Public Health Research in Selected African Countries: A Bibliometric Analysis of the Literature

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Abstract

The purpose of this study was to conduct a quantitative analysis of Public Health research output in selected African countries. The comparative analyses for 13 countries, namely; Algeria, Botswana, Ghana, Kenya, Lesotho, Namibia, Nigeria, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe for the period of 1995-2005. The data was collected by using Dialog database on Public Health to identify the literature distribution by country descriptor. Microsoft Excel was used to analyse the data for the production distribution throughout the period of study. A total of 50 874 documents were collected from the respective countries for the period of the study. The study gives both a quantitative and qualitative analysis of development and growth in the countries under study in the field of public health. South Africa produced most publications 14690(29%), much ahead of all other African countries. Nigeria 6835 (13%) is the next country that produced much in the area of public health. Kenya 5890 (11.6%), Tanzania 5266 (10.2%) and Uganda 5167 (10.2%), were following in their research output in this area.

1. Introduction

Public health has been defined as the scientific activity related to the interaction between health conditions and social responses to improve the well being of the people (Frenk et al., 1986). In this time of scarce resources, it has become increasingly necessary to justify the impact of any health care intervention. Health research is best viewed as a broad concept that includes not only biomedical and clinical research but also epidemiological and related community health research, health systems research, health services research and operational research (Macias-Chapula, 2002). Clinical findings alone, while important, are often an insufficient measure of an intervention's impact. The study of health research outcomes looks beyond the physiological measures of success to examine the effects of the health care process on patients and populations. Researchers in this field use various measures of outcomes in the hope of using their findings to develop better ways to monitor and improve the quality of care.

Although, large number of studies have addressed on scholarly publications in a variety of medical fields, such as HIV/AIDS (Onyancha 2002), cancer, tuberculosis (Grant et al., 2005), public health (Jaffar et al., 2005) etc., there are no comparative comprehensive quantitative analysis that have been done on public health research in Africa. This study, hence addresses the public health research performance in selected countries in Africa

2. Purpose

The purpose of this study is to present the preliminary results of a bibliometric study of the literature production on public health in selected countries in Africa. This is further aimed at bringing an awareness of the quantitative research or lack of it in the region to the relevant authorities and decision process mechanisms and science policy makers.

Although numerous studies and scholarly publications have been done in different areas of science and technology and medicine, hardly any comparative comprehensive informetrics study is done in the area of public health in Africa. There has been bibliometric analysis of the Public Health research and health literature in Latin American and Caribbean regions and have addressed issues related to primary health care (Macias-Chapula, 1995) and health care reforms (Macias-Chapula, 2002), HIV/AIDS research in Southern Africa (Onyancha, 2005 and 2007).

This study also examines the inter relationship among different issues relating to public health, namely: health services, health legislation, health policies, mortality, national health programme, primary health care, and risk factors. The analysis provides background information to health staff and other environmental health scientists responsible for preparing health documents, such as health assessments, health consultations, and emergency responses. Moreover, the paper was intended to contribute to the knowledge of the structures required to support the expertise of public health researchers and the practice and policy sector, and to build bridges between them.

This study is further intended to increase understanding of existing public health research that integrates research and education with policy and practice for selected African countries and exploring the feasibility of developing research in the health sector. It is also hoped to provide a micro view of the contribution in specific areas of medicine.

3. Methods
A thorough search for publications in journals from 1995 to 2005 inclusive, on the Institute of Scientific Information (ISI) databases, Science Citation Index (SCI) and PubMed database was undertaken. The former was searched together through the Dialog Information Services using its duplicate-removal. Search was initially conducted using a free text search on public health within the selected countries. In order to obtain a more precise as well as controlled search, US National Library Medicine's Medical Subject Headings (MeSH) were used during the process of selecting the countries. These medical subject headings include health services, health promotion, risk factors, epidemiological surveillance, mortality, health policies as well as primary health care. No limitations to language, check tags, nor type of documents was applied to the search strategy. Microsoft Excel and Statistical Package for Social Science Research (SPSS) were used for the analysis of production distribution by country and distribution of main Medical Subject Headings as well.

Thirteen countries namely; Algeria, Botswana, Ghana, Kenya, Lesotho, Namibia, Nigeria, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe were selected. Only quantitative criteria were chosen for the selection of these countries. Countries which produced between five hundred and above documents during the period 1995-2005 were selected.

4. Results
A total of 50874 records were retrieved for the thirteen Southern African countries chosen for this research during the period 1995 to 2005. The descriptors selected in health research which were more relevant to the developing world situation such as primary health, national health policy, legislation, risk factors, health services and mortality were studied. The results retrieved were as follows: primary health (1, 336 records), national health service (15, 273), mortality (17,733), risk factors (12, 430), national health policy (350), and legislation (3,752). National policy retrieved the least amount of documents showing that most of the developing

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countries place less importance on policies regarding public health of its people, hence the poor health services.

Table 1: Public health research in selected African countries. Distribution of productivity by country and fields

ALG=Algeria, BOT=Botswana, GHA=Ghana, KEN=Kenya, LES=Lesotho, NAM=Namibia, NIG=Nigeria, SA=South Africa, SWA=Swaziland, TAN=Tanzania, UGA=Uganda, ZAM=Zambia, ZIM=Zimbabwe.

	ALG	BOT	GHA	KEN	LES	NAM	NIG	SA	SWA	TAN	UGA	ZAM	ZIM	Total
L	8	1	15	3	5	54	3	17	61	1	22	13	2	
E	1	2	8	2	8		6	13		7	9	0	8	37
G		1		2			8			5			2	52
N	8	4	18	1	0	1	2	18	0	3	31	21	1	
H				7			0	2		8			0	35 0
P														0
R	1	2	61	1	7	79	1	35	58	1	15	58	9	
F	5	4	7	5	3		8	29		4	20	9	9	12
	9	3		0			4			9			2	43
				1			2			8				0
P	2	2	12	1	2	18	1	52	4	1	90	59	8	
H	2	2	0	0	2		5	0		4			5	13
				2			0			2				36
H	1	3	10	1	1	15	1	47	13	1	16	82	1	
S	8	9	99	5	3	9	7	29	1	5	55	9	0	15
		8		8	1		6			2			8	27
				2			9			9			0	3
M	1	4	12	2	1	19	2	40	18	1	19	99	1	
O	9	7	86	3	7	2	6	17	0	8	12	7	3	17
	2	8		7	6		8			8			6	73
				0			6			4			3	3
T	5	1	32	5	4	50	6	14	43	5	51	26	3	
ot	6	2	98	8	6	3	8	69	1	2	67	25	8	50
al	0	6		9	0		3	0		6			1	87
		6		0			6			6			2	4
%	1.1	2.5	6.5	11.6	0.9	1.0	13.4	28.9	0.9	10.4	10.2	5.2	7.5	

The productivity of the countries in descending order for the ten year period was South Africa (14, 690 records), Nigeria (6, 835), Kenya (5, 890), Tanzania (5,266), Uganda (5, 166), Zimbabwe (3,812), Ghana (3,298), Zambia (2,625), Botswana (1,266), Algeria (560), Namibia ((503), Lesotho (460) and Swaziland (431). South Africa produced 29% of the total literature output and it would be worthwhile doing an in depth study of this country alone.

Table 2: Publication out put in Health Service

	ALG	BOT	GHA	KEN	LES	NAM	NIG	SA	SWA	TAN	UGA	ZAM	ZIM	Total
1995-96	13	21	80	119	11	9	148	296	11	114	81	54	94	**1051**
1996-97	5	27	79	116	12	10	118	247	9	103	77	53	97	**953**
1997-98	7	7	43	45	3	4	65	134	4	43	37	25	52	**469**
1998-99	5	5	26	35	2	6	39	130	6	43	42	21	30	**390**
1999-00	5	8	27	27	2	7	31	160	6	35	43	25	22	**398**
2000-01	29	50	178	248	31	25	221	639	18	257	226	148	152	**2222**
2001-02	43	54	163	266	22	30	267	768	18	270	263	171	156	**2491**
2002-03	30	80	181	275	16	34	325	861	19	251	303	152	172	**2699**
2003-04	21	81	164	222	16	19	283	714	17	208	277	87	163	**2272**
2004-05	24	65	158	229	16	15	272	780	23	205	306	93	142	**2328**
Total	182	398	1099	1582	131	159	1769	4729	131	1529	1655	829	1080	**15273**

Depicted in Table 2, are analyses of health services from 1995-2005 for the different countries. South Africa with 4727 records leads with respect to the most retrieved articles. Following South Africa is Nigeria (1769) and Kenya (1582) respectively with respect to most retrieved articles. The country with the least number of retrieved articles is Swaziland with the total number of 131 records from 1995 to 2005. Looking at the results, there is a steady overall increase in articles for the period 1995 to 2005, although there is a slow rise from 1995 to 2000 and after that period, there is a sharp increase in production until 2005.

Table 3: Publication out put in Legislation, Natonal Health Programme, Primary Health Care and Risk Factor

1995-2005	ALG	BOT	GHA	KEN	LES	NAM	NIG	SA	SWA	TAN	UGA	ZAM	ZIM
Legislation	81	121	158	322	58	54	368	1713	61	175	229	130	282
Health Programme	8	4	18	17	1	1	20	182	0	38	31	31	10
Health Care	2	22	120	102	22	18	150	520	4	142	90	59	85
Risk Factor	159	243	617	1501	73	79	1842	3529	58	1498	1250	589	992

Table 3, portrays the analysis of legislation, national health programme, primary health care and risk factor. The countries which have not performed too well in legislation in most cases are Algeria, Lesotho, and Swaziland. The overall research and productivity in related to health, where Swaziland has the least number of publications on legislation

The results depicted in the table above concerning research in health programmes are the least encouraging. Swaziland seems to have no research output in this area and Lesotho and Namibia have very little work done in it. The study of health programmes has implications for every aspect of the health care system, including clinical practice, treatment, quality of life, health care delivery, information health policy, and health care financing (Iezzoni, 2003, Kleinpell, 2001, Murray, 2002 and Osborne, 2002). The wide scope of this discipline (Wojner, 2001), has allowed it to become one of the most important tools that policymakers, clinicians, managers, and players have to learn more about the most effective and efficient ways to provide high quality health care (Petitti, 2000). An analysis of primary health care shows an eventual decrease in the number of articles for all the countries. What is noticeable is that for all the countries, there is initially an increase but then eventually, there is a steady decrease for the period from 2003 to 2005.

By comparing the analysis of risk factors, there is a steady increase in the number of articles for all the countries with both South Africa and Nigeria heading the list of African countries. The trend analysis of risk factor in productivity for the periods of 1995-2005 showed that there was steady increase ever since 1995 up to 2005 in all countries except in Swaziland with just 58 documents.

5. Discussion and Conclusion

Over the whole investigation, South Africa seemed to be the leading producer followed by Nigeria, Kenya and Tanzania. An interesting revelation was that most of the research output was done through journals by the researchers from these countries. This in a way encourages researchers in Africa to know the journals where most of the research results are produced. Some of the journals were not directly connected to public health and several of the articles were published in Journal of Environmental Science, South African journal of Library and Information Science, South African Journal of Science, etc. It would be valuable for

researchers and information providers to know the journals where most of the research in this area is published. It is also imperative to study the institutions which are responsible for the research so that collaborative research can be conducted to strengthen the research in the area of Public Health.

The research can be further extended to the areas of women and child health, with emphasis placed on the health situation of youth especially as they are affected by the HIV/AIDS pandemic, public health emphasis on rural health, health services extended to infants and new born etc.

Diseases know no borders, health threats and issues in one country increasingly impact on the health of the other African healthcare systems. Understanding these forces and their health impacts is critical to the future health of all global citizens. Much progress needs to be made in developing and implementing cost-effective interventions to combat these threats to global health. Relatively modest investments in research on the health problems of developing countries and on global health priorities could go a long way towards achieving both better health outcomes and more sustainable interventions in the long-term (Bowling, 2001). A balanced global health research agenda therefore focuses not only on the global burden of disease but also on the social, political, environmental and economic contexts within which these diseases occur.(Staquet et al., 1998).

This research aims to further identify areas of research not currently well addressed by specific counties that are affected as well as the selected countries as a whole.

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