Studies, a Demonstration Secondary School, a Primary School and a Consultancy Outfit which .provides variety of services to the University and the wider society.

The total student enrolment in the University's degree and sub-degree programmes is 35,000, drawn from every State of the Federation, Africa and the rest of the world. Currently, the University has about 1,400 academic and research staff and over 6000 non-teaching, senior and junior administrative staff. The University has also nurtured two University Colleges, - the Abdullahi Bayero College (now Bayer University), Kano and the Abubakar Tafawa Balewa College (now Abubakar Tafawa Balewa University of Technology), Bauchi, while 27 institutions made up of Colleges of Education, Polytechnics and Schools of Basic or Preliminary Studies are currently affiliated to it.

II.LITERATURE REVIEW

Bibliometrics was first defined by Pritchard as ''the application of mathematical and statistical methods to books and other media''. It involves the numeric analysis of data such as the authors of Papers, places of publication, citations to a specific paper or papers, links between web sites, collaborations between different authors or nations, the comparison of bibliometric and peer review estimates of research and the impact of different academic journals inter alia (Li and willett, 2009.)

Widely Bibliometric research has been used in management research, encompassing corporate social responsibility, strategic management, organizational behaviour, international management, operations management and family businesses as well as academic and output (Johnson, 2009).

There are several ways to measure the scholarly impact of researchers, including counting the total number of their publication and surveying scholars and administrators. However, the number of publications alone does not necessarily indicate the quality of the research or its impact on the field while surveys are subject to bias.

The importance and wide ranging scope of the Internet for general communication, information retrieval and instructional delivery to support administrative, teaching / learning and research activities in tertiary educational institutions is acknowledge world wide. A number of studies have investigated how the World Wide Web is used among academics and students at the tertiary levels of education for such activities as communication, information retrieval, learning / teaching and research. Some of these studies have focused on bibliometric analysis whereas others have gone beyond that to citation analysis.

In a 30 years of research on bibliometric analysis on the field of organisational justices worldwide, in which data was obtained in October 2008, it was reported that with the use of databases, consisting of Science Citation Index (SCI), the Social Science Citation Index (SSCI), and the Art and Humanities Citation Index (A&HCI), the retrieved article collection consisted of 234 articles representing 374 authors and 87 journals. There were a total of 6454 references, with 672 unique words including titles and abstracts. The United State was overwhelmingly the location of records for most authors (171), although Canada (25), Netherlands (11), Peoples Republic of China (9) were well represented. The score for China increased to 13 when authors from Hong Kong were included. (Johnson, 2009)

In a similar bibliometric analysis of research on mental health in the **work place in Canada, 1991-2002, Archambault, and Gingras, (2002)** reported that the most productive Canadian Institutions in Mental Health Research between 1991-2002 were Mc Master University with 24, University de Montreal and University of British Columbia each had 21, University of Western Ontario, 19; Centre for Addiction and Mental Health, 17; University of Laval 16; University of Alberta, 15; York University, 14; University of Manitoba, 12; and McGill University with 9. Other institutions include University Dalhousie, Queen's University and University of Calgary with a total of 8 publications each. On the other hand, University of Acadia, Institute for Work Health and University Health Network are the least productive institutions on researches on mental health with a total number of 6 publications each. They further analysed that although the overall output is still low, but ascertained that researches on mental health is growing faster in Canada than at the world level - Canadian Institutions are playing catch-up. During the last three years, the number of papers by Canada has tripled, and they now account for 5.5% of the world output in the field. This is 57% more than its overall share in Biomedical Sciences (3.5%) as measured in Medline in 2002. Similarly, Canada produces about 4.4% of the scientific literatures in 2000 as measured in Thomson's Institute of Information Science Citation Index database.

Another bibliometric analysis study was in the field of Environmental Health research in Europe for a period of 10 years between July 1995 and June 2005, which covered 29 European countries. In the study, Tarkowski (2007), reported that the review of the Environmental Health Research literatures covered 29 European countries for which 6,329 references were located and retrieved . This number of publications accounted for 22% of the global publications output (28713) during the same time and was 20% lower than that in U.S.A. Online reference databases for each of the 29 Countries were developed.

The number of retrieved references to the environmental health research publications during 1995 -2005 demonstrates that all except two countries produced publications on environmental health research. The study further analyzed that there were marked differences between countries in the number of published papers. Three countries contributed 40.1% of all research papers published during the review period and 10 Countries contributed 81%. These differences could only partly be explained by the difference in population size. Economic factors seem to play an important role in environmental health research output as seen from differences between countries of comparable population size. Nordic Countries with their high GDP's had the highest population adjusted publications on index (number of populations per million population) .For instance, Sweden 89:4 Finland :74:5, Denmark: 62: 5, Norway :57:0 countries of similar population on size , but with a

low GDP had the lowest population based index of publication : Czech Republic 9:2 , Hungary :4;1 Lithuania; 3:7, Greece :1:3, Slovakia :13 Latvia :12 .

There were also no significant differences between countries in the distribution of publications amongst the main topics of environmental health research. The work environment and health topic achieved the largest publication output in all countries amounting to between 27% and 47% of the publications. Four Countries according to the study had the highest number of publications in specific research topics. Germany was highest in environmental pollution, environmental health hazard, environmental exposures, vulnerable populations and environmental health risks; Sweden in Environmental illness, urban environmental health, vulnerable groups and environmental health policy; Italy in work environmental and health; and Netherland in rural environmental health.

In the field of medicine, a bibliometric study of publications by Indian ophthalmologists and vision researchers for the period 2001-2006, revealed that the total number of articles identified from the Medline database was 2,163. The number of publications by Indian authors in the journals indexed in Medline increased steadily during the early years of the decade. Over the six years period studied, the annual output of research articles that were published in 2001 was 13% whereas in 2006 it was 21%. Of these 2,163 articles, 1448 (67%) were published in journals outside India and 713 (33%) were published in Indian journals (Kumara Gurupari, Pamela and Prajna, 2010).

It further observed that the study look at research productivity of Indian ophthalmologist, optometrist and vision researchers of publications from 1998-2002 by Ohba (2005), the top ten countries in terms of total number of articles published in the ophthalmic literature were the United State of America, the United Kingdom and Japan, Germany, Canada, Australia, Italy, Netherlands, Sweden, and France. India ranked 13th, with 1.3% of the total number of publications. Mandal (2004) revealed that researchers in the developing world contributed only 5.4% of the literatures, compared to 92% from the developed world.

In Africa Nigeria in particular in this same field of medicine, an attempt by Uthman (2010), to determine the pattern and determinants of H.I.V. research productivity in sub-Saharan Africa: A bibliometric analysis of 1981-2009 Pubmed database papers Uthman observed that a total of 24,487 articles were indexed by Pub med database within period of January 1981- October, 2009 and the result shows that; H.I.V research productivity in sub-Saharan Africa is highly skewed. South Africa, Uganda and Kenya jointly account for almost 50% of all H.I.V/AIDS related publications between 1981-2009. This finding is consistent with results from other studies (Ramos, et' al, 2003). This study found like others that the better economic ranking of a country the higher the quality of its research productivity (Tijssen 2007). This study also echoes finding of a previous study, which established that Malawi tended to be most productive when the total HIV publications was normalized by GDP(Ramos, 2003). Falagas and colleagues reviewed the medical literature in order to evaluate the contribution of different world regions on HIV/ AIDS research indexed in the Journal Citation Reports (JCR) and web of Science databases of the Institute for Scientific Information (ISI) (Falagas, 2006). A total of 9502 articles on HIV/AIDS were retrieved from three AIDS journal over an 18- years study period. Falagas et.al (2006) reported that the United States and western Europe made up a striking 83% and 92% of the world research production

on HIV/AIDS, respectively . About half of articles originating in Latin America and the Caribbean and half in Asia were produced in collaboration with the United States. Only 40% of articles from Africa and 58% from Eastern Europe were produced in cooperation with Western Europe. They concluded that collaboration between researchers within developing regions was negligible.

Another study recorded a total of 11,826 papers dealing with HIV/AIDS in the Institute of Scientific Information (ISI) database in 2003 found that the leading country according to the total number of publication were the USA, UK, and France (Ramos,2003). A bibliometric study regarding AIDS in Latin America and the Caribbean for the period 1982 to 1996 found that Haiti was the most productive country in the region (Chapula,1998). Uthman(2008) analyzed the trends in Nigeria's SCI publication in HIV/AIDS from 1980 to 2006 and found out that Nigeria has achieved a significant increase in the number of SCI publications and collaboration in HIV literature and over 85% of the articles were published in collaboration between two or more authors . The USA, as the most important collaborating partner of Nigeria's HIV/AIDS researchers, contributed 30.8% of articles with international collaboration . Evidence from invariable negative bionomial regression models suggest that the adult literacy rate total expenditure on health, and private expenditure on health are the most important predictors of HIV research productivity in sub- Saharan Africa.

In the field of chemistry (Li and Willet, 2009) conducted a bibliometric analysis of Chinese research on cyclization, MALTI-TOF and antibiotics from the Department of Information Management, Nanjing University , China , and Department of Information Studies, University of Sheffield, United Kingdom respectively. They reported that the 10 most productive of the 297 China Institutions were: Chinese academy of Science with 807 publications; Zhejiang University, 193; Lanzhou University, 154; Peking University, 108; Nankai University, 107; Fudan University, 67; University of Hong Kong, 64; Nanging University, 56, while Central China Normal University and East China University of Science and Technology had 46 publications each from 1900-2008. The above information was extracted from Thomson Reuters Web of Knowledge (WOK) database.

In west Africa and Nigeria in particular,(Nwakanma, 2011) observed that eight (8) Nigerian universities featured in the top 100 institutions in Africa while 13 Nigerian institutions generally appearing the 2011 global university ranking by web biometrics. University of Ilorin was number 20 in Africa, and consequently number one in Nigeria by web presence university of Jos occupied the 42nd position in Africa and second in Nigeria, while university of Nigeria Nsukka is Africa number 54th and Nigeria's 3rd in the rating. Other Nigerian universities on the table are: university of Lagos occupied the 58th position in Africa, Obafemi Awolowo(63rd), Ahmadu Bello University (69th), national open University of Nigeria (89th) and University of Agriculture, Abeokuta (95TH).

Beyond the wave of headline, the University of Ilorin deserves to celebrate the January 2011 web biometrics ranking. The institution deserves enough head room if need be to be a story about possibilities and shortfalls in the Nigeria university system. It's worthy of note however, that three Nigerian universities featured in the world ranking for the first time, while two dropped out of Africa's top 100. One of the new inclusion on the table include university of Agriculture, Abeokuta, which moved to the top 100 in Africa and number eight in the

country. Tai Solarin university of Education, Ijebu Ode and Usmanu Danfodio University Sokoto also made the world rankings although they did not feature in the top 100 in Africa. Both institutions bring the number of Nigerian universities ranked by web biometrics (January 2011) to 13. By and large, Nigerian universities have better presence in 2012 year's web biometrics ranking than in previous editions. University of Ilorin is now among the top 3000 universities in the world, up from the previous top 5000. University of Ilorin made a quantum leap from number 5,484 in the world to 2,668 while University of Jos moved from 5,882 to 4,087. University of Nigeria Nsukka also made a quantum leap in the global rankings from 7,170 to 5,176 in the world and from 99th in Africa to 54th. University of Ibadan and university of Benin, which were in the top 100 in Africa in 2010 dropped out in the latest Africa ranking. While university of Benin comes in as Nigeria's number 9th by web presence, it regressed in the global rankings from 6,324 in July 2010 to 7,976 in January 2011. Similarly, university of Ibadan, is number 10 in Nigeria, also regressed in the global position from 6,425 to 8,741.

The web rankings (web biometrics) according to it's founders, is meant "to promote web publication" to support Open Access Initiatives, electronic access to scientific publication and other academic material (GlobalHigherEd,2012). However the web covers not only formal (e-journals, repositories), abut also informal scholarly communication. Web publication is cheaper, maintaining the high standard of quality of peer review processes. It could also reach much larger potential audiences, offering access to scientific knowledge to researchers and institutions located in developing countries and also to third parties (economics,, industrial, political or cultural stakeholders) in their own community Stressing their intention to '' motivate both institution and scholars to have a web presence that reflect accurately their activities. (Berners s Lee, 2011).

In conclusion, Falagas et'al,(2006) established that after evaluating and comparing the quantity and quality of published research from around the world for the year 1995-2003, the result shows that Western Europe leads the world in published research on infectious disease microbiology (82,342 articles) representing 38.8% and in cardiopulmonary medicine (67,783 articles -39.5%), whereas United State of America ranks first in the fields of preventive medicine , public health and Epidemiology both in quantity (23,918 articles – 49.1%) and quality of published papers .However, after adjustment for GDP, Canada ranked first with the United States and Oceania following closely behind .All of the developing regions had only small research contributions in all of the biomedical fields examine within the period.

III. OBJECTIVES OF THE STUDY

The objectives of the study include the following:

1. To determine the total number of faculty members in the faculty of veterinary medicine of Ahmadu Bello University, Zaria.
2. To determine the department that ranked first in term of presence of publications in the web.
3. To determine the average wise of publication per individual in each of the departments.

4. To determine the level of collaborative authorship among the faculty members within their faculties of the Universities under study

IV.METHOD ADOPTED FOR THE STUDY

The research method adopted for this study used quantitative analysis. The research is also documentary type because; the data that was analysed is already documented in the web. Ogunbaremu (2010) stated that one major sources of data is the analysis of document.

The entire faculty members of the faculty of veterinary medicine used. This is because, the total number of the population is not much that require the use of sampling

The researcher have used the available data deposited on the departmental portal as well as the university portal in analysing the extracted data for analysis. No direct search with any of the search engines was used to extract data.

Babbie (2005) reported that a research instrument is a device or tool used to collect record or measure data which are required to provide answers to research questions or test hypothesis.

The instruments adopted for use is the departmental portal and the university portal of Ahmadu Bello University, Zaria.

Data for the study was collected by visiting the departmental portal and the university as well extracting the required information. This was done by searching for the information's of the research question. The displayed information was extracted, printed in an A4 size paper, counted and recorded against that department of the faculty under study.

V.FINDINGS AND DATA ANALYSIS

Data for this study was analysed using both descriptive and inferential statistics. Descriptive statistics was used in analysing the data in respect of the research questions raised for the study. The findings shows that there is total of 131 academic staff in the faculty of veterinary medicine of the university. Department of veterinary surgery and medicine has the highest number of staff with 35 of the total number of 131 representing 26.77% . This is followed by the department of veterinary pathology and Microbiology with a total of 16 number staff representing 12.21%. The departments of veterinary teaching Hospital ,veterinary public health and preventive medicine, veterinary pharmacology and toxicology and veterinary Anatomy has 15,14,12 and 12 each representing 11.45,10.69,9.16 and 9.16 respectively. Still, the department of veterinary parasitology and Entomology and the department of veterinary physiology has the same total number of staff with 10 staff each representing 7.63 each respectively While the department of veterinary medicine is the least with only two(2) staff representing 1.53%. This is followed by the department of Theriogenology and production with a total number of 5 staff only representing 3.82%.

Table 2. : Showing number of online publications present on the University portal

S/N	Name of Department	Number of publications	percentage
1	Department of Theriogenology and production	Not available	0%
2	Veterinary Anatomy	Not Available	0%
3	Veterinary Medicine	Not Available	0%
4	Veterinary Parasitology and Entomology	18	10.91
5	Veterinary Pathology and Microbiology	47	28.48
6	Veterinary Pharmacology and Texicology	Not available	0%
7	Veterinary Physiology	27	16.36
8	Veterinary Public Health and Preventive Medicine	43	26.06
9	Veterinary Surgery and Medicine	30	18.18
10	Veterinary Teaching Hospital	Not Available	0%
TOTAL	Name of Department	165	100.00

The table above shows the total number of publications from each of the ten departments of the faculty under study present on the University portal. It is pertinent to mention that the result obtained in the above table were extracted from what is found on the university portal only, no any further search were made to obtained data other than the university portal. The result shows that five departments were totally not available in the departmental portal of the respective departments, hence representing 0%.

The department of veterinary pathology and Microbiology excel with a total of 47 publications despite the fact that it is not the department that has the highest number of staff. Analysis indicate that, on average each staff of the department has an approximately a total of 3 publication. The entire department represents 28.48% out of the total number of publications of the ten departments in the faculty. However, the result shows that, second in the list is the department of veterinary public health and preventive medicine with a total of 43 publications available on the university portal representing 26.06% of the total publication. The department has a total of 14 teaching staff. This shows that on average, each staff has not less than three (3) publications available on the departmental portal.

Least on the ladder are the departments of veterinary Surgery and medicine with 30 publications followed by the departments of physiology and pharmacology and veterinary parasitology and Entomology with a total of 27 and 18 publications representing 16.36 and 10.91 respectively.

Further analysis on this faculty indicate that, the university portal shows that there are a total of 2,168 publications available in the entire university, so faculty of veterinary medicine has a total of 165 representing 13.14% of the university publication available on portal

Table 3. Showing level of co- authorship within and outside the faculty

S/N	Name of Department	Number of Publication	Number of Collaborating Authors	Percentage ( )
1	Department of Theriogenology and production	Not Available	Not Available	
2	Veterinary Anatomy	Not Available	Not Available	
3	Veterinary Medicine	Not Available	Not Available	
4	Veterinary Parasitology and Entomology	18	69	
5	Veterinary Pathology and Microbiology	43	123	
6	Veterinary Pharmacology and Texicology			
7	Veterinary Physiology	27	55	
8	Veterinary Public Health and Preventive Medicine	43	87	
9	Veterinary Surgery and Medicine	30	84	
10	Veterinary Teaching Hospital	Not Available	Not Available	
TOTAL		165	418	

The table above indicates the level of co-authorship of faculty members of the faculty of veterinary medicine of the university under study. The result indicates that the top collaborators are the department of veterinary pathology and microbiology with a total number of 123 authors producing a total number of 43 articles jointly. Analysis of the result obtained indicates that the collaboration is scattered mostly within the faculty of Medicine and Faculty of Sciences within the university and very few outside the university with colleagues of same or similar profession. This shows that veterinarians collaborate to conduct research within themselves and with other professions with similarity in nature.

Department of veterinary public health and preventive medicine with equal number of publication with the department of veterinary pathology shows less collaborators with 87 collaborators producing 43 articles. An average indication shows that two staff collaborates to produces one articles each.

The sequence of collaboration does not go along with number of articles produced. Careful analysis shows that the department of veterinary physiology produces 27 articles with a total number of 55 authors which shows that approximately 2 authors collaborate to produce one article each. Department of veterinary surgery and medicine and medicine shows slice difference which indicates that 84 authours collaborate to produced 30 articles with an approximate 3 person per article.

Table 4. Average Number of publication per staff

S/N	Name of Department	Number of Publications	Number of staff	Average
1	Department of Theriogenology and production	Not Available	5	0
2	Veterinary Anatomy	Not Available	12	0
3	Veterinary Medicine	Not Available	2	0
4	Veterinary Parasitology and Entomology	18	10	1.8
5	Veterinary Pathology and Microbiology	47	16	2.94
6	Veterinary Pharmacology and Texicology	Not Available	12	0
7	Veterinary Physiology	27	10	2.7
8	Veterinary Public Health and Preventive Medicine	43	14	3.1
9	Veterinary Surgery and Medicine	30	35	0.9
10	Veterinary Teaching Hospital	Not Available	15	0
TOTAL				

Staff wise, the number of staff present in a department does not translate the number of articles produced. This can be observed when we look at the total number of staff present in the department of veterinary surgery and medicine with 35 staff and yet only 30 articles were produced which average represents 0.9 articles per individual. On the contrary, department of pathology and microbiology with a total number of 16 staff produces 47 articles which is the highest in the department. The average of this statistics indicates that each staff produces 3 articles each. Similarly, the department of public health and preventive medicine with a total of 14 staff produces 43 articles approximately with 3 articles by each staff of the department almost the same with the department of veterinary pathology and microbiology.

Table 5. Nature of publication (textual, graphical, a or combination of both)

S/N	Name of Department	Number of Publication	Nature of Publication	Percentage
1	Department of Theriogenology and production	Not Available	Not Available	
2	Veterinary Anatomy	Not Available	Not Available	
3	Veterinary Medicine	Not Available	Not Available	
4	Veterinary Parasitology and Entomology	18	Text and graphical	
5	Veterinary Pathology and Microbiology	47	Text and	

			graphical	
6	Veterinary Pharmacology and Texicology	Not Available	Not Available	
7	Veterinary Physiology	27	Text and graphical	
8	Veterinary Public Health and Preventive Medicine	43	Text and graphical	
9	Veterinary Surgery and Medicine	30	Text and graphical	
10	Veterinary Teaching Hospital	Not Available	Not Available	
TOTAL	Name of Department			

An observation of most of the articles shows that the in formations contained are in textual and graphical form for analysis and discussions. However, some of them contained some pictures for illustrations. No literature were found be in an animated form.

VI.SUMMARY CONCLUSION AND RECOMMENDATION

The finding provides a summary of the major findings of the study conclusion and recommendation for improvement of the situation as revealed by the study.

A total of 165 publications were found available on the portal accessible via the internet by the faculty members of the faculty of veterinary medicine Ahmadu Bello University Zaria. The Department of veterinary teaching hospital is found to have the highest number of publication out of the 8 Department in the faculty with a total of 25 articles representing 65 .8%. it is recommended that:

1) Previous publications before the advent of the internet should be posted to the web to be made known to researchers, students & any other interested persons by the publishers that is journals managers or the individuals' authors.
2) In the case of journals the bibliographic details should be made known on the web for researchers.
3) That any useful information by the academic staff that will be of interest to researchers and students that does not attracts money should be posted to the web such as lecture note.
4) Regular update of the faculty portal and the university portal so as to keep users with the latest information about their activities and other related information.
5) The faculty librarians and the central library should as well upload all necessary information for users need.

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