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# Indexation of psychiatric journals from low- and middle-income countries: a survey and a case study

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*There is a marked underrepresentation of low- and middle-income countries (LAMIC) in the psychiatric literature, which may reflect an overall low representation of LAMIC publications in databases of indexed journals. This paper investigates the worldwide distribution of indexed psychiatric journals. A survey in both Medline and ISI Web of Science was performed in order to identify journals in the field of psychiatry according to their country of origin. Two hundred and twenty-two indexed psychiatric journals were found. Of these, 213 originated from high-income countries and only nine (4.1%) from middle-income countries. None were found in low-income countries. We also present the experience of a LAMIC psychiatric journal, the Revista Brasileira de Psiquiatria, in its recent indexation process. This case study may serve as an example for other LAMIC journals to pursue indexation in major databases as a strategy to widen the international foundation of psychiatric research. There is an important need for the inclusion of LAMIC psychiatric publications in the major indexation databases. This process will require multiple agents to partner with journals from LAMIC to improve their quality and strengthen their chances of being indexed.*

**Key words:** Indexed psychiatric journals, low- and middle-income countries, psychiatric research

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Low- and middle-income countries (LAMIC), where over 80% of the global population live, bear the greatest burden of mental disorders. The level of submission from LAMIC in high-impact indexed journals is, however, less than 20% (1), and the proportion of papers published is even lower (2): a search in the Institute of Scientific Information (ISI) Web of Science database from 1992 to 2001 (3) reported that low- and middle-income countries (n=152) contributed only 6% of the international mental health research. A recent review of all original contributions during the 2002-2004 period in the six highest impact factor journals in the field of psychiatry revealed that only 3.7% of the published papers were submitted by authors from LAMIC (4). Moreover, a survey of the editorial and advisory boards of ten leading psychiatry journals showed a low representation of LAMIC (5). A major obstacle to disseminating LAMIC research is the scarcity of indexed journals with a strong LAMIC focus - such as, for example, journals published in LAMIC (3).

Local initiatives to develop information networks between researchers and mental health professionals are evident in some developing countries. An extensive survey published in 1999 identified 977 psychiatry journals being edited worldwide; of these, 413 were not listed in any abstracting or indexing service (6). Retrieving the best information in this scenario has become increasingly difficult and requires researchers to use indexation databases. The use of indexation databases, equally, is now a requirement for any publication that pursues adequate visibility and impact of research published in the journal. Two of the most relevant indexation systems for psychiatric journals are Medline, a bibliographic database developed by the US National Li-

brary of Medicine, and the citation indexes of the ISI, now part of Thomson Scientific, available online under the name Web of Science.

This paper aims to describe the worldwide distribution of indexed psychiatric journals, and identify the number published by LAMIC. It also aims to present information from a variety of sources about unindexed journals in the field, and to describe the recent experience of indexation of the Revista Brasileira de Psiquiatria as a case study. We use this study to provide suggestions for editors of journals in LAMIC to achieve better levels of indexations, so as to improve representation of these countries in the global literature databases.

## METHODS

We performed a survey in both Medline and ISI databases to identify journals in the field of psychiatry according to their country of origin. The search in Medline was done by entering the expressions "psychiatry" and "substance abuse" in the journals database. Only journals that were currently both indexed and published were included. Psychiatric and substance abuse journals in the ISI were identified through the Journal Citation Reports (JCR). We included all journals listed in both Science and Social Sciences editions of the JCR for the category Psychiatry. For each journal, we collected information on title, ISSN, country of origin, publisher, and publication start year as provided by the databases. For publications indexed in ISI, we also collected citation data (e.g., impact factors, total cites). The assignment of a journal to a country was done based on registries from both databases; in

case of disagreement, priority was given to information obtained in ISI.

We sought information about unindexed journals in two ways. First, we contacted the 18 WPA Zonal Representatives (ZRs). We asked them to identify, with the help of their Member Societies, journals published in the Zone countries, but missing from the list. We also asked them to identify journals published by countries in each Zone and wrongly attributed to another. This may occur for example when a journal published on behalf of a Member Society by an international publisher is attributed to the country where the publisher's head office is located, often in Europe or USA. Second, we obtained permission to use information from a recent initiative of the World Forum for Global Research and the World Bank, a survey conducted to map out the research production in mental health from LAMIC for the period 1993 to 2003, in which researchers from 114 countries of Africa, East and South Asia, and Latin America and the Caribbean were identified through their publications in two databases (Medline and PsycInfo) and from local grey literature (7).

## RESULTS

As of July 2007, for the category Psychiatry (including substance abuse), there were 209 journals indexed in Medline and 175 in ISI. Evidently, there is some degree of overlap between these two databases, and the number of journals indexed in any of these two systems is 222.

As shown in Table 1, there is a high concentration of indexed psychiatric journals in high income countries. We observed a significant correlation between per capita income and the number of indexed journals published ( $r=0.75$ ,

**Table 1** Number of journals indexed in Medline and/or the Institute of Scientific Information (ISI) Web of Science according to country of origin

Country	Medline	ISI	Total
Argentina*	1	0	1
Australia	3	2	3
Brazil*	2	2	2
Canada	4	3	4
Croatia*	1	0	1
Denmark	2	3	3
England	40	37	44
France	5	3	5
Germany	12	14	15
Hungary*	1	0	1
Israel	1	1	1
Italy	2	2	2
Japan	3	1	3
Netherlands	8	7	9
New Zealand	1	1	1
Norway	1	2	2
Mexico*	0	1	1
Poland*	1	0	1
Russia*	1	1	1
Spain	2	2	3
Switzerland	10	10	11
Turkey*	1	0	1
United States	107	83	107

\* Middle-income countries

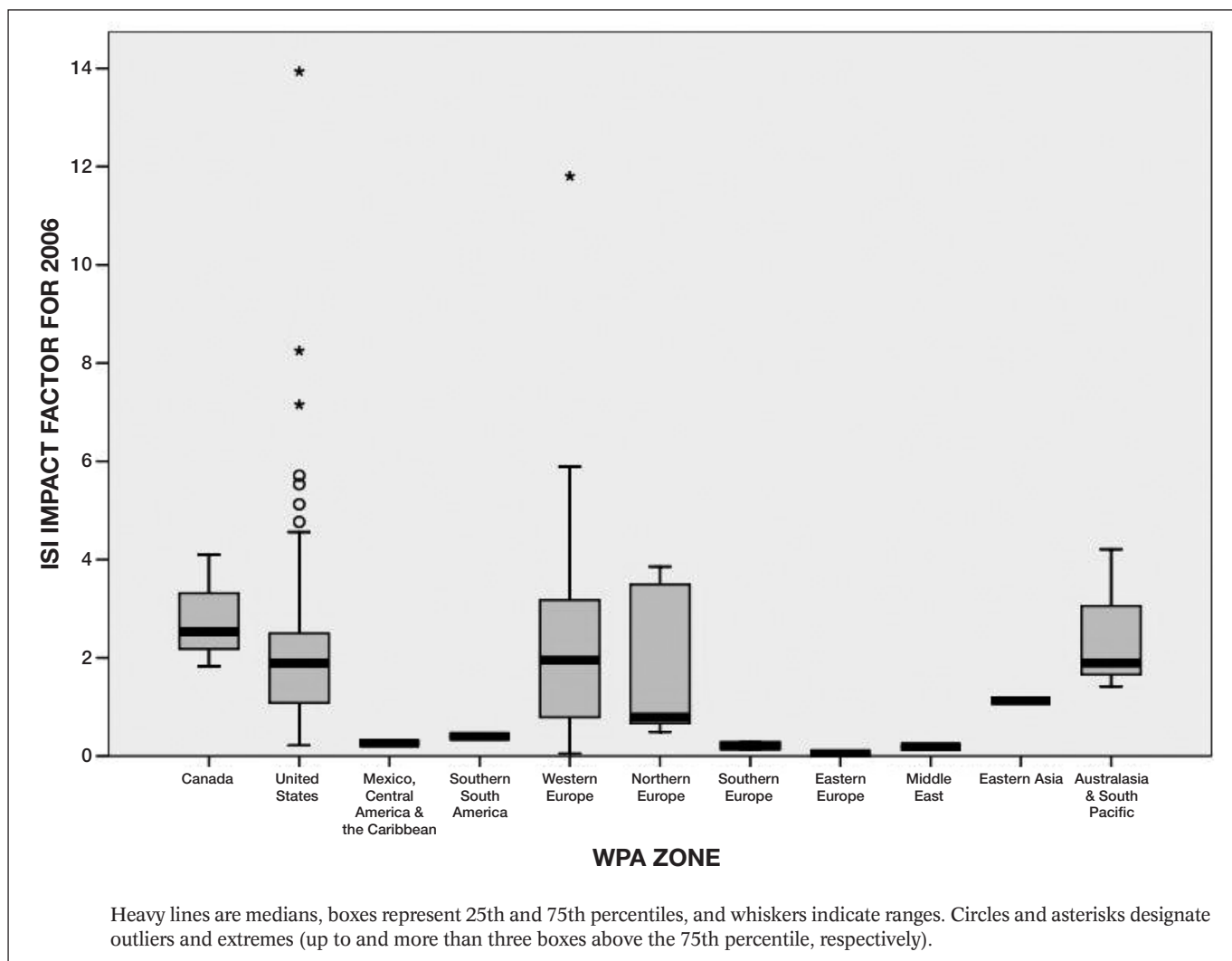
$p<0.001$ ). Two hundred and thirteen journals from high-income countries represent 95.9% of the total publications; the remaining nine publications (4.1%) were from upper-middle income countries. No psychiatric journal from any low-income country was identified in Medline or ISI databases.

As shown in Table 2, there is a clear geographical agglomeration of psychiatric journals, with 13 out of the 18 WPA Zones having three or less indexed journals, and six of them

**Table 2** Number of journals indexed in Medline and/or the Institute of Scientific Information (ISI) Web of Science according to the WPA Zone distribution and of unindexed psychiatric publications from LAMIC

WPA Zone	Medline	ISI	Total indexed	Unindexed LAMIC journals
Canada	4	3	4	NA
United States	107	83	107	NA
Mexico, Central America and the Caribbean	0	1	1	6
Northern South America	0	0	0	13
Southern South America	3	2	3	56
Western Europe	75	71	84	NA
Northern Europe	3	5	5	NA
Southern Europe	5	4	6	2
Central Europe	3	0	3	11
Eastern Europe	1	1	1	NA
Northern Africa	0	0	0	2
Middle East	1	1	1	NA
Western and Central Africa	0	0	0	1
Southern and Eastern Africa	0	0	0	3
Western and Central Asia	0	0	0	1
Southern Asia	0	0	0	7
Eastern Asia	3	1	3	16
Australasia and South Pacific	4	3	4	NA

NA - not available and/or not applicable



**Figure 1** Median impact factors for psychiatric journals indexed in the Institute of Scientific Information (ISI) Web of Science according to the WPA Zone distribution

having no journals at all (Northern South America, Northern Africa, Western and Central Africa, Southern and Eastern Africa, Western and Central Asia, and Southern Asia). Information obtained from ten WPA ZRs indicated the existence of another 46 unindexed psychiatric publications from LAMIC, while the Global Forum survey led to the identification of additional 87 LAMIC journals. Together, 118 LAMIC psychiatric journals not indexed in Medline or ISI were identified (Table 2).

Based on impact factors released in 2007 (regarding the year 2006), the 167 journals indexed in ISI had a median impact factor of 1.85 (ranging from 0.05 to 13.94). Only three of these publications were from middle-income countries (Brazil, Mexico, and Russia - ranked 154th, 161st and 166th in the final list, respectively).

Figure 1 shows the median impact factor for psychiatric journals according to WPA Zones. Of note, only two regions, namely United States and Western Europe, present outlier publications, with an impact factor higher than five.

### A case study: the indexation of the *Revista Brasileira de Psiquiatria*

The *Revista Brasileira de Psiquiatria* has been published since 1966 as the official journal of the Brazilian Psychiatric Association (ABP). In 1984, the ABP and the Latin American Psychiatric Association (APAL) conducted a joint venture to publish the journal *Revista da Associação Brasileira de Psiquiatria/APAL*, with the acronym *Revista ABP-APAL*. In 1998, two new editors received the mission to re-structure the journal by the presidents of the Brazilian Psychiatric Association.

The first steps of the new editors were to invite two associate editors, to set up the missions of the journal, and to recover the original label *Revista Brasileira de Psiquiatria*. The missions of the journal were to give visibility to the scientific production of Latin American and Caribbean countries in the field of mental health and related sciences, and to provide continued medical education in the context of



evidence based information for mental health professionals in these countries. The journal was published quarterly, and two yearly supplements enhanced its educational role.

The editorial board was completely reformulated, increasing the representation of international investigators. To deal with political pressures, scientific productivity was included as a criterion to select participants in the board. The first major operational achievement was to include the journal in the Scientific Electronic Library Online (SciELO). This database is sponsored by Brazilian public funding agencies and aggregates the best available publications in Latin America and Caribbean countries, providing free online access to journals. The system is now also allowing for the electronic submission of manuscripts and for the bibliometric evaluation of journals.

To reach a wider audience and to promote the dialogue with other publications, the editorial board decided that it was essential for the journal to be indexed in the major scientific databases. In 2001, its first application to the ISI was refused on the grounds of a very low citation activity, from both authors and most editorial board members, and because "the journal would have low impact and less relevance for coverage in [Thompson Scientific's] products compared to other journals in this very competitive category".

Continuing the process of indexation, the journal was included in Medline in 2003 (8). At this time, all original research in the journal started to be published in English, with most of the review and special articles (which have a very important role in continuing education) being published in Portuguese or English, depending on the language in which they were submitted. This editorial decision found a degree of resistance among some readers, but this was an essential step for increasing the visibility of original articles in the journal and subsequently attracting high-quality research from authors from Brazil and many other countries.

A second application for the inclusion in ISI was attempted on the following grounds: the strengthening of the quality of the editorial board, attested by the number of their citations in the literature; the previous evaluation by the US National Library of Medicine and inclusion of the journal in Medline; and the growing presence of Brazil in health and mental health research (9,10), with each Brazilian article receiving a mean of 4.5 citations according to the ISI JCR (11). Another argument was that the inclusion of the journal in ISI would *per se* augment its citability. In 2005, the journal was finally indexed in ISI (8).

The Revista Brasileira de Psiquiatria is now a quarterly publication with two additional supplements dealing with topics of clinical practice and directed to update clinicians and mental health professionals. Supplements are printed in Portuguese only and published electronically in both English and Portuguese. The journal can be accessed online at SciELO ([www.scielo.br/rbp](http://www.scielo.br/rbp)), and at its own website ([www.rbpbrasil.org.br](http://www.rbpbrasil.org.br)), where free full-text articles can be downloaded. The number of article requests via SciELO has been 230,919 in 2004; 487,508 in 2005; and 762,794 in 2006. The

first impact factor for the journal is going to be released in 2008, but projections reveal a steady growth in its citation rate, with an unofficial impact factor of 0.512 for the year 2006 (12). The journal costs around US\$ 200,000 yearly, and 90% of these costs are covered by the pharmaceutical industry (the remaining comes from the Brazilian Research Council). By the end of 2006, the editorial board comprised 71 members: 37 from Brazil, 12 from United States, nine from England, and four from other Latin American countries. By comparison, the leading national psychiatric journal of United States has no international members on its editorial board, while a quarter of the editorial board of the leading journal of the UK is international.

## DISCUSSION

Despite the rapid growth of global mental health research and the profile of global mental health, there is a marked underrepresentation of LAMIC in the psychiatric literature. This underrepresentation is also reflected in the proportion of psychiatric journals from LAMIC which are indexed in major international databases; we report that of all psychiatric journals indexed in either Medline or the ISI Web of Science just 4% are from middle-income countries. No indexed psychiatric journals from low-income countries were found. In addition, several WPA zones presented with no indexed journal (Northern South America, Northern Africa, Western and Central Africa, Southern and Eastern Africa, Western and Central Asia, and Southern Asia).

A joint statement by psychiatric journal editors and the World Health Organization in 2004 recognized the pivotal role of scientific journals in production and dissemination of research, as well as in the establishment and expansion of clinical services and in the education of investigators in research skills (13). By addressing the mental health needs of LAMIC and enhancing the international and multicultural aspects of psychiatric research, LAMIC journals emerge as a crucial vehicle for the promotion of mental health. Major difficulties met by these publications include limited visibility to the scientific community and consequent limited submission of high quality research.

Journal editors from LAMIC can ideally aspire to have their journals among the highest quality publications. The example of the Revista Brasileira de Psiquiatria demonstrates that such an ambition demands considerable local initiative to restructure the journal, sometimes in the face of opposition from vested interests. The main modifications implemented in this journal to achieve indexation in major databases were: a) an uncompromising criterion to include members in the editorial board based on scientific productivity in the last five years; b) an international board consisting of recognized investigators truly related to the journal activities; c) a rigid publishing timetable supported by a reliable income and stable editorial staff including clear succession plans; d) publishing original articles in English with free

electronic access, and e) publishing educational and review articles in the original language. Another important procedure was to invest in training current staff as well as future members of editorial teams. Since 2004, the journal created three junior editor positions for young investigators. Each of them works together with two senior editors learning the skills of scientific and peer review editing.

The number of unindexed journals identified in several regions attests to the activity and aspirations of researchers and readers across the world. The figures presented were derived from only two information sources and do not intend to be exhaustive – future work is necessary to identify additional psychiatric journals around the globe. We also acknowledge that the absence of psychiatric journals does not mean lack of scientific productivity in the field of mental health. Many countries not mentioned here may have indexed general medical journals in which mental health research may be published. However, it is also likely that only a fraction of mental health research carried out in a LAMIC will be published in general journals, as they compete for space with all other medical specialties – thus, a substantial amount of research will never be disseminated. Apart from the overall low representation of LAMIC journals, we also acknowledge the marked intraregional and intranational disparities, which we have not investigated. In the case of South America, for example, only Argentina, Brazil and Mexico, out of 12 countries, have indexed journals. A recent survey that included only LAMIC mental health investigators revealed that researchers and indexed publications output were concentrated in just 10% of the countries, confirming the heterogeneity among emergent nations (14). Disparities inside countries are also present: in Brazil there is a geographical cluster of funding and scientific productivity, with most research being conducted in the South Eastern and Southern states (15).

In order to close the 10/90 gap in mental health research, LAMIC need not only to improve the quality of research, but also find ways to increase the dissemination of their scientific production. In LAMIC where financial resources are especially limited, the development of dissemination strategies to support evidence based knowledge is critical to influence mental health policies and programs in order to reduce the burden of mental health disorders.

The WPA has 130 Member Societies in 110 countries, and through its ZRs is working to establish a database of journals in all parts of the world as a basis for advocacy and action (16,17). We call on journals with a record in achieving high standards, together with funding agencies, to partner with journals from LAMIC, particularly regions which are not represented in the international scientific databases, to improve their quality and strengthen their chances of being indexed.

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