REVIEW ARTICLE

RESPIRATORY INFECTIONS RESEARCH IN AFGHANISTAN: BIBLIOMETRIC ANALYSIS WITH THE DATABASE PUBMED

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Background: Infectious diseases research in a low-income country like Afghanistan is important. **Methods:** In this study an internet-based database Pubmed was used for bibliometric analysis of infectious diseases research activity. Research publications entries in PubMed were analysed according to number of publications, topic, publication type, and country of investigators. **Results:** Between 2002–2011, 226 (77.7%) publications with the following research topics were identified: respiratory infections 3 (1.3%); parasites 8 (3.5%); diarrhoea 10 (4.4%); tuberculosis 10 (4.4%); human immunodeficiency virus (HIV) 11(4.9%); multi-drug resistant bacteria (MDR) 18(8.0%); polio 31(13.7%); leishmania 31(13.7%); malaria 46(20.4%). From 2002–2011, 11 (4.9%) publications were basic science laboratory-based research studies. Between 2002–2011, 8 (3.5%) publications from Afghan institutions were identified. **Conclusion:** In conclusion, the internet-based database Pubmed can be consulted to collect data for guidance of infectious diseases research activity of low-income countries. The presented data suggest that infectious diseases research in Afghanistan is limited for respiratory infections research, has few studies conducted by Afghan institutions, and limited laboratory-based research contributions.

Keywords: Infectious diseases, Bibliometrics, Research, Low-income Countries, Afghanistan

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INTRODUCTION

Infectious diseases research in low-income countries, like as Afghanistan is important[1], where infectious diseases account for up to 70% of morbidity and 71% of mortality.[2] The biomedical research database Pubmed is used worldwide by clinicians and researchers to identify research publications.[3] However, Pubmed can also be consulted to obtain bibliometric data, e.g. numbers of publications for a medical topic per year, country of investigators, and type of study.[4]

Bibliometric analysis has been used to direct allocation of funding and to assess human immunodeficiency virus research in Africa[4], public health research in Europe[5], and infectious diseases research in Asia.[6]

Therefore, in an effort to implement Pubmed as user-friendly application for low-income countries to evaluate infectious diseases research, the internet-based biomedical research database, PubMed, was searched. Pubmed entries of infectious diseases publications for the low-income country Afghanistan were analysed according to total numbers of publications per year, topic (e.g. diarrhoea), type (clinical study or laboratory-based research), and country conducting research.

During 2002–2011, 3 (1.3%) research studies for respiratory infections in Afghanistan and 8 (3.5%) studies conducted by Afghan institutions were identified, suggesting that infectious diseases research in Afghanistan is limited for respiratory infections research and has few contributions from Afghan institutions.

MATERIAL AND METHODS

The biomedical research publications database Pubmed (website: http://www.ncbi.nlm.nih.gov/pubmed) was used to identify research studies for Afghanistan from 1970 through December 2011. Publications were described with the search term “Afghanistan”. The inclusion criteria were: English language articles, and infectious diseases topics. The exclusion criteria were: veterinary and plants research, reviews, editorials, and comments. The following information was obtained based on a review of the entry information provided by the database: numbers of publications per year, topic (e.g., diarrhoea, malaria), publication type (clinical research or basic science laboratory-based research), country of investigators, and army research.

RESULTS

Between 1970 through December 2011, 291 infectious diseases publications for Afghanistan were identified (Figure-1). From 2002–2011, 226 (77.7%) infectious diseases publications and an average of 22.6 infectious diseases publications per year for Afghanistan were published.

For the period from 2002–2011, publications for the research topics identified are presented in figure-2 with highest numbers for malaria, 46 (20.4%) followed by Polio, 31 (13.7%).

For the period 2002–2011, 215 (95.1%) clinical research studies (2.15 publications per

year) and 11 (4.9%) basic science laboratory-based research studies (1.1. publication per year) were identified (Figure-3). No basic science laboratory-based research studies were identified before 2003. For the same period, numbers of publications by different countries are given in figure-4. The highest were by the US, 125 (55.3%), followed by the UK, i.e., 36 (15.9%). Armies of the countries published 89 (39.4%) research articles.

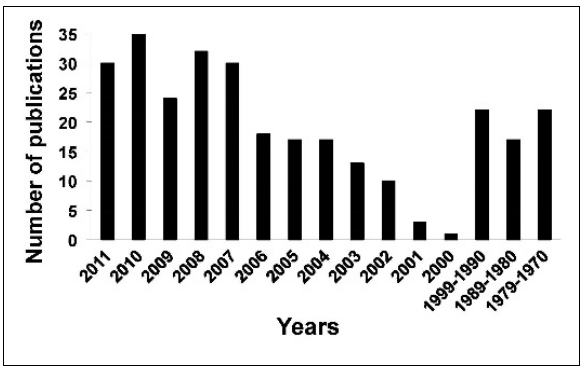

Figure-1: Infectious diseases research publications in Afghanistan 1970–2011.

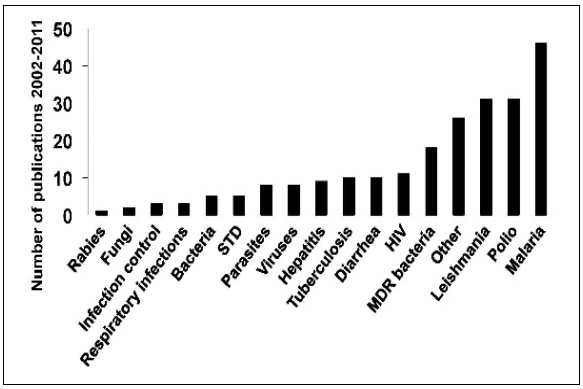

Figure-2: Infectious diseases research publications in Afghanistan 2002–2011.

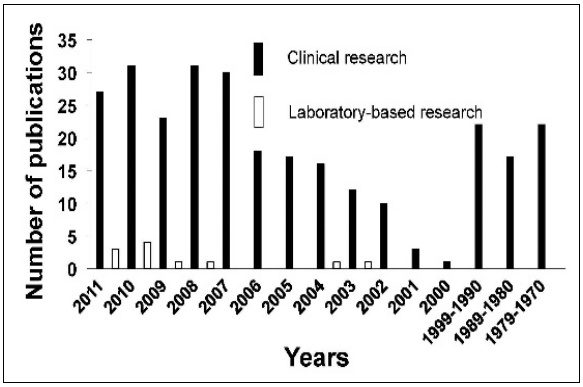

Figure-3: Infectious diseases research publications in Afghanistan 1970–2011 by clinical research and basic science laboratory-based research publications.

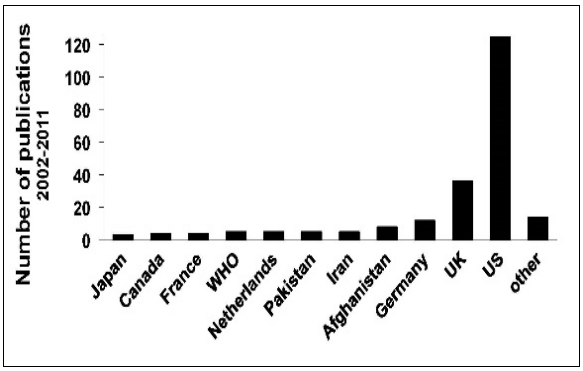

Figure-4: Infectious diseases research publications in Afghanistan 2002–2011 according to country conducting research

DISCUSSION

This study performed a bibliometric analysis of infectious diseases research in Afghanistan with the database Pubmed. This type of analysis with Pubmed is available worldwide through the internet and can support low-income countries when coordinating biomedical and clinical research programmes and determine research priorities.[7] Diarrhea and respiratory infections are common causes of death,[2,8] clinic visits,[9] and admissions to hospital[10,11] in Afghanistan. However, according to the results in this study between 2002–2011 only 3 respiratory infections research studies were identified, suggesting a limited current research focus on respiratory infections in Afghanistan not according to frequency of respiratory infections in the country.

Bibliometric analysis with Pubmed to assess infectious diseases research has been previously used. Uthman studied variations in human immunodeficiency virus (HIV) research productivity in sub-Saharan Africa with analysis of Pubmed publications.[4] The number of HIV research articles indexed in PubMed was used as indicator of HIV research productivity.[4]

Another bibliometric analysis studied tuberculosis publications to assess research activity of different countries,[12] and findings were correlated with country prevalence of tuberculosis. During 2002–2011 8 (3.5%) publications from Afghan institutions were identified. Because of limited resources low-income countries commonly depend on research performed by foreign countries.[13] It seems appropriate to support biomedical research in Afghanistan according to research goals defined by Afghan researchers.[7]

Bibliometric analysis can also be used by clinicians during literature searches with Pubmed for clinical care questions, such as treatment recommendations. For example, hypertension treatment studies showed that treatment response to

medication differs between study populations, e.g., African Americans respond less to selected antihypertensive medications.[14] Bibliometric analysis can contribute to the preparation of clinical reviews and treatment guidelines with country and population based on specific information of clinical studies.

China with a population of over 1000 million increasingly publishes clinical research in articles written in Mandarin language, which are not routinely reviewed during the preparation of clinical review articles.[15] By including bibliometric data regarding numbers of non-English language studies in clinical reviews would help to quantify the amount of information from published clinical research studies potentially excluded.

CONCLUSION

In conclusion, the internet-based database Pubmed can be consulted to collect data for guidance of infectious diseases research activity of low-income countries. The presented data suggest that infectious diseases research in Afghanistan is limited for respiratory infections research. Moreover, there are few studies conducted by Afghan institutions, and limited laboratory-based research contributions. Most of the research done was by the foreign armies present then.

REFERENCES

1. Wallace MR, Hale BR, Utz GC, Olson PE, Earhart KC, Thornton SA, *et al*. Endemic infectious diseases of Afghanistan. Clin Infect Dis 2002;34:S171–207.
2. Singh M, Qureshi MA, Aram GN, Hadi F, Atif SY, Adel SS, *et al*. Morbidity and mortality in childhood in Afghanistan: a study of 40 492, consecutive admissions to the Institute of Child Health, Kabul. Ann Trop Paediatr 1983;3(1):25–30.
3. Hossain MS, Gresock J, Edmonds Y, Helm R, Potts M, Ramakrishnan N. Connecting the dots between PubMed abstracts. PLoS One 2012;7(1):e29509.
4. Uthman OA. Pattern and determinants of HIV research productivity in sub-Saharan Africa: bibliometric analysis of 1981 to 2009 PubMed papers. BMC Infect Dis 2010;10:47.
5. Durando P, Sticchi L, Sasso L, Gasparini R. Public health research literature on infectious diseases: coverage and gaps in Europe. Eur J Public Health 2007;17(Suppl 1):19–23.
6. Takahashi-Omoe H, Omoe K, Okabe N. New journal selection for quantitative survey of infectious disease research: application for Asian trend analysis. BMC Med Res Methodol 2009;9:67.
7. Feachem RG, Graham WJ, Timaeus IM. Identifying health problems and health research priorities in developing countries. J Trop Med Hyg 1989;92(3):133–91.
8. Gessner BD. Mortality rates, causes of death, and health status among displaced and resident populations of Kabul, Afghanistan. JAMA 1994;272(5):382–5.
9. Morikawa MJ, Schneider S, Becker S, Lipovac S. Primary care in post-conflict rural northern Afghanistan. Public Health 2011;125(1):55–9.
10. Choudhry VP, Fazal I, Aram G, Choudhry M, Arya LS, Torpeki MS. Pattern of preventable diseases in Afghanistan: suggestions to reduce the morbidity and mortality at IGICH. Indian Pediatr 1989;26(7):654–9.
11. Prasad AN. Disease profile of children in Kabul: the unmet need for health care. J Epidemiol Community Health 2006;60(1):20–3.
12. Ramos JM, Padilla S, Masia M, Gutierrez F. A bibliometric analysis of tuberculosis research indexed in PubMed, 1997-2006. Int J Tuberc Lung Dis 2008;12(12):1461–8.
13. Osei-Atweneboana MY, Lustigman S, Prichard RK, Boatin BA, Basanez MG. A research agenda for helminth diseases of humans: health research and capacity building in disease-endemic countries for helminthiases control. PLoS Negl Trop Dis 2012;6(4):e1602.
14. Flack JM, Nasser SA, Levy PD. Therapy of hypertension in African Americans. Am J Cardiovasc Drugs 2011;11(2):83–92.
15. Moher D, Pham B, Lawson ML, Klassen TP. The inclusion of reports of randomised trials published in languages other than English in systematic reviews. Health Technol Assess 2003;7(41):1–90.

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