

# Publication bias- a reason for the decreased research output in developing countries

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## Abstract

**Objective:** The low level of mental health research from low and middle-income countries, as measured by the relative lack of publications in high impact journals is an inaccurate reflection of research being conducted in these countries. The number of manuscripts submitted for publication is a more accurate measure of the research activities. The study aimed to quantify the number of manuscripts submitted and accepted for publication in high impact psychiatric journals. **Method:** Editors of 8 psychiatric journals were requested information on the number of manuscripts submitted, the country of origin and the number of manuscripts accepted for publication from April to September 2005. **Results:** 5,2 % of all manuscripts submitted for publications were from low and middle income countries. The overall acceptance rate of manuscripts was 16,6 % but the acceptance rate for low and middle-income countries was 4,8 %. Manuscripts from high-income countries had a 5,8 times greater odds (2,5 - 4,9) of being accepted for publication than an article from a low and middle-income country. **Conclusion:** Both the quantity and quality of research from low and middle-income countries must be improved. Interventions to improve the quality of research must be directed towards capacity development, increasing international collaborations, mentoring of researchers and establishing formal psychiatric epidemiology training programs to equip researchers with skills to produce papers that meet the publication criteria of reviewers. Studies must become more innovative and include the changing paradigm in epidemiological research. Manuscripts that describe innovative studies have a greater chance of being published.

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## Introduction

There is currently significant interest in the promotion of psychiatric research in low and middle-income (LAMI) countries.<sup>1</sup> There is a relative lack of articles from non-western countries in high impact psychiatric journals.<sup>1</sup> Some of the reasons for the slow progress of psychiatric research are 'a lack of manpower, funding, scientific knowledge and skill in conducting psychiatric epidemiological studies'.<sup>2</sup> The issues relating to manpower and funding are structural factors and may be more difficult to address than developing skill and

transferring knowledge from the high-income countries to developing countries. The lack of skills relates to the reasons for the poor quality of research and may be more readily addressed than proposals to increase quantity of research. Using only the number of publications as an outcome measure cannot differentiate the possible reasons for the decreased output. The fewer publications may be due to too few submissions (quantity) and/or sufficient submissions, but fewer articles are accepted for publication (quality). It is hypothesized that although research activities may be on the increase in developing countries, the articles may not be published due to poor style of writing, inconclusive or inappropriate statistical analysis, poor study design or research that is not judged to be innovative or cutting edge. If these articles were not published, it would incorrectly appear as though there is limited research in developing countries, however, in reality sufficient research may be conducted in these regions, but it is not published due to poor quality. This problem of quality may not be entirely due

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to the structural issues of funding and manpower, but more fundamentally related to an inability of researchers in low and middle income countries to keep pace with the advances in psychiatric research required to produce papers that meet the high quality necessary for publication in high impact journals. Further the solutions to address the imbalance of publications from low and middle-income countries are different if the problem is related to quality or quantity of research in these regions. This study was conducted in order to quantify the number of papers from low and middle-income countries submitted for publication and the number of papers that get accepted for publication. The number of submissions is a more accurate reflection of the amount of research being conducted and acceptance rate for publications will give insight into the quality of the papers.

### Methods

This was a cross-sectional survey of eight high impact English language psychiatric journals. The editors were requested to supply details of the number of articles submitted and accepted from the various countries for a six-month period ending September 2005. Not all journals collected this data and the sensitive nature of this data precluded identifying specific journals. Hence only the group data is presented and it was not possible to stratify the data by journal. The countries have been categorized into low/middle income and high-income countries according to the World Bank rating as of July 2005.<sup>3</sup>

### Results

Three of the eight journals submitted the data requested. Editors declined to participate either due the sensitive nature of this data or they did not collect the data in the format we requested. A total of 43 countries were represented in this survey including 17 low and middle-income countries.

#### *Quantity of papers*

Amongst the low and middle income countries Brazil and Turkey contributed to 43 % of all papers submitted. Only two African countries, South Africa and Nigeria, submitted papers. Low and middle-income countries submitted 5,2 % of the total number of manuscripts. There are a disproportionate number of manuscripts submitted from the United States of America.

#### *Acceptance rate for publication*

There is marked variation in the acceptance rate of manuscripts by region and by country. The acceptance rate for high-income countries was more than twice that of low and middle-income countries. The odds of a manuscript submitted from a high-income country being published is 5,8 (CI 2,5 – 14,9) times greater than a manuscript submitted from a low or middle-income country.

### Discussion

The results of this study confirm that very few papers from low and middle-income countries are published. However, the number of publications did not reflect the amount of research being done in these countries. Far more manuscripts submitted from low and middle-income countries are rejected when compared to high-income countries. It is acknowledged that the quantity of manuscripts either submitted or published from low and middle-income countries is very low. But, this study

highlights a different possible reason for low and middle-income countries failure to publish in high impact journals. The disproportionate acceptance rates reflect issues around the 'quality' of the manuscripts submitted. The peer review process aims to maintain the highest possible scientific standards and only the 'best' articles are published.

This was a small study that sampled 3 psychiatric journals and covered a 6 month interval. To fully explore the hypothesis proposed in this paper editors have to divulge confidential information of the reviewers comments and other sensitive information relating to the submissions to their journal. These limitations may have contributed to the low response rate and information bias of the data. The obtained data may not therefore be generalizable but do introduce the discussion of addressing the quality of research and papers submitted from low and middle-income countries. There may be many different reasons why a manuscript is rejected and this will vary according to the publication. This study did not collect this information. However, we infer that that high rejection rate of manuscripts may be at least partly due to the quality of the manuscripts and studies. This high rejection rate is despite an effort of editors to promote publication of research from low and middle-income countries. At a meeting of editors and or editorial staff representing 25 mental health journals in 2003, the lack of publications from low and middle-income countries was recognized.<sup>4</sup> Extensive lists of suggestions were made to bridge the gap of publications between high and, low and middle-income countries. These include: accept a higher proportion of submissions from LAMI countries, make provision for extra round of editing, assistance with language and use of technical editors, facilitate capacity building for researchers and journals of LAMI countries.<sup>4</sup> Despite the editors commitment to provide easier access to publish there are still too few manuscripts from LAMI countries published. It can be inferred that the articles did not meet the scientific standards of the journals.

The following are proposed solutions to raise the scientific standards and quality of research in LAMI countries.

Psychiatric epidemiology, as part of epidemiology has flourished over the past 3 decades and has made significant contributions in how we conduct psychiatric research.<sup>5,6</sup> Whilst not essential for research, basic knowledge of epidemiology and biostatistics provide researchers with the basic tools necessary for study design, data analysis and interpretation. Significant research and original contributions continue to be undertaken by researchers without this formal training in epidemiology and it can be argued that an epidemiologist or statistician should be included in the research team so as to facilitate successful completion of a study. However, increasingly, career researchers from western countries have dual degrees in psychiatry and epidemiology. In countries like the United States of America and the United Kingdom there are schools of public health or psychiatric epidemiology training programs that offer the training necessary to equip researchers with the skills and awareness of issues specific to psychiatric research. It may be these highly focused programs that give these researchers an advantage over researchers in low and middle-income countries. Proposals to improve research output, must consider establishing such programs as part of a plan to increase skills and capacity.

Studies from low and middle-income countries may not be published because their methods or research questions are

considered 'dated'. There are challenges to the past paradigms of epidemiology.<sup>7,8</sup> It is recognized that the past generations of psychiatric epidemiologists have made significant strides in methods to improve the reliability and validity of studies. Many of the current psychiatric research can be included in the paradigm described as 'risk factor epidemiology'.<sup>5</sup> This refers to the conduct of studies in varied cultural and geographical locations to describe or identify more risk factors for diseases. The major failing of this paradigm is that it accumulates multiple risk factors with little understanding of causation or mechanisms of diseases.<sup>9</sup> Susser and Susser (1996) have posited that 'the multiple cause black box paradigm of current risk factor era in epidemiology is growing less serviceable'.<sup>5</sup> Studies have reported multiple associations with little certainty on causality. A clearer understanding of mechanisms of diseases or causality is definitive in devising interventions for prevention and or treatment. Susser and Susser (1996) have proposed the next era - 'eco-epidemiology'.<sup>5</sup> This paradigm considers all levels of causation and intervention from the molecular level to the individual level, the social phenomenon and the global level of planetary ecology.<sup>5,7</sup>

The criticism of the past era of epidemiology does not abandon the usefulness of conducting more descriptive studies or large scale surveys, as they are useful and necessary in planning, implementing and evaluating policy, identifying unmet needs and generating causal hypothesis.<sup>10,11</sup> The problem is that it becomes tempting to only conduct studies typical of the risk factor era. This may be especially true for researchers in developing regions, as there is a need to replicate studies on the basis that the findings from the high-income regions may not be generalizable to developing regions due to the unique differences in these regions. Information learned from replication studies does have value and scientific merit, however, it limits one's potential to explore and test new hypotheses. Findings from replication studies may have limited publication appeal. Hence this may explain why there is a relative lack of submitted and published studies from low and middle-income countries. The challenge is to find a balance between replication studies and entering this new paradigm of research. This may be especially difficult, as researchers in low and middle income regions have to learn the lessons and skills from past generations of psychiatric epidemiology research and the challenges facing this new era of epidemiology without the rich heritage or resources available to our western colleagues. There is much 'catch up' development that is needed. However, if in low and middle income countries researchers learn how to propose studies that include the new concepts in epidemiology or propose novel ways of testing existing hypotheses in our unique environment, reviewers may rate this work more favorably.

### Conclusion

Too few manuscripts are submitted and published from LAMI countries. The lower acceptance rate of manuscripts from LAMI countries in part, reflect a poorer quality of manuscripts. It is not suggested that all studies from low and middle-income countries are of poor quality. Indeed there are many respected researchers in low and middle-income countries that have made invaluable contributions to science and continue to publish in esteemed publications. However, there is a need to make a more broad based approach to improve the quality of

studies and manuscripts submitted to maximize efforts to disseminate research from LAMI countries.

The models proposed to improve the quality of research are: establishing centers of excellence, recruiting researchers on scientific sections of international organizations and implementing training courses.<sup>1</sup> These proposals have merits as good quality research has high potential for publication irrespective of its country of origin. South Africa is well placed to meet the challenges in redressing inequality of research output as it has more psychiatrists, better resources and infrastructure than other African countries. The proposed changes must be viewed as a development process and support must be given to all levels of researchers. It is envisaged that mid and senior level researchers will make contributions to international journals, and junior level researchers e.g. registrars should be encouraged to share their work at local conferences and journals. Programs and efforts to improve the quality of manuscripts from all levels of researchers will ensure more manuscripts are published.

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