Visualization of knowledge production on public health research work in Latin America and the Caribbean

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I. Introduction

Public health research has been defined as the scientific activity related to the interaction between health conditions and social responses to improve well-being (Frenk, et al, 1986).

The challenge to promote public health research in developing countries has been addressed by the Global Forum on Health Research that was organised by the World Health Organisation in 1999 (WHO, 1999; Lancet, 2004).

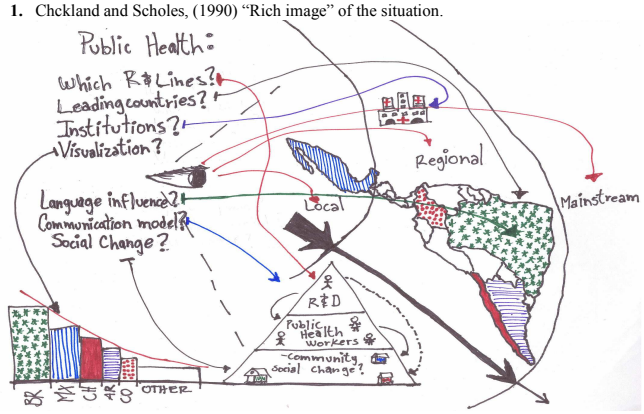
In the last two decades, inspite to the fact that multiple health care reforms have emerged in the Latin American and Caribbean regions (Gonzalez Garcia, 2001; Macías-Chapula, 2002). No information exists regarding for example, public health research lines; benchmarking; visibility of research results; or impact on public health programmes. Clearly, less information exists on the relationship between public health research and interventions leading to social change and improvement of well-being.

II. Purpose

The purpose of this work is to present the preliminary results of a bibliometric research in progress on the production and visibility of public health research work in Latin America and the Caribbean (LAC) for the period 1980-2004. The final goal is to establish the basis for a scientific communication model in public health research in the above mentioned regions. It is hoped that this model will be used to improve existing public health research actions and decision making on public health policies among participating countries.

III. Method

1. Chckland and Scholes, (1990) "Rich image" of the situation.



Legend.

2. Bibliometric analysis to obtaing the scientific production of the LAC region :

Bibliometrics analysis:
A) LILACS-SP
B) MEDLINE
- MeSH /DeCS

C) Web of Science
-MeSH /DeCS

→ To obtain: Production and Visibility

Materials:
Microsoft Excel (2000)
Bibexcel (2001)

→ To obtain:
Total of production
Language
Subject content
Type of document
Countries and institutions

IV. Results

A total of 34 countries publishing research results on public health were identified in LILACS-SP, and 26 in MEDLINE.

Table 1. Distribution of productivity Public Health Research in Latin American and the Caribbean Medline/LILACS-SP (1980-2004)

N°	País	Lilacssp	%	Medline	%
1	Brasil	43.336	42,74	9.516	30,71
2	Chile	9.153	9,03	2.169	7,00
3	México	8.824	8,70	6.438	20,77
4	Argentina	8.405	8,29	2.010	6,49
5	Venezuela	4.657	4,59	915	2,95
6	Colombia	4.481	4,42	1.137	3,67
7	Perú	3.873	3,82	1.058	3,41
8	Cuba	3.737	3,69	1.278	4,12
9	Bolivia	2.360	2,33	464	1,50
10	Costa Rica	2.156	2,13	611	1,97
11	Ecuador	2.133	2,10	590	1,90
12	Guatemala	1.537	1,52	825	2,66
13	Uruguay	1.372	1,35	333	1,07
14	Nicaragua	1.215	1,20	306	0,99
15	Republica Dominicana	1.012	1,00	0	0,00
16	Panamá	865	0,85	462	1,49
17	Jamaica	644	0,64	1.054	3,40
18	Honduras	611	0,60	252	0,81
19	Paraguay	461	0,45	156	0,50
20	El Salvador	240	0,24	219	0,71
21	Barbados	89	0,09	193	0,62
22	Belice	71	0,07	0	0,00
23	Trinidad y Tobago	66	0,07	0	0,00
24	Haiti	34	0,03	574	1,85
25	Guyana	14	0,01	119	0,38
26	Bahamas	11	0,01	69	0,22
27	Islas Turcas y Caicos	9	0,01	0	0,00
28	Santa Lucia	3	0,00	0	0,00
29	Antigua y Barbuda	3	0,00	0	0,00
30	San Cristobal y Nevis	3	0,00	0	0,00
31	Grenada	3	0,00	15	0,05
32	Suriname	3	0,00	208	0,67
33	Dominica	3	0,00	20	0,06
34	Antillas Neerlandesas	1	0,00	0	0,00
	Total	101.385	100	30.991	100

The former database retrieved 101,385 records and the latter 30,991. Table 2. Provides the rank distribution of those countries with major production in both databases.

Table 2. Distribution of top five countries public health research in Latin America and the Caribbean MEDLINE/LILCAS-SP (1980-2004).

N°	Contries	LILACS-SP	%	MEDLINE	%	Total
1	Brasil	43.336	42,96	9.516	31,99	52.852
2	México	8.824	8,75	6.438	21,64	15.262
3	Chile	9.153	9,07	2.169	7,29	11.322
4	Argentina	8.405	8,33	2.010	6,76	10.415
5	Colombia	4.481	4,44	1.137	3,82	5.618
	Total	74.199	73,55	21.270	71,49	95.469

Five countries (Brazil, Mexico, Chile, Argentina, and Colombia) contributed with (73.08%) of the total production in both databases. The results described below are based on these findings. Overall, the type of documents corresponded to journal articles (76.63%); other relevant documents included monographs (15.29%) and thesis (5.37%).

Table 3. Distribution of production for type of document, top five countries of Latin America and the Caribbean Medline-Lilacs-SP (1980-2004).

Type	Brazil	México	Chile	Argentina	Colombia	Total	%
Series	37.603	12.463	9.014	9.343	3.790	72.213	75,64
Monograph	8799	2511	1834	701	1376	15.221	15,94
Thesis	4.841	5	181	186	135	5.348	5,60
Not Convensional	688	176	132	111	263	1.370	1,44
Confers	581	66	95	49	28	819	0,86
Proyects	340	41	66	25	26	498	0,52
Total	52.852	15.262	11.322	10.415	5.618	95.469	100

Journal articles were mainly published in the following journals in descending order: *Revista de saúde pública (Brazil); Cuadernos de saúde pública (Brazil); Salud Pública de México (Mexico); Revista médica de Chile (Chile); Gaceta Médica de Mexico (Mexico); Revista chilena de pediatria (Chile); Boletín del Hosp. Inf. de Mex (Mexico).; Medicina de Buenos Aires (Argentina); Ginecologia y Obstetricia de México (Mexico); and Biomédica (Colombia).*

Seventeen different languages were used to publish 94,975 documents. Portuguese was the dominant language with 44.68%; followed by Spanish, 37.07% and English, 17.59%.

Table 4. Distribution of the language top five countries with mayor production in Latin America and the Caribbean Medline-Lilacs-SP.

	LILACS-SP	MEDLINE	LILACS-SP	MEDLINE	LILACS-SP	MEDLINE	LILACS-SP	MEDLINE	LILACS-SP	MEDLINE		
Language	Brazil		Mexico		Chile		Argentina		Colombia		Total	%
Portuguese	39.401	3171	20	6	38	3	43	17	13	5	42.717	44,68
Spanish	621	139	8.487	2487	8.858	1283	8.178	672	4.418	301	35.444	37,07
English	2.973	6213	272	3922	234	867	166	1307	43	817	16.814	17,59
Others	341	98	45	45	24	20	18	21	7	15	634	0,66
Total	43.336	9.621	8.824	6.460	9.154	2.173	8.405	2.017	4.481	1.138	95.609	100

Subject content was mainly related to the fields of *Risk Factors; Comparative Studies; Socioeconomic Factors; Prevalence; and Health Policy*.

Table 5. Subject Content of production top five countries of Latin America and the Caribbean MeSH-DeCS (1980-2004).

N°	MeSH/DeCS	Brasil		México		Chile		Argentina		Colombia		
		Lilacssp	Medline	Lilacssp	Medline	Lilacssp	Medline	Lilacssp	Medline	Lilacssp	Medline	Total
1	Risk Factors	820	1.209	294	778	287	260	168	216	136	127	4.295
2	Socioeconomic Factors	820	1.375	150	638	283	254	47	97	94	131	3.889
3	Prevalence	400	1.441	84	677	79	305	36	292	13	111	3.438
4	Comparative Study	7	1.351	1	1.194	0	381	0	318	0	169	3.421
5	Health Policy	1.125	41	144	39	144	7	104	11	62	5	1.682
	Total	3.172	5.417	673	3.326	793	1.207	355	934	305	543	16.725

Discussion

The production and visibility pattern of public health research results in Latin America and the Caribbean varied according to the database used. While LILACS-SP included more local and non-conventional literature in its database, MEDLINE reflected a highly academic and structured pattern of production. LILACS-SP was also more comprehensive in the inclusion of countries, while MEDLINE excluded most of Central American and Caribbean countries. Overall, leading countries were Brazil, Mexico, Chile, Argentina, and Colombia. Due to the high production of Brazil, the dominant languages were Portuguese and Spanish. The subject content found reflects the type of research lines conducted and visible in both databases throughout time.

References

Checkland, P. and Scholes, J. (1990). *Soft systems methodology in action.* London: Wiley.

Frenk, J.; Bobadilla, J.L.; Sepúlveda, J.; Recental, J.; Ruelas, E. (1986). A conceptual model for public health research. *Bulletin of the Pan American Health Organization,* 101, 477-489.

Gonzalez Garcia, G. (2001). Health reforms and the managerial models. *Pan. Ame J. Pub. Health,* 9, 406-412.

Lancet Editorial. (2004). Mexico, 2004: Global health needs a new research agenda. *The Lancet*, 364, 1555-1556.

Londono, J.L.; Frenk, J. (1997). Structured pluralism: towards an innovative model for health system reform in Latin America. *Health Policy*, 41, 1-36.

Macías-Chapula, C.A. (2002). Bibliometric and webometric analysis of health system reforms in Latin America an the Caribbean. *Scientometrics*, 53, 407-427.

Macías-Chapula, C.A. (2003). Public health research in Latin America and the Caribbean: A bibliometric analysis of the literature. In Jiang Guohua, (Ed.), *Proceeding of the 9th International Conference on Scientometrics and Informetrics* (ISSI'03)(pp.172-79).Delian:Univesity Technology Press.

WHO. (1999). *Global Forum on Health Research. The 10/90 report on health research 1999*. Geneva: World Health