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Australian and New Zealand contribution to international mental health research publications: a survey of high-impact journals

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Most mental health research published in high-impact journals originates from developed countries in North America and Western Europe and from Australia and New Zealand (ANZ), where only a minority of the world's population exists. We examined the contribution of the ANZ research community to the literature on international mental health in regard to countries outside this dominant group. A literature search was conducted with two phases: a PubMed search of mental health articles by ANZ authors in twelve high-impact local and international journals over three years (2001-2003); and a hand search of the Australian and New Zealand Journal of Psychiatry (ANZJP) over ten years (1994-2003). Four percent of mental health articles published by ANZ authors in selected high-impact journals related to international mental health in countries outside ANZ, North America and Western Europe. Six percent of the articles published in the ANZJP represented countries outside this dominant group, and ANZ authors contributed to 30% of those articles. Hong Kong and Singapore were the most frequently represented countries. Sixty-five of 78 selected articles were original research. Descriptive epidemiological studies and case reports were the commonest study designs. Psychotic illness was the most frequently studied mental disorder. Most studies were conducted in specialist mental health services. Thus, relatively little of the work published by the ANZ mental health research community in local and other high-impact journals related to international mental health in countries outside ANZ, North America and Western Europe. Countries with the lowest incomes and highest populations were particularly under-represented, and there was relatively less research in community settings or on mental health problems known to account for the highest global burden of disease.

Key words: Research, international mental health, Australia, New Zealand, collaboration

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Traditionally, health research, including mental health research, has arisen mostly from highly developed countries of North America and Western Europe and from Australia and New Zealand (ANZ), where resources and expertise are readily available. Countries outside these regions have been poorly represented in research, a situation recognized in 1990 by the Commission on Health Research for Development (1) as the "10/90 gap": of US\$ 73 billion invested annually in global health research, less than 10% is devoted to problems that account for 90% of the global burden of disease (measured in disability adjusted life years, DALYs) (2). Thus, research activity is greatest in highly developed Western countries, not in the low and middle-income countries where more than 85% of the world's population lives and the global disease burden is greatest (3).

The Global Forum for Health Research (4) aims to correct the "10/90 gap" and focus research efforts on the diseases and risk factors that account for the highest disease burden worldwide. Mental and neurological health has been declared one of eleven priority conditions by the Global Forum, based on its high contribution to the global burden of disease, and a projected future increase in burden. For example, by 2020 depression is expected to become the leading cause of disability worldwide, and the second leading cause of overall disease burden (2,3). One important reason for this projection is the demographic transition expected in many populous low and middle-income coun-

tries (3,5), which will lead to many more people in these countries entering the age of risk for mental disorders.

Mental illness reduces individual capacity to acquire education, participate in economic activities and break the cycle of poverty, while also increasing health care and social costs (3,6,7). These issues are critical to development in low and middle-income countries, as are a range of other problems that are closely related to mental health, including gender inequity, HIV/AIDS, child and adolescent development, natural disasters, crime and violence. It is important, therefore, that international mental health research includes countries that are culturally diverse and at various stages of development. Research in population and primary health settings, particularly in low and middle-income countries, is necessary to provide a local, rational basis to set priorities, to determine the efficacy and quality of interventions and to ensure efficient allocation of resources (3). The Global Forum also advocates the need for health authorities, clinicians and planners in developing countries to have greater access to research of this nature (4).

High-impact journals are an important medium for dissemination of high quality research. High-impact journals contain the most widely read and cited research, and are often the most accessible, available in many countries in either paper or electronic format. However, much published mental health research is of limited value to a truly international audience. Only six percent of literature in several

high-impact psychiatric journals surveyed recently was published from regions of the world outside North America, Europe and ANZ (8). Reasons put forward for this inequity include low clinical and research capacity in poorer countries, language barriers, resource constraints, high clinical loads, low priority of mental health, and low international representation on editorial boards of journals (9-12).

This paper examines the contribution by ANZ mental health research resources to close the “10/90 gap” in regard to international mental health. The term international mental health research is used in this study to emphasize those countries outside ANZ, North America and Western Europe that have traditionally been under-represented in high-impact psychiatric literature. Most of these countries are low or middle-income according to human development indices (13), but high-income countries such as Singapore are also of interest, being culturally distinct from the dominant group of high-income Western countries.

We aimed first to determine the publication record of ANZ researchers. Australia currently ranks fifth in the world for total psychiatry/psychology publications and citations (14), an indicator of high national capacity for quality research. We sought to estimate the contribution by ANZ authors to international mental health articles, and their participation in collaborations with international colleagues. Our second aim was to examine the representation of international mental health in the *Australian and New Zealand Journal of Psychiatry* (ANZJP), and compare this with the results of a similar survey of high-impact international psychiatric journals (8). We focused on the ANZJP as the mental health journal with the highest impact factor published in the Asia-Pacific region, and arguably an important means of disseminating international mental health research to the region. Our third aim was to characterize the publications identified in our search, including countries represented, sources of funding and nature of research.

METHODS

Journal search

A PubMed search was performed over the period 2001-2003 for mental health articles published by ANZ authors in six high-impact international mental health journals: *Archives of General Psychiatry*, *American Journal of Psychiatry*, *British Journal of Psychiatry*, *Psychological Medicine*, *Acta Psychiatrica Scandinavica*, and *Addiction*. Articles by ANZ authors were identified by the search term “Australia OR New Zealand”. Four international general medical journals were also searched through PubMed from 2001 to 2003 (*New England Journal of Medicine*, *Lancet*, *British Medical Journal*, *Journal of the American Medical Association*); and two local general medical journals (*Medical Journal of Australia* and *Australia New Zealand Journal of Public Health*). The search strategy used was

“mental OR substance abuse OR suicide OR self-inflicted injury”. These twelve local and international, mental health and general medical journals were chosen because they are high-impact journals in which ANZ authors often publish mental health research. All issues of the ANZJP from 1994 to 2003 were hand searched and each article examined individually to identify eligible international mental health articles. A longer ten-year search period was chosen because the ANZJP was published bi-monthly, whereas most of the others were published weekly or monthly.

Selection of eligible articles

Articles were eligible for inclusion in the study if they were about mental health in a country outside ANZ, North America or Western Europe; thus, high-income countries in the Asia-Pacific region, such as Singapore, were also included in this category. Articles about immigrants from eligible countries living in ANZ, North America or Western Europe were not eligible. We used a broad definition of mental ill-health, including publications about mental disorders, substance abuse, suicide and self-inflicted injury. Articles were only eligible if they were original research papers, reviews or editorials/commentaries. Correspondence, news articles and book reviews were not eligible. An irregular series of additional commentaries on research articles in the ANZJP were also excluded.

Content analysis

All eligible articles were analysed to identify several features, including the country or countries of interest in the article. The address of each author was examined to determine whether ANZ and/or international authors contributed to the article, and whether or not there was international collaboration. Collaboration was deemed to have occurred when researchers from both ANZ and the country of interest in the article were listed as authors. Declarations of funding for all eligible articles were also recorded. Original research articles were then identified and analysed to determine: the study design, mental disorders studied, and participant settings. Articles were deemed original research papers if they involved data collection or novel analysis of existing data (15).

RESULTS

Contribution of ANZ authors

Over the search period, ANZ authors contributed to thirty-two international mental health articles about countries outside ANZ, North America and Western Europe. Twelve eligible articles were published in the twelve high-impact local and international journals (2001-2003), representing 4% of the 316 mental health articles published by ANZ

Table 1 Origin of authors for eligible international mental health (IMH) articles

Origin of author(s)	Total IMH articles by ANZ authors in selected journals (2001-2003)	Total IMH articles in ANZJP (1994-2003)
International only	-	44
ANZ only	4	8
ANZ and international	4	11
ANZ, international and Euro-American	4	1
International and Euro-American	-	2

ANZ - Australia and New Zealand; ANZJP - Australia and New Zealand Journal of Psychiatry

Table 2 Total publications and funding support for 78 eligible international mental health articles by country, showing country population and human development index (HDI)

Subject country	Population (million)	Total publications	Publications funded
<i>High HDI countries</i>			
Hong Kong	6.9	16	1
Singapore	4.1	15	4
Japan	127.3	1	0
South Korea	47.1	1	1
<i>Medium HDI countries</i>			
China / Taiwan	1285.2	7	5
India	1033.4	5	2
South Africa	44.4	5	0
Malaysia	23.5	5	1
Vietnam	79.2	3	0
Israel	6.2	3	0
Fiji	0.8	3	0
Thailand	61.6	2	0
Iran	67.2	1	0
Croatia	10.3	1	0
<i>Low HDI countries</i>			
Nigeria	117.8	2	1
East Timor	not known	1	0
<i>Multiple countries or country not specified</i>	not known	7	2

authors in those journals. No articles were found among 136 mental health articles in the two local journals, the *Medical Journal of Australia* and the *Australia and New Zealand Journal of Public Health*. Twenty eligible articles appeared in the ANZJP (1994-2003), representing 30% of

66 eligible international mental health articles in the journal. ANZ authors collaborated with international authors from the countries of interest in the articles on twenty occasions: twelve articles in the ANZJP and eight in the twelve other high-impact journals. Table 1 shows the origin of authors who contributed to eligible international mental health articles in the selected journals.

Representation of international mental health in the ANZJP

Our search of the ANZJP showed that, of 1052 articles published in the period 1994-2003, 66 articles (6%) were about international mental health in countries outside ANZ, North America and Western Europe. Fifty (of 66) articles were contributed by first authors from the country of interest in the article, fourteen by ANZ first authors, and two by first authors from North America/Western Europe.

Representation of countries

Of 78 eligible articles (66 from the ANZJP, 12 from other journals), the majority (77%) were about Asian-Pacific countries: Hong Kong (16), Singapore (15), India (5), Malaysia (5), Taiwan (4), China (3), Vietnam (3), Fiji (3), Thailand (2), Japan (1), East Timor (1), South Korea (1) and not specified (1). Other countries represented were South Africa (5), Israel (3), Nigeria (2), Iran (1) and Croatia (1). Three articles were set in multiple countries, and three articles did not specify countries. Table 2 shows that, among eligible articles identified in the search, countries with lower populations and higher development status (according to human development index, HDI) (13) were represented most frequently.

Types of publications

Of 78 eligible articles, 65 (83%) were original research papers, eleven (14%) were reviews and two (3%) were editorials/commentaries. Table 3 shows that descriptive epidemiological studies (27 of 65) and case reports (19 of 65)

Table 3 Study design, mental disorder studied and participant setting for 65 eligible international mental health research articles

Study design	Mental disorder	Participant setting
Epidemiological	27	Psychotic illness 20 Specialist mental health 41
Case report	19	Affective/anxiety disorder 14 Community 17
Intervention trial	5	Psychiatric symptoms 7 Primary care or general hospital 9
Methodological	5	Child/adolescent 7
Health service	5	Suicide/self-harm 5
Biological	3	Multiple mental disorders 5
Other	1	Substance abuse 3 Dementia 3 Personality disorder 1

were the commonest study designs; psychotic illness (20 of 65) was the most frequently studied mental disorder, and the commonest study setting was in specialist mental health services (41 of 65).

Funding

Of 78 eligible international mental health articles, 17 (22%) declared funding support. Twenty-six grants were declared, from 24 funding agencies. Fourteen grants were obtained from agencies in the country of interest, seven from North America or Western Europe and five from ANZ sources. Articles with international collaborations were funded (9 of 22) more frequently than those published by authors from ANZ or the country of interest alone (8 of 56).

DISCUSSION

While ANZ researchers contribute significantly to mental health research, only 32 articles about international mental health were contributed to our selected journals over the search period. A low proportion (4%, or 12 out of 316) of research articles published in the 12 high-impact local and international journals over the 3-year search period related to international mental health. Only 20 eligible articles were contributed to the ANZJP by ANZ authors over the 10-year search period. ANZ authors collaborated with international colleagues in a small proportion of eligible international mental health articles: a total of 20 articles (12 in ANZJP, 8 in other high-impact journals).

Our literature search also shows that there is a low representation (6%) of international mental health research in the ANZJP, the mental health journal with the highest impact factor published in the Asia-Pacific region. This level of representation is similar to that reported in a literature search of six high-impact European and North American mental health journals (8). Similar levels of representation from low and middle-income countries have been reported in tropical medicine (16), cardiovascular (17) and HIV/AIDS literature (18). Our results are therefore consistent with the Global Forum's assertion regarding the existence of the "10/90 gap".

We acknowledge a number of limitations in our research. We are confident of our results from the ANZJP as the literature search was performed by hand. However, our search strategy of the six international mental health journals may have missed eligible articles if the ANZ author was not the first author. Our search strategy for the six general medical journals may also have missed eligible articles if they did not contain the search terms "mental", "substance abuse", "suicide" or "self-inflicted injury". We believe, however, that only a small number of articles may have been missed. Our classification included all countries outside ANZ, North America and Western Europe, rather than aligning with international indicators of development. Thus, articles about high-income

countries such as Singapore were assigned to the same group as low and middle-income countries such as East Timor and India. This classification was chosen because our primary intention was to describe research from countries outside the dominant Euro-American strand of biomedical research, rather than by level of development. Nevertheless, the majority of eligible countries were low or middle-income, and this classification also enabled comparison with a previous international study of psychiatric literature (8). We acknowledge that ANZ researchers may have contributed articles about eligible countries of interest to journals in those countries rather than the high-impact journals we selected. We selected high-impact journals because research published in these journals has a greater potential benefit to these countries – for example, by virtue of being indexed on databases, and more easily accessed and disseminated in developing countries (4). Furthermore, most journals from developing countries are not indexed and we did not have the resources to search local literature from all the world's developing countries.

Most of the eligible international mental health articles were from or about countries with a small population and high HDI, such as Hong Kong and Singapore. Mega-countries with medium HDI, such as China and India, were represented to a lesser degree. Only two countries with low HDI were represented: Nigeria and East Timor.

Only some of the sixty-five eligible mental health articles have strong public health interest. Most studies (41 articles) were conducted in specialist mental health settings, rather than in the general population or primary care settings. Nineteen studies were clinical case reports. Furthermore, the commonest disorder studied was psychotic illness (20 articles), with fewer on depression (14 articles), the leading mental health cause of the global disease burden (2).

Five priority areas of international mental health research have been identified for low-income countries (5). These priority areas for research include the generation of culturally informed epidemiological databases, intervention evaluations, prevention approaches, women's mental health and violence (5). We found little research of this nature. Twenty-seven epidemiological studies were found, but only five intervention studies and one study about violence. There were no studies specifically about women's mental health or prevention.

Thus, despite the strength of mental health research resources, ANZ contribution to international mental health research, as evidenced by publications in high-impact journals, is relatively limited. We can only speculate on the reasons for this low representation. One reason may well be that journals representing national psychiatric societies, such as the ANZJP, are more likely to favour research which has a bearing on their primary readership. While a group of 25 editors representing high-impact mental health journals recently undertook to facilitate the publication of research that addresses the large unmet mental health needs in low and middle-income countries (9), the collaborative efforts of researchers, governments and funding bodies are needed.

Low research capacity in developing countries is an important reason for the current situation, and capacity building is a central focus of the Global Forum for Health Research's efforts to close the "10/90 gap". The ANZ research community, along with counterparts in North America and Western Europe, could participate in the process of setting priorities in mental health and in building research capacity of individuals and institutions internationally, particularly in low and middle-income countries. Through collaborative work, they could jointly plan or assist the design and conduct of research, the analysis of results, the application of research findings, the training of researchers, and the development of local journals and information networks. Great mutual benefit could be derived from actively promoting collaborative research with international colleagues.

According to the World Health Organization (WHO) Commission on Macroeconomics and Health (19), in developing countries, investments in health (including research) have higher rates of return than in any other sector of the economy: on average US\$ 3 per US\$ 1 invested, often more. The Commission recommended a seven-fold increase in donor assistance for health, with at least 5% devoted to research, and also advised governments of developing countries to expand their health and research budgets. Research funding is obviously crucial to the development of international mental health research in the Asia-Pacific region. All but seventeen eligible articles in our search were based on work undertaken without (declared) research grant support. Only five grants were obtained from ANZ sources. It would appear that ANZ research bodies and development agencies have made a relatively modest contribution to international mental health. By contrast, the UK Department for International Development (DFID) (20) and the US National Institute of Mental Health (NIMH) (6) have both recently incorporated international mental health into their programs.

What contribution to international mental health research should ANZ mental health researchers make? How much coverage should be devoted to international mental health research in high-profile journals such as the ANZJP? These questions cannot be addressed purely from a scientific perspective: a global, ethical perspective that acknowledges historic socio-economic inequities must be incorporated. Many factors restrict the opportunities for international mental health research. Nonetheless, we believe that ANZ, together with the other wealthier countries, have the necessary resources, financial and technical, to play a much greater role in promoting the mental health of populations in less well resourced countries in the world through research and publications.

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