PRIMARY HEALTH CARE IN MEXICO: A "NON-ISI" BIBLIOMETRIC ANALYSIS

C. A. MACIAS-CHAPULA

Departamento de Ciencia de la Información. Centro de Información Científica y Humanística (CICH).
Universidad Nacional Autónoma de México (UNAM), México, D. F., México

This work reports the first results of a research in progress on the production, dissemination and impact of the literature on primary health care (PHC), as produced in Mexico during the period 1980–1992. The methodology used involved computerized searches in the MEDLINE, LILACS, and PERIODICA databases to identify the existing Mexican literature in the field. Results indicated a limited dissemination of the Mexican production through conventional databases. A total of 117 references were found in the field. Most of these references (72.65%) corresponded to journal articles. Over 55% of the documents were published by more than one author. Further research in the field as well as the implications of these results to PHC in Mexico are discussed by the author.

Introduction

Primary Health Care (PHC) has been adopted by the World Health Organization (WHO) as the global strategy to obtain "health for all by the year 2000."[1, 2] Developing countries have been particularly urged to adopt this strategy due to their low health status. PHC recognizes however, that priorities must be set to meet local, socio-economic, political conditions, not to respond to the results of clinical trials.[3]

Clearly, such priorities and conditioning factors vary according to each country and to each country's level of development. This has resulted in the production of research on socioeconomic indicators in health care, as applied for example to specific target populations or countries.[4-6]

In this context, PHC has been the focus of research by many developed and developing countries. While advanced countries are reporting results on "quality assurance",[7, 8] "evaluation/scenario analysis",[9-11] and management;[12] developing

---

Postal address: Apartado Postal 70 392. C. P. 04510, México, D.F. México.

countries seem to be still concerned with "regional indicators",[13] "national plans",[14] and "health services demand".[15]

Thus, research on PHC has derived in the production of a vast amount of literature in the field. A recent MEDLINE search for instance, retrieved a total of 485 references for 1992. It was found that 29.28% of these documents corresponded to Spanish language articles. These findings raised interesting questions regarding PHC research. Is productivity increasing or decreasing over the years, at the dawn of the year 2000?; which are the subject differences among developed/developing countries?; is there a collaboration pattern among north/south countries?; what is the role of the language of publication?; what type of literature is being produced in the field?; furthermore, is PHC research helping to meet WHO's goal of health for all?.

Conventional databases such as those of the Institute for Scientific Information (ISI), mainly Science Citation Index (SCI) and Social Science Citation Index (SSCI) are being used by the author in a parallel study, in order to obtain the visibility of the field in the international arena. National and regional studies in developing countries however, are more difficult to conduct, mainly due to (a) lack of coverage/visibility of these countries by ISI's databases; and (b) lack of reliable, national information sources.

A computerized search for instance on "PHC in Mexico", as performed in SCI and SSCI, did not retrieve any references for the period 1980–1992. While other studies have been reported regarding the Mexican production in the health field,[16-19] no research has been conducted on PHC productivity and analysis in Mexico.

Purpose

The purpose of this work is to present the preliminary results of a research in progress on the production, dissemination and impact of PHC literature in Mexico. The main goal of the research is to identify and understand: (1) the scientific and technical production of PHC in Mexico during the period 1980–1992; (2) the type and distribution of information sources that have been generated in the field; (3) the type of authorship and collaboration that has existed among researchers; (4) the type of subdisciplines of major research; and (5) the patterns of communication among citing/cited sources.

64

Method

First, a computerized search on PHC was performed in MEDLINE for the period 1980-1992. This helped to identify the overall productivity in the field, as conducted after 1980. Then, a specific search on "PHC in Mexico" covering the same period of time was performed. Two regional databases were also used in order to conduct an exhaustive search and compare coverage. These were the Latin American Heath Sciences (LILACS) and Latin American Literature in Sciences (PERIODICA) databases.

Once located, the references were downloaded from each database and analyzed in order to: (a) eliminate duplicates; (b) identify productivity per year; (c) identify the type of documents produced; (d) study authorship; (e) detect the subdisciplines of major research in the field; and (f) construct the structure and collaboration patterns of PHC, as studied in Mexico, with other disciplines, institutions, or countries.

Overlapped references were eliminated and a "master list" of references was obtained and used to collect data. Steps (a) to (d) were easy to conduct through a manual process. Here, the "author" and "source" fields were analyzed to obtain data regarding authorship and type of document. The "source" field was particularly useful to identify overlaps; i.e., coverage by each database. Steps (e) and (f) on the other hand, were not possible to conduct at this stage of the study due to (1) lack of indexing consistency in the LILACS and PERIODICA databases, as found in the descriptor fields; and (2) lack of a "corporate source" field in the MEDLINE and LILACS databases.

Results

A total of 4880 references on PHC were retrieved from MEDLINE for the period 1980-1992. Overall productivity in the field increased by approximately 46% from 1980 to 1992. On average, 375 references were stored in MEDLINE each year. Table 1, provides the distribution of documents per year.

Only eighteen (00.36%) of the 4880 (100%) references on PHC in MEDLINE, corresponded to Mexican documents. PERIODICA on the other hand, stored fifty five Mexican references, and LILACS sixty nine, for the same time period.

In order to obtain data regarding these latter elements, it was decided to collect all original source documents. The results of this analysis will be discussed in another paper, in the near future.

Table 1
Published documents on Primary Health Care, 1980–1992 (MEDLINE)

Year	No. of documents	% Index (fixed base)
1980	332	100.00
1981	331	99.69
1982	282	84.93
1983	323	97.28
1984	343	103.31
1985	371	111.74
1986	389	117.16
1987	396	119.27
1988	403	121.38
1989	415	125.00
1990	420	126.50
1991	390	117.46
1992	485	146.08

The total amount of references on "PHC in Mexico" accounted 142. Twenty (17.09%) references however, were overlapped among two or three databases. Thus, only 117 "single" references were obtained for the period 1980–1992. Table 2 describes the distribution of references per year, as found in each database. A significant increase was found in productivity for the period 1984–1988. These five years accounted for 76.92% of the total production. A slight decrease was noted after 1989; and no references were found for 1992.

Regarding the type of documents produced, the following was found: while a MEDLINE and a PERIODICA search retrieved only references to journal articles; eighteen and fifty five respectively; a LILACS search retrieved thirty seven references to journal articles; thirty to books/chapters, and two to guiding manuals. Table 3 provides the distribution by type of documents and years.

Eliminating overlaps, the total number of references to journal articles was eighty five. This corresponded to 72.65% of the total references. Fifteen Mexican journals were found to be covering the field; Table 4 describes the leading journals. "Salud Pública de Mexico" was head in the list with thirty seven (43.53%) references.

As for authorship, only forty five (38.46%) documents were published by one author. Seven (05.98%) were institutional; and sixty five (55.56%) were published by more than one author. Table 5 describes this distribution by type of document.

Table 2

Scientific productivity on Primary Health Care in Mexico, as analysed through MEDLINE, LILACS and PERIODICA (1980–1992)

| Year | Databases | | | Total | Overlap* |
	MEDLINE	LILACS	PERIODICA		
1980			2	2	
1981	1		4	5	1
1982		2	3	5	1
1983		1	4	5	
1984	1	15	6	22	2
1985	2	4	8	14	3
1986	3	14	6	23	4
1987		6	11	17	
1988	4	18	7	29	6
1989	1	6		7	1
1990	4	3	3	10	1
1991	2		1	3	1
1992					

* Five references were overlapped among all databases.

Table 3

Primary Health Care in Mexico. Distribution by type of documents, per year (MEDLINE, LILACS, PERIODICA, 1980–1992)

Year	Journal articles	Books/ Chapters	Guiding manuals	Total*
1980	2			2
1981	4			4
1982	4			4
1983	4	1		5
1984	7	14		21
1985	9			9
1986	9	7		16
1987	12	3	2	17
1988	20	2		22
1989	4	2		6
1990	8	1		9
1991	2			2
1992				
Total	85	30	2	117
%	72.65	25.64	01.71	100

* Overlapped references were eliminated.

Table 4

Leading Mexican journals publishing documents on Primary Health Care in Mexico (MEDLINE, LILACS, PERIODICA, 1980 – 1992)

Rank	Journal	No. of documents*	%
1	Salud Pública de México	37	43.53
2	Revista Facultad Medicina (UNAM)	9	10.59
3	Boletín Médico Hospital Infantil Mex.	8	09.41
4	Salud Mental	7	08.23
5	Gaceta Médica de México	5	05.88
6	Educación Médica y Salud	4	04.70
7	Archivos de Investigación Médica	3	03.53
7	Revista Médica del IMSS	3	03.53
8	Cirugía y Cirujanos	2	02.35
8	Comp Investigación Clínica Latinoam.	2	02.35
9	Boletín Oficina Sanitaria Panam.	1	01.18
9	Ciencia y Desarrollo	1	01.18
9	Psiquiatría	1	01.18
9	Revista Mexicana de Pediatría	1	01.18
9	Semana Médica de México	1	01.18
Total		85	100

* Overlapped references were eliminated.

Table 5

Authorship of published documents on Primary Health Care in Mexico (MEDLINE, LILACS, PERIODICA, 1980 – 1992)

No. of authors	No. of documents			Total	%
	Journal articles	Books/ Chapters	Guiding manuals		
1	32	13		45	38.46
2	11	2		13	11.11
3	20	5		25	21.37
4	4	3		7	05.98
5	14	1		15	12.82
6	3			3	02.56
7		1		1	00.86
8	1			1	00.86
Inst.		5	2	7	05.98
Total	85	30	2	117	100

Discussion and conclusion

Mexico ranks a significant second place after Brazil, in terms of the Latin American literature production in the health field.[19] This productivity, although not equally visible in the international conventional databases, has been an interesting subject of research up to date.[16-20] On the other hand, PHC, while not highly productive in Mexico as analyzed in MEDLINE, LILACS and PERIODICA, remains a relevant subject of study due to its potential impact on "health for all".

The preliminary results obtained in this study lead to the following conclusions:

- It took five years after WHO's declaration on PHC, as a global strategy to "health for all by the 2000", to recognize that a Mexican, visible productivity was found in the field.
- This visibility was sustained for five years.
- By 1989, a decrease to 1/3 of the total production was notorious. It remains to be explored whether this was due to lack of productivity in the field; or else, to lack of current awareness by the database producers to update their files.
- Most of the PHC work in Mexico was found to be conducted in collaboration among two to eight researchers.
- Preference of scientific journals on other type of documents to publish their results was also found.

It would be interesting to find out how this collaboration was given and whether most citing documents correspond also to journal articles. The articulations of these elements will contribute to obtain a better understanding of the overall communication patterns.

A further analysis of the PHC production by other Latin-American countries, mainly Brazil, Argentina, Chile, Colombia, Cuba and Venezuela, needs to be conducted so as to provide more elements to compare productivity and interpret results in a regional manner.

Regarding coverage, results indicate that in order to perform an exhaustive search on "PHC in Mexico", a MEDLINE search alone would not be comprehensive. The low overlap found among the databases studied indicated that both PERIODICA and LILACS needed to be also searched in order to increase recall. This exhaustive search demanded however, current awareness and skills in the use of these databases by either the end-user or the librarian.

In this context, the results of this research show some implications to PHC researchers, as users and producers of information. Librarians, information scientists and database producers seem to be also affected.

The following questions are raised: are local information sources being used?; if not, is it because of a lack of awareness/access to information sources?; is grey literature considered relevant to database producers?; if not, how is it incorporated to every-day knowledge?; how current are database producers in updating their files?; what is the relationship between information access and use, so as to increase and apply knowledge in terms of PHC in Mexico?. Clearly, more research needs to be conducted in order to obtain a better structure of the field.

*

References

1. WHO. Declaration of Alma Ata: Report on the International Conference on Primary Health Care, Alma Ata, USSR. Geneve, WHO, 1978.
2. WHO. Global strategy for health for all by the year 2000. Geneve, WHO, 1981.
3. S. RIFKIN, G. WALT, Health priorities in the developing world, *The Lancet*, 2 (1988) 744.
4. M. F. BUSH, Tailoring health services to the needs of industrial communities, *Journal of Epidemiology and Community Health*, 42 (1988) 99.
5. W. A. CUTTING, Children in the third world slums, *British Medical Journal (Clinical Research)*, 296 (1988) 1683–1684.
6. J. S. HOUSE, Social relationships and health, *Science*, 241 (1988) 540–545.
7. W. P. A. BECKERS, P. F. DE VRIES ROBBE, P. E. ZANSTRA, A. M. ZWAARD, Quality assurance in primary health care. Paper presented at the Fifth International Conference on System Science in Health Care, 1992, Prague.
8. A. BOWLING, *Measuring Health. A Review of Quality of Life Measurement Scales*, Open University Press, Buckingham, 1991.
9. M. LYNCH, Optimization of the workload-mix of British General Practitioners and the new contract. Paper presented at the Fifth International Conference on System Science in Health Care, 1992, Prague.
10. R. GROSS, M. R. COHEN, N. NIREL, Descentralization in primary care clinics: an evaluation of a demonstration project. Paper presented at the Fifth International Conference on System Science in Health Care, 1992, Prague.
11. S. E. KOOIKER, Scenarios for the future use of primary health care in the Netherlands. Paper presented at the Fifth International Conference on System Science in Health Care, 1992, Prague.
12. J. OVRETVEIT, *Coordinating Community Care. Multidisciplinary Teams and Care Management*, Open University Press, Buckingham, 1993.
13. G. J. VALENCIA, M. V. JOSE, J. OLVERA, O. SERRANO, A. MARQUEZ, Regionalization of Mexico, based on WHO's primary health care indicators, *Salud Pública de México*, 33 (1991) 29–37.
14. R. BELMAR, Proposal of a primary health care plan for the government of President Aylwin, *Cuadernos Medico Sociales*, 32 (1991) 5–8.

15. R. RADAELLI, S. M. PASA TAKEDA, L. T. D. GIMENO, M. B. WAGNER, F. J. KANTER, V. M. MELLO, Community health services demand at the periphery of a metropolitan area, *Revista de Saude Publica*, 24 (1990) 232–240.

16. J. M. RUSSELL, H. DELGADO, A. M. ROSAS, G. BLANCAS, Bibliometric study on the international biomedical production of researchers at the Autonomous National University of Mexico, *Revista Española de Documentación Científica*, 15 (1992) 129–136.

17. B. CRONIN, J. LICEA DE ARENAS, The geographic distribution of Mexican health sciences research, *Scientometrics*, 17 (1989) 39–48.

18. C. A. MACIAS-CHAPULA, Patterns of scientific communication among Latin American countries, in the field of medical education, *Scientometrics*, 23 (1992) 123–135.

19. C. A. MACIAS-CHAPULA, Production and dissemination of the Mexican Biomedical Journals, with some considerations to the Latin American/Caribbean region. In: *INFORMETRICS 89/90*, L. EGGHE, R. ROUSSEAU (Eds), Amsterdam, Elsevier, 1990.

20. C. A. MACIAS-CHAPULA, Non-SCI subject visibility of the Latin American biomedical production. Paper presented at the Fourth International Conference on Bibliometrics, Informetrics and Scientometrics, 1993, Berlin, Germany.