Original article:

The Analysis of Sub-saharan African Surgical Sublications

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Abstract

Objectıve: Medical education and health have been accelerated in Sub-Saharan Africa (SSA) over the years, however scientific contrubition of SSA is not adequate. The aim of this study is to document the studies published by scientists from SSA. **Method:** This study was conducted via searching the database of PubMed by using the words "Sub-Saharan Africa AND Surgery", between 01.01.2016 and 31.12.2016. **Results and dıscussıon:** A total of 582 articles were found and reviewed. Irrelevant 305 (52%) articles were excluded. There were 277 (48%) surgical articles and 82 (30%) of the studies were conducted in the field of general surgery which were reviewed for this study. Fourty-two (51%) articles were published by local scientists from 15 SSA countries; 15 (18%) articles by the researhers outside of Africa and 25 (30%) articles were collaboration studies between African and western countries. Twenty (24%) articles were published in African based journals whereas 62 (76%) were published in international journals. The most common topics among articles were gastrointestinal system diseases, trauma and breast cancer, respectively.**Conclusıons**: In conclusion the number and subjects of publications held by local scientists is inadequate, and therefore, scientific researhers should be supported.

Keywords: Sub Saharan Africa, Surgery, Research, Publication.

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Introduction:

Some of the countries in Sub-Saharan Africa (SSA), after gaining independence, made financial investments into education and health, especially for the training of health workers and research scientists. But still most of the significant scientific contributions from SSA emerge from collaborative work with western countries [1]. Some of the graduate physicians left their countries as a result of financial and security reasons. Highly trained biomedical scientists and doctors are also remunerated and they practice in other fields like administrative jobs due to issues such as lack of laboratories, institutions or funding. There are also some problems origanating from medical journal publisihing: maintaning publisihing frequency, finance, international visibility, the number of circulating journals and journal preferences of the authors.

METHODS

This study was conducted via searching the database of MEDLİNE/PubMed by using the words "Sub-Saharan Africa AND Surgery", between 01.01.2016 and 31.12.2016. Preferred Reporting Items for Systematic Review and Meta-analyses
(PRISMA) guideline was consulted throughout the conduct of the study **(Figure 1)** [2].

A total of 582 articles were found and reviewed. Irrelevant 305 (52%) articles were excluded. There were 277 (48%) surgical articles and 82 (30%) of the studies were conducted in the field of general surgery which were reviewed for this study.

Discussion:

In our review, 42 (51%) articles were published by local scientists from 15 SSA countries. Fifteen (18%) articles were published by the researhers outside of Africa and 25 (30%) articles were collaboration studies between African and western countries. Twenty (24%) articles were published in African based journals whereas 62 (76%) were published in international journals.

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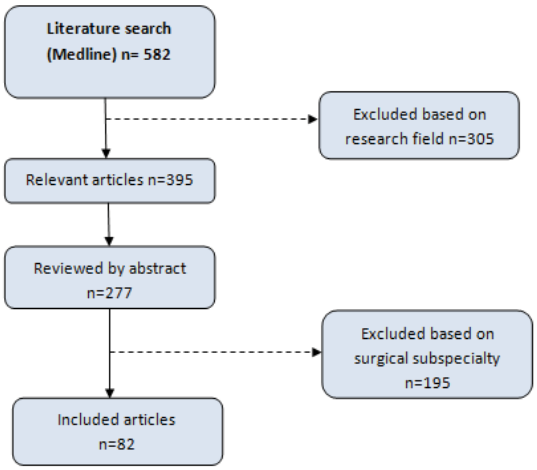

Figure 1 Study flow

The most common topics among articles were gastrointestinal system diseases, trauma and breast cancer, respectively. The detailed results are revealed in Table 1-7.

Table 1 Distribution of articles by the department

Resarch department	Number (%)
Surgery	60 (73.1)
Multidiciplinary	22 (26.9)

During renaissance scientists used to exchange letters in order to keep one another informed [3,4]. In Europe at 17th Century, one of the earliest medical publications was recorded but in Africa, during the colonial times, the first mentioned journal according the records was *West African Medical Journal* in 1920s[3,5]. There are also findings that the oldest medical journal of Africa was started being published in 1884 under the name of South African Medical Journal. It is difficult to identify the first medical scientific journal and publication in Africa by the reason of poor record management [3].

Table 2 Distrubution of journals by the origin

Journals	Number (%)
Non-African Journals	62 (75.6)
African Journals	20 (24.3)

West African Medical Journal was funded by Colonial Administrative Goverment and some companies from western countries and stopped being published after 1978 [5]. Developing and promoting medical publishing in Africa has always been a research field for some authors. Ajao et al published an analysis of manuscripts that were submitted to West African Journal of Medicine in 2002 [5]. In this report, from June 2001 to May 2002, 196 articles were submitted and 94 (48%) of those articles were accepted. Orthopedics had the highest submision rates with 22 (11.2%) submitted and 13 (13.8%) accepted articles. General surgery had 11 (5.6%) submitted and 3 (3.2%) accepted articles according to this analysis. University College Hospital (UCH) Ibadan, Nigeria, had the highest submission rate.

Table 3 Publications by local scientists

Country	Number of Articles (%)
South Africa	13 (30.9)
Nigeria	8 (19)
Ethiopia	3 (7.1)
Cameroon	3 (7.1)
Niger	2 (4.7)
Kenya	2 (4.7)
Sudan	2 (4.7)
Uganda	2 (4.7)
Burkina Faso	1 (2.3)
Gana	1 (2.3)
Kongo	1 (2.3)
Mali	1 (2.3)
Senegal	1 (2.3)
Tanzania	1 (2.3)
Togo	1 (2.3)
Total=15	Total =42 (100)

There were also 9 accepted articles out of 12 (6.1%) submitted articles from outside of Africa. In 2006, Ajao et al expanded their previuos study by reviewing all the articles submitted and published between June 2001 and May 2005.

The numbers were compatible with their former study but general surgery had the highest publication rate in 2005 [4].Gray and Aitken reported two cases in West African Medical Journal of two Yoruba women with "Pressure fistula following protracted labour", now we acknowledge this condition as vesico-vaginal fistula which is still a serious problem in Africa [6]. Also, in 1930, Dr. Gray reported an article titled: Tropical Pyomyositis [7]. There are also records about Gray and Aitken's published article in the *West African Medical Journal* in 1928 [8].

Tablo 4 Publications from outside of SSA

Country	Number of Articles(%)
United States (USA)	6 (40)
United Kingdom (UK)	5 (33.3)
Germany	1 (6.6)
Spain	1 (6.6)
France	1 (6.6)
China	1 (6.6)
Total=6	15 (100)

Most studies are conducted due to gain academic promotion because scientists want to raise the number of their published articles. Small scaled, not indexed journals are prefrences of those scientists where rejection rates are low. This situation diminishes the scientific contrubition of Africa to the world's literature. International journals have criteria that Sub-Saharan African scientists struggles to provide: scientific merit, quality of editorial work, overall production etc [9]. In order to provide financial sustainability for the journals in Sub-Saharan Africa, there are some methods that scientific publications are being supported The organization that owns the journal contrubites financially and the authors are charged with publication or assesment fees [9]. It is hard to maintain a stable source of finance in Africa due to lack of support of pharmaceutical companies, compared to western world. Before 60s African health system improved espcially with the aid of international contrubitions, but after indipendence 'brain drain' became the major problem of the system [10].

Table 5 Publications of the collobration studies.

Countries	Number of Articles (%)
Gana , USA	5 (20)
Malawi, USA	3 (12)
Rwanda, USA	3 (12)
Nigeria,USA	2 (8)
Sierra Leone,USA	2 (8)
Ethiopia, USA	1 (4)
Cameroon, USA	1 (4)
South Africa, USA	1 (4)
Sierra Leone, UK	1 (4)
Malawi, UK	1 (4)
Nambia, France	1 (4)
Cameroon, France	1 (4)
South Africa, Canada	1 (4)
Sierra Leone, Norway	1 (4)
Soth Africa, Netherlands	1 (4)
Total=15	Total =25(100)

Medical education, knowledge and research are dynamic, they alter with the development of new technologies and advances in medicine. In under developed areas, scientists lack motivation, time, opportunity and finance in order to continue their academic researches. Poor conditions coupled with technological underdevelopment and brain drain are the major obstacles against a proper scientific activity. In our review, we did not encounter any laboratory or animal research, however most of the studies were retrospective clinical resaerh papers. With the increase prevelance of contagious diseases over the years, surgical diseases have been neglected as a public health problem and therefore that situation lead the financial cut backs on surgical fields. Consequently, without well established research institutes and adequate funding, the numbers of good publications will be inevitably a few. These seem to be the problems in many developing African countries.

Conflict of interest: None declared.

Tablo 6 Distribution of study subject

Research topic	Number (%)
Gastrointestinal system	24 (29.2)
Trauma	16 (19.5)
Breast diseases	14 (17)
Public health	7 (8.5)
Infection	6 (7.3)
Hernia	6 (7.3)
Education	3 (3.6)
Thyroid	2 (2.4)
Transplantation	2 (2.4)
Humanitarian work	2 (2.4)
Total=11	82 (100)

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