

Bibliography of Clinical Research in Malaysia: Methods and Brief Results

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SUMMARY

This article describes the methodology of this bibliography. A search was conducted on the following: (1) bibliographic databases (PubMed, Scopus, and other databases) using search terms that maximize the retrieval of Malaysian publications; (2) Individual journal search of Malaysian health-related journals; (3) A targeted search of Google and Google Scholar; (4) Searching of Malaysian institutional repositories; (5) Searching of Ministry of Health and Clinical Research Centre website. The publication years were limited to 2000-2013. The citations were imported or manually entered into bibliographic software Refworks. After removing duplicates, and correcting data entry errors, PubMed's Medical Subject Headings (MeSH terms) were added. Clinical research is coded using the definition "patient-oriented-research or research conducted with human subjects (or on material of human origin) for which the investigator directly interacts with the human subjects at some point during the study." A bibliography of citations [n=2056] that fit the criteria of clinical research in Malaysia in selected topics within five domains was generated: Cancers [589], Cardiovascular diseases [432], Infections [795], Injuries [142], and Mental Health [582]. This is done by retrieving citations with the appropriate MESH terms, as follow: For cancers (Breast Neoplasms; Colorectal Neoplasms; Uterine Cervical Neoplasms), for cardiovascular diseases (Coronary Disease; Hypertension; Stroke), for infections (Dengue; Enterovirus Infections, HIV Infections; Malaria; Nipah Virus; Tuberculosis), for injuries (Accidents, Occupational; Accidents, Traffic; Child Abuse; Occupational Injuries), for mental health (Depression; Depressive Disorder; Depressive Disorder, Major; Drug Users; Psychotic Disorders; Suicide; Suicide, Attempted; Suicidal Ideation; Substance-Related Disorders). [246 words]

INTRODUCTION

Research and publications in Malaysia up to the year 2000 has been documented in various bibliographic works¹⁻⁵. A search of the PubMed using the text words "Malaya" and "Malaysia" retrieved 8850 items for the period 1950-1999. However, for the period 2000-2013, the number of items retrieved has increased dramatically to 17909 items [search date 22 August 2013]. PubMed is clearly a great place to look for Malaysian health sciences publications but it contains only a fraction of what is available. A search of the Scopus [all subject areas] using the text words "Malaya" and "Malaysia" retrieved 10425 items for the period 1960-1999. However, for the period 2000-2013, the number of items retrieved has increased dramatically to 30196 items [search date 22 August 2013]. Do note that, Scopus is a

general database containing citations of all disciplines, so many articles in there are not health-related.

Searching for Malaysian research has improved with the electronic access of databases. However, comprehensive search of Malaysian health sciences literature continue to pose difficulty for a few reasons:

- There are at least 50 Malaysian journals containing health sciences literature; only a few of them are indexed in major databases (six in PubMed, three Web of Science and 11 in Scopus)^{6,7}.
- Inaccuracy of indexing of Malaysian works in the databases^{6,7}.
- Grey literatures (e.g. books, book chapters, reports, and monograph) are not indexed by databases.

This article describe search methods for "Bibliography of Clinical Research in Malaysia", a project funded by the Clinical Research Centre, Kuala Lumpur.

METHODS

A team of searchers (consisting of librarians, medical students and a clinician) conducted simultaneous search and import citations into a web-based bibliographic manager (Refworks, <http://www.refworks.com>). The type of citations retrieved consisted of the following:

1. Journal articles
2. Conference proceedings
3. Books and book chapters
4. Guidelines and reports
5. Theses and dissertations

Journal articles are searched at these databases and websites

1. PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>)
2. Scopus (<http://www.scopus.com>)
3. MyJurnal (<http://www.myjurnal.my>)
4. UKM Journal Repository (<http://journalarticle.ukm.my/>)
5. Publisher/journal websites

PubMed

PubMed is the free online database of life sciences journal articles offered by the National Library of Medicine, National Institutes of Health, United States. It currently host over 6000 journals containing over 23 millions citations from 1950s. At the moment, six Malaysian journals are indexed in this database.

Table I: List of Malaysian biomedical journals.

1.	Annals of Dentistry. http://ejum.fsktm.um.edu.my/VolumeListing.aspx?JournalID=13
2.	Archives of Orofacial Sciences. http://www.dental.usm.my/aos/
3.	ASEAN Journal of Psychiatry. http://www.aseanjournalofpsychiatry.org/index.php/aseanjournalofpsychiatry/issue/archive
4.	Asia Pacific Journal of Molecular Biology and Biotechnology. http://www.msmbb.org.my/apjhome.htm
5.	ASM Science Journal. http://www.akademisains.gov.my/index.php?option=com_content&task=view&id=291&Itemid=328
6.	Biomedical Imaging and Intervention Journal. http://www.bij.org/default.asp
7.	Buletin Persatuan Genetik Malaysia. http://www.persatuangenetikmalaysia.com/index_files/bulletin.html
8.	Education in Medicine Journal. http://saifulbahri.com/eimj/
9.	FMS Malaysia [hand search]
10.	International e-Journal of Science, Medicine & Education (IeJSME). http://web.imu.edu.my/ejournal/
11.	International Journal of Public Health Research. http://journalarticle.ukm.my/view/divisions/J=5FIPHR/
12.	Journal of Health Management. http://www.ihm.moh.gov.my/index.php/en/penerbitan/journal-of-health-management-ihm
13.	IMR Quarterly Bulletin. http://vlibimr.moh.gov.my/eshop/eresources.php?p=p_27
14.	International Medical Journal (IIUM). http://www.e-imj.com/
15.	International Medical Research Journal (IMR) [hand search]
16.	Journal of Nuclear and Related Technologies. http://www.nuklearmalaysia.org/index.php?id=14&mnu=14
17.	Journal of Surgical Academia. http://jsurgacad.com/
18.	Journal of the University of Malaya Medical Centre (JUMMEC). http://jummec.um.edu.my
19.	Jurnal Anti-Dadah Kebangsaan (Malaysian Anti-Drugs Journal). http://www.adk.gov.my/web/guest/jurnal
20.	Jurnal Kesihatan Masyarakat (Malaysian Journal of Community Health). http://journalarticle.ukm.my/view/divisions/J=5FKMM/
21.	Kuala Lumpur Hospital Journal of Quality Improvement [hand search]
22.	Malaysia Journal of Nursing. http://www.mjn.com.my/
23.	Malaysian Family Physician (For the period 2000-2005, this journal is known as Family Physician). http://www.e-mfp.org/index.htm
24.	Malaysian Journal of Analytical Sciences. http://www.ukm.my/mjas/
25.	Malaysian Journal of Biochemistry and Molecular Biology. http://ejum.fsktm.um.edu.my/VolumeListing.aspx?JournalID=16
26.	Malaysian Journal of Dermatology. http://www.dermatology.org.my/journal.htm
27.	Malaysian Journal of Forensic Pathology and Science. www.forensiknet.com
28.	Malaysian Journal of Health Sciences (Jurnal Sains Kesihatan Malaysia). http://ejournals.ukm.my/jskm
29.	Malaysian Journal of Medical Sciences. http://www.mjms.usm.my/
30.	Malaysian Journal of Medicine and Health Sciences. http://www.medic.upm.edu.my/index.php/en/journal
31.	Malaysian Journal of Microbiology. http://web.usm.my/mjm/
32.	Malaysian Journal of Microscopy. http://ibs.upm.edu.my/~aini/publications.htm
33.	Malaysian Journal of Nutrition. http://nutriweb.org.my/publications/mjn0017_1/default.php
34.	Malaysian Journal of Obstetrics and Gynaecology. http://www.ogsm.org.my/mjog.php
35.	Malaysian Journal of Paediatrics and Child Health. http://www.mjpch.com/index.php/mjpch
36.	Malaysian Journal of Pathology. http://www.mjpath.org.my/index.html
37.	Malaysian Journal of Pharmacy. http://www.mps.org.my/index.cfm?&menuid=146
38.	Malaysian Journal of Pharmaceutical Sciences. http://web.usm.my/mjps/home.html
39.	Malaysian Journal of Psychiatry. http://www.mjpsychiatry.org/index.php/mjp
40.	Malaysian Journal of Public Health Medicine. http://www.mjphm.org.my/mjphm/
41.	Malaysian Orthopaedic Journal. http://www.morthoj.org/
42.	Medical Journal of Malaysia. http://www.e-mjm.org/
43.	Medicine & Health Reviews. http://mhr.uitm.edu.my/
44.	Medicine & Health. http://www.ppukm.ukm.my/ukmmcjournal/
45.	NCD Malaysia [hand search]
46.	Neurology Asia. http://www.neurology-asia.org/
47.	Neurology Journal of Southeast Asia. http://www.neurology-asia.org/
48.	Pertanika Journal of Science & Technology. http://www.pertanika2.upm.edu.my/JST.php
49.	Pertanika Journal of Social Sciences & Humanities. http://www.pertanika2.upm.edu.my/JSSH.php
50.	Sains Malaysiana. http://www.ukm.my/jsm/
51.	Sunway Academic Journal. http://sunway.edu.my/university/publications/academic-journal
52.	Tropical Biomedicine. http://www.msptm.org/journal.html

BRIEF RESULTS

A total of 2056 publications fall within the above inclusion criteria. See Tables II and III for distribution of publications by year and topics. Of the 2056 publications, 1212 (58.9%) were retrieved from PubMed. Free full text is available for 1293 (62.9%) publications.

Table II: Number of citations by year

Year	All citations	Included
2000	932	58
2001	980	63
2002	948	71
2003	1102	74
2004	1275	111
2005	1595	103
2006	1708	118
2007	1681	145
2008	2153	179
2009	1911	147
2010	2213	199
2011	3039	275
2012	3415	237
2013	4308	272
All years	27260	2056

Table III: Number (in bracket) of included citations by domains and subtopics

Domain	Subtopic
Cancers (589)	Breast cancer (389)
	Cervical cancer (112)
	Colorectal cancer (97)
Infections (795)	Dengue (182)
	Enterovirus infection (50)
	HIV infection (294)
	Malaria (108)
Injuries (142)	Tuberculosis (193)
	Child abuse (41)
	Road traffic accidents (101)
Mental Health (582)	Depression (265)
	Drug abuse (157)
	Schizophrenia (164)

Note: The content of some citations cover more than one subtopic

The full lists of citations for all 13 subtopics are available in <http://www.crc.gov.my/published-articles-on-malaysian-data/>.

The following search string is used to query the PubMed for the period 2000-2013:

MALAYA OR MALAYSIA OR JOHOR OR JOHORE OR MELAKA OR MALACCA OR NEGERI SEMBILAN OR NEGERI SEMBILAN OR KELANTAN OR KUALA LUMPUR OR SELANGOR OR PERAK OR KEDAH OR PENANG OR PULAU PINANG OR PERLIS OR PAHANG OR SARAWAK OR SABAH OR TERENGGANU OR LABUAN OR PUTRAJAYA OR WILAYAH PERSEKUTUAN OR KANGAR OR ALOR SETAR OR IPOH OR SEREMBAN OR KUANTAN OR KOTA BHARU OR KUCHING OR KOTA KINABALU OR (MALAYA[AD] OR MALAYSIA[AD] OR JOHOR[AD] OR JOHORE[AD] OR MELAKA[AD] OR MALACCA[AD] OR NEGERI SEMBILAN[AD] OR NEGERI SEMBILAN[AD] OR KELANTAN[AD] OR KUALA LUMPUR[AD] OR SELANGOR[AD] OR PERAK[AD] OR KEDAH[AD] OR PENANG[AD] OR PULAU PINANG [AD] OR PERLIS[AD] OR PAHANG[AD] OR SARAWAK[AD] OR SABAH[AD] OR TERENGGANU[AD]) OR MALAYSIA[MH] OR (Malays J Pathol[TA] OR Med J Malaysia[TA] OR Malays J Nutr[TA] OR Malays J Med Sci[TA] OR Trop BioMed[TA] OR Biomed Imaging Interv J [TA])

[note: AD, TA, and MH are PubMed field tags that refer to address, journal title abbreviation and Medical Subject Headings, respectively]

The above search string retrieved 21291 citations

Scopus

Scopus is a subscription-based bibliographic database owned by Elsevier. It contains over 50 millions records from around 21000 journals. A search for "Malaysia" for the period 2000-2013 in the subject area of "Health Sciences" retrieved 9720 citations.

Other journal searches

Medical and health sciences journal listed in MyJurnal (a portal of 347 Malaysian journals, 38 are listed under "Medicine & Health Sciences") and UKM Journal Repository (a portal of 42 journals published by Universiti Kebangsaan Malaysia) are comprehensively searched. All together we conducted hand search and electronic search of 52 Malaysian journals published in the period 2000-2013 (see Table I).

Search for non-journal citations

For non-journal citations (e.g. theses and dissertations), we performed search using Google (<http://google.com.my>) and Google Scholar (<http://scholar.google.com.my/>). We queried the following databases and institutional repository, both local and international, for scholarly works containing health and medical information on Malaysia:

1. Open Access Theses and Dissertations. www.oatd.org
2. Directory of Open Access Repositories. <http://www.openoatd.org/>
3. Institute for Medical Research Library. www.imr.gov.my
4. Academy of Medicine Clinical Practice Guidelines. <http://www.acadmed.org.my/index.cfm?&menuid=67>
5. Ministry of Health Malaysia. www.moh.gov.my
6. International Islamic University Malaysia Repository. <http://irep.iium.edu.my/>
7. Malaysian Thesis Online. <http://myto.upm.edu.my/myTO/myto.html>
8. Universiti Kebangsaan Malaysia Institutional Repository. <https://smk.ukm.my/erep/>
9. Universiti Malaya Research Repository. <http://eprints.um.edu.my/>
10. Universiti Malaysia Sabah Institutional Repository. <http://eprints.ums.edu.my/>

11. Universiti Malaysia Sarawak Institutional Repository.
<http://ir.unimas.my/>
12. Universiti Putra Malaysia Institutional Repository.
<http://psasir.upm.edu.my/>
13. Universiti Sains Malaysia Institutional Repository.
<http://eprints.usm.my>
14. Universiti Teknologi MARA Institutional Repository.
<http://eprints.uitm.edu.my/>
15. Universiti Utara Malaysia Repository.
<http://repo.uum.edu.my/>
16. University of Malaya Theses and Dissertations.
<http://www.diglib.um.edu.my/umtheses/#sthash.2gD1j0rp.dpbs>

Data cleaning and coding

After removing duplicated items and non-Malaysian references, the keywords based on National Library of Medicine's Medical Subject Headings (MESH terms) were coded for each citation.

The inclusion criteria for the present "Bibliography of Clinical Research" has a limited scope (as requested by the funder):

1. Citations must be clinical research. The definition of clinical research by Glasser is adopted, i.e. patient-oriented-research or research conducted with human subjects (or on material of human origin) for which the investigator directly interacts with the human subjects at some point during the study⁸.
2. Citations that fall within four domains and 13 subtopics (breast cancer, cervical cancer, child abuse, colorectal cancer, depression, drug abuse, enterovirus infection, HIV infection, malaria, road traffic accident, schizophrenia, tuberculosis and dengue).
3. Citations that were published between 2000-2013.

RESULTS

A total of 1853 citations fall within the above inclusion criteria (see Tables II and III)

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