Health Related Research in Bangladesh: MEDLINE Based Analysis

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Background: Health research is not a priority sector in Bangladesh. By and large, physicians and academicians are neither interested nor are they properly trained to conduct quality research. The objective of this study is to quantify the volume of researches related to health in Bangladesh with a view to propose remedial measures.

Methods: Data regarding health research, originating from Bangladesh during the period of 1990-1996, were extracted from MEDLINE database using certain inclusion criteria. Data on name of the institution, main author (Bangladeshi or foreigner), country of publication, and research topics were abstracted and analyzed using descriptive statistics.

Results: A total of 580 (on average 83 per year) articles met the inclusion criteria. About two-third (64.0%) of the researches were from International Center for Diarrheal Disease Research, Bangladesh, followed by Institute of Post Graduate Medicine & Research with 5.7%. Seven medical colleges and one dental college collectively contributed 5.8%. Infectious diseases was the single largest (54.8%) topic dealt with, followed by non-infectious diseases (7.7%), and nutrition and nutrition-related diseases (6.9%).

Conclusion: The number of research articles from Bangladesh is very small possibly owing to the lack of proper training and funding shortage. Incorporating research methodology in both graduate and postgraduate medical education, appointing researchers in clinical and academic departments and allocating more funding towards research activities are necessary to boost health related research activities in Bangladesh. J Epidemiol, 1999; 9 : 235-239.

Health related research is neither a priority sector nor is it popular among the clinicians and academicians in Bangladesh. It is a harsh reality that most of the developing countries have neither adequate resources nor trained personnel for conducting sound research. The situation in Bangladesh is typical of this modality. Although International Center for Diarrheal Disease Research, Bangladesh (ICDDR,B), an international organization, possesses a very good reputation and is recognized as a model ¹, but their research interests are limited to certain areas. Public and private sectors are much less oriented to conducting sustainable and quality research programs. The objective of this study is to find out the number of research articles published from major health care institutions with the aim of proposing remedial measures to boost research activities in Bangladesh.

MATERIALS AND METHODS

All research articles related to Bangladesh during the period of 1990-1996 were accessed through MEDLINE based on the following inclusion criteria: articles must be (1) related to health, (2) original, short communication or review in type, (3)...
originated from Bangladesh, and (4) written in English. Figure 1 describes the way of MEDLINE database searching to elicit number of articles originating from Bangladesh. Then hard copies of the records were manually scrutinized to discard articles unrelated to human health. Eligible articles were coded for name of the host institution, type of main authors (Bangladeshi or foreigners working in Bangladesh), country of publication, year of publication, and research topic, and these data were entered in a computer spreadsheet. Analysis of data included, total and average per-year research articles of major institutions, percentage of Bangladeshis or foreigners as main author, destined countries of publication, and year of publication. Type of research topics was also determined according to such fields as infectious diseases (including clinical, microbiological, and epidemiological studies), non-infectious diseases, nutrition and nutrition-related diseases, study on disease prevention, family planning including contraceptives, maternal and child health, study related to drugs, health services research, and demography. Data summarization and analysis were made with JMP software.

RESULTS

In total 610 articles came out from the MEDLINE by inputting three of the four inclusion criteria (Figure 1). Finally 580 articles, i.e., on average 83 articles per year, were selected manually from the hard copies after discarding the articles unrelated to human health. Of these, Bangladeshis were main authors in 444 articles (76.5%) with the remaining 136 (23.5%) conducted by foreigners residing in Bangladesh. Among the foreigners 86.7% belonged to ICDDR,B while the rest were associated with other non-governmental organizations (NGOs). Figure 2 shows the year-to-year number of articles. Table 1 summarizes the total volume of research in 1990-1996 and average number of articles contributed by major institutions per year. ICDDR,B was top on the list with 371 research papers (64.0%), followed by 7 medical colleges and one dental college collectively 34 (5.8%), IPGMR (Institute of Post Graduate Medicine & Research) 33 (5.7%), Dhaka University 25 (4.3%), NGOs collectively 23 (4.1%), and Institute of Food and Nutrition with 14 (2.4%). The volume of papers from ICDDR,B were significantly greater than all other institutions collectively (P<0.0001). The average number of research article was less than one per year from 550-800 bed tertiary academic hospitals (medical colleges) with at least 100 teachers. Other health and health related institutions were also in the similar situation.

Regarding the research topics, infectious diseases (clinical, epidemiological and microbiological studies) was top on the list with 318 articles (54.8%), followed by non-infectious diseases (7.7%), nutrition and related diseases 40 (6.9%), study on disease prevention 32 (5.5%), family planning procedures including contraceptives 29 (5.0%), study on drugs including clinical trial, sensitivity, and side effects 28 (4.9%), etc. (Table 2).

Favored destinations for research papers from Bangladesh included, journals published in the United Kingdom 188 (31.9%), USA 164 (28.3%), Bangladesh 108 (18.6%), Netherlands 20 (3.4%), Japan 17 (2.9%), and India 17 (2.9%) (Table 3). There are only two medical journals from Bangladesh available in the MEDLINE database: (i) Bangladesh Medical Research Council Bulletin, and (ii) Journal of Diarrheal Diseases Research. They constituted 8.4%
Table 1. Total volume of health related studies during 1990-1996 and average number per year.

| Name of the Institutions                                      | Total number of research articles during 1990-96 period | Average number of articles per year |
|--------------------------------------------------------------|--------------------------------------------------------|-------------------------------------|
| -International Center for Diarrheal Diseases Research (ICDDR,B) | 371 (64.0%)                                             | 53.0                                |
| -Seven Medical Colleges + one Dental College                 | 34 (5.9%)                                               | 4.9                                 |
| -Institute of Post Graduate Medicine & Research (IPGMR)      | 33 (5.7%)                                               | 4.7                                 |
| -Dhaka University                                            | 25 (4.3%)                                               | 3.6                                 |
| -Non-Governmental Organizations (NGOs)                       | 23 (4.0%)                                               | 3.3                                 |
| -Institute of Nutrition and Food Science, Dhaka              | 14 (2.4%)                                               | 2.0                                 |
| -Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine & Metabolic Disorders (BIRDEM) | 9 (1.6%)                                               | 1.3                                 |
| -National Institute of Preventive and Social Medicine (NIPSOM)   | 8 (1.4%)                                               | 1.1                                 |
| -Institute of Child Health                                   | 7 (1.2%)                                               | 1.0                                 |
| -Institute of Epidemiology, Disease Control and Research (IEDCR) | 7 (1.2%)                                               | 1.0                                 |
| -Dept. of Nuclear Medicine, Atomic Energy Commission         | 7 (1.2%)                                               | 1.0                                 |
| -Other 5 Medical and Public Health Institutes                | 7 (1.2%)                                               | 1.0                                 |
| -Other institutions                                          | 34 (5.9%)                                               | 4.9                                 |

Figure 2. Number of health related articles from Bangladesh during 1990-1996.
Table 2. Main topics of health related research in Bangladesh.

| Name of the Topics                                                                 | Number (% of total) |
|-----------------------------------------------------------------------------------|---------------------|
| 1. Infectious diseases (clinical, epidemiological, and microbiological study)     | 318 (54.8%)         |
| 2. Non-infectious diseases (diabetes, cancer, etc.)                                | 45 (7.7%)           |
| 3. Nutrition and nutrition related diseases                                       | 40 (6.9%)           |
| 4. Study on disease prevention                                                    | 32 (5.5%)           |
| 5. Family planning including contraceptives                                        | 29 (5.0%)           |
| 6. Drug on clinical trial, sensitivity of microorganism, side effects              | 28 (4.8%)           |
| 7. Maternal and child health                                                      | 12 (2.1%)           |
| 8. Health service research                                                        | 10 (1.7%)           |
| 9. Demography                                                                      | 9 (1.6%)            |
| 10. Others                                                                        | 57 (9.8%)           |

Table 3. Country of publication of health related studies from Bangladesh.

| Country of Publication | Number of articles published (% of total) |
|------------------------|------------------------------------------|
| United Kingdom         | 188 (31.9%)                              |
| USA                    | 164 (28.3%)                              |
| Bangladesh             | 108 (18.6%)                              |
| Netherlands            | 20 (3.4%)                                |
| Japan                  | 17 (2.9%)                                |
| India                  | 17 (2.9%)                                |
| Switzerland            | 15 (2.6%)                                |
| Norway                 | 13 (2.2%)                                |
| Germany                | 9 (1.5%)                                 |
| Other countries        | 29 (5.0%)                                |

and 10.2% of the total papers, respectively. Papers with foreigners as first authors were 136 in number as shown above, and only 8 (5.9%) of them were published in Bangladeshi journals.

DISCUSSION

ICDDR,B, supported by UN bodies, affluent countries, and the Bangladesh government, is completely different from public health/medical organizations with respect to salary, benefits, and trained manpower. It is the major research article producer in Bangladesh and already recognized as an international center of excellence. Moreover, its research personnel are trained at an international level. So, it is natural that their output is substantially better in number and quality. Unfortunately, this does not reflect the overall health research situation in Bangladesh because their research interests are limited to certain areas. The principal factor for backwardness in research activities of other health related organizations seems to be the lack of trained researchers. Of course, scarcity in research funding is closely related to it. Among other factors, lack of interest among the practicing physicians and academicians in research, is hindering the development of the research sector. Since clinical epidemiological studies based on health care data could be done with minimum resources, the first step which should be taken is to develop a nationwide program to distribute research methodologies along with analytical skills to the physicians.

We analyzed only the health related studies available through MEDLINE database. There are, however, some local journals recognized by Bangladesh Medical & Dental Council, in which some research articles are published from time to time. Besides, some other researches are conducted at non-governmental and international organizations and then remained as reports rather than to be published in peer-reviewed journals. Although much efforts are required, it would be interesting to cover all of these articles and reports to get a whole picture in the future.

Based on the above mentioned results, we recommend the following steps to be taken by health policy makers in Bangladesh:

1. Teaching research methodology and related subjects, i.e., clinical epidemiology and biostatistics, should be incorporated in both undergraduate and postgraduate medical curricula. Introductory courses in scientific research are highly recommended in undergraduate medical curriculum as well as in residency training programs in some countries.

2. Courses on research methodology can be tailored for practicing physicians and academicians. The workshop is an appropriate teaching modality of health research methodology. There is a report that workshop on research methodology for 5 to 30 days significantly increased the knowledge base of the
participants in Bangladesh. Besides, learning research methods through teaching when supervised by experts, could be an effective tool as reported.

3. At least one researcher, with proven research abilities in the respective fields, should be appointed at each academic department of medical colleges and institutes. This will certainly foster a research mind among medical students and young doctors.

4. Supporting services to conduct researches smoothly, should be ensured. MEDLINE CD-ROM database, for example, should be available at every medical college and institution. At least the existing Central Medical Library should subscribe all major medical and health related journals.

We hope that the World Health Organization and other United Nations bodies would provide technical and financial supports to attain these goals.

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