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Mental health and psychiatry research in Brazil: scientific production from 1999 to 2003

Pesquisa em psiquiatria e saúde mental no Brasil: produção científica de 1999 a 2003

ABSTRACT

OBJECTIVE: To assess the extent of mental health scientific production in Brazil from 1999 to 2003, and to identify the nature of the publications generated, their sources of finance and the ways of publicly disseminating the research findings.

METHODS: Searches for publications were conducted in the MEDLINE and PsychInfo databases for the period 1999-2003. A semi-structured questionnaire developed by an international team was applied to 626 mental health researchers, covering each interviewee's educational background, research experience, access to funding sources, public impact and research priorities. The sample was composed by 626 mental health researchers identified from 792 publications indexed on MEDLINE and PsychInfo databases for the period above, and from a list of reviewers of Revista Brasileira de Psiquiatria.

RESULTS: In Brazil, 792 publications were produced by 525 authors between 1999 and 2003 (441 indexed in MEDLINE and 398 in the ISI database). The main topics were: depression (29.1%), substance misuse (14.6%), psychoses (10%), childhood disorders (7%) and dementia (6.7%). Among the 626 Brazilian mental health researchers, 329 answered the questionnaire.

CONCLUSIONS: There were steadily increasing numbers of Brazilian articles on mental health published in foreign journals from 1999 to 2003: the number of articles in MEDLINE tripled and it doubled in the ISI database. The content of these articles corresponded to the priorities within mental health, but there is a need for better interlinking between researchers and mental health policymakers.

KEYWORDS: Mental health. Mental disorders. Brazil. Psychiatry. Publications. Bibliometrics. Research support. Bibliography, national. Information science.

RESUMO

OBJETIVO: Mapear a produção científica brasileira em saúde mental no período 1999-2003 e identificar a natureza das publicações geradas, suas fontes de financiamento e as formas de divulgação pública dos resultados.

MÉTODOS: As buscas dos artigos foram realizadas nas bases de dados do PsychInfo e MEDLINE no período 1999-2003. Um questionário semi-estruturado, desenvolvido por uma equipe internacional, foi aplicado a 626 pesquisadores de saúde mental, abordando-se as seguintes áreas: formação pessoal, experiência em pesquisa, acesso

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a fontes de financiamento, impacto público e prioridades de pesquisa de cada entrevistado. A amostra foi composta por 626 profissionais de Saúde Mental identificados a partir de 792 publicações indexadas no MEDLINE e PsychInfo, (1999-2003) e também, de uma lista de pareceristas da Revista Brasileira de Psiquiatria.

RESULTADOS: Foram recuperadas 792 publicações, produzidas por 525 autores brasileiros no período 1999-2003 (441 indexadas no MEDLINE e 398 na base ISI). Essas publicações abordavam os tópicos: depressão (29,1%), abuso de substâncias (14,6%), psicoses (10%), transtornos da infância (7%) e demência (6,7%). Dos 626 investigadores envolvidos com pesquisa em saúde mental, 329 responderam ao questionário.

CONCLUSÕES: Houve um crescimento contínuo da publicação de artigos brasileiros em saúde mental em periódicos internacionais entre 1999 e 2003: o número de artigos na base MEDLINE triplicou e duplicou nas bases ISI. O conteúdo dos artigos corresponde às prioridades da saúde mental, mas é necessário um maior entrosamento entre pesquisadores e tomadores de decisão na política de saúde mental.

DESCRITORES: Saúde mental. Transtornos mentais. Brasil. Psiquiatria. Publicações. Bibliometria. Apoio a pesquisa. Bibliografia Nacional. Ciência da Informação.

INTRODUCTION

Scientific production within Brazilian mental health research has been undergoing drastic change over the past decade, mainly due to the expansion of post-graduate programs in mental health, psychiatry and psychobiology in this country.[2] Brazil has been ranked as the 29th most productive country in the world, in relation to psychiatry and psychology, and the first among Latin American countries, according to the Institute for Scientific Information/ Thomson Scientific (ISI). Moreover, the mean number of citations per paper attained by Brazilian papers (5.4), which is the highest in Latin America, is not too far behind some developed countries like France (6.3).[2] A comparison of the number of ISI publications in psychiatry between the periods 1981-1985 and 1991-1995 demonstrated that there was a remarkable 168% increase in Brazilian production between these periods.[6] When these data were compared with the period 1999-2003, the number of publications increased further, from 110 to 496.[6]

Zorzetto et al[16] (2006) showed that Brazil and Mexico accounted for 69% of Latin American publications in psychiatry, psychology and neuroscience over the period 1999-2003. However, Latin American publications accounted for less than 1% of all psychiatry and psychology publications, according to the ISI National Science Indicators (2002).

The vast majority of scientific publications in high-impact psychiatry journals originates from the developed world. Patel & Sumathipala[11] showed that the proportion of articles from developing countries ranged from 1 to 16% over the period 1996-1998. Nevertheless, the quantity of scientific publications from Latin America (0.4%) in such journals is even lower than for other continents (11-14%). Bressan et al[2] and Mari et al[8] evaluated 1,719 Brazilian mental health articles relating to postgraduate programs that were published in periodicals over the period 1998-2002, and found that the mean impact factor for these journals in the ISI database was 1.9. More than half of these papers were published in journals with impact factors greater than 2. Only around 10% of the articles attained journals with an impact factor of 4, and 1.6% reached journals with impact factors greater than 8.

Despite this modest but growing Brazilian presence in mental health and psychiatric research, there is a lack of information about its extent and the nature of its production. The main aim of this study was to assess the status of scientific production from mental health research for the period 1999-2003. In addition, the scientific profile, priorities and financial resources of mental health researchers have been described, along with the impact their research findings have on the media and policymakers and how such findings are disseminated.

METHODS

The publications included were related to mental disorders and/or mental health. Publications were excluded if they consisted of letters, commentaries or studies on animals, basic pharmacology, basic science, sexual dysfunction, medical complications of alcohol and drug use, child developmental and educational issues, neurological diseases unrelated to

mental disorders and psychoanalysis unassociated with mental disorders. Specific searches were designed in the MEDLINE and PsychInfo databases in order to retrieve Brazilian papers in accordance with the above criteria, for the period 1999-2003.

A semi-structured questionnaire was utilized, which had already been developed by a team of worldwide researchers – under the auspices of the Global Forum for Health Research and the World Health Organization (WHO) – for application to mental health investigators. This questionnaire covered: personal background, research experience and activities, access to research resources, research impact and the author's research priorities.

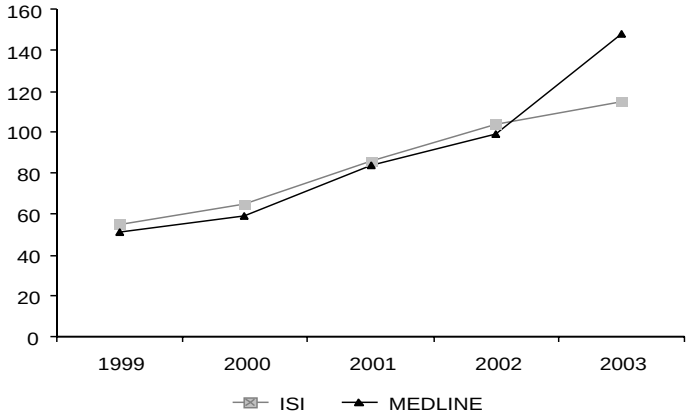


Figure 1 - Brazilian mental health publications in the MEDLINE and ISI databases over a five-year period (1999-2003).

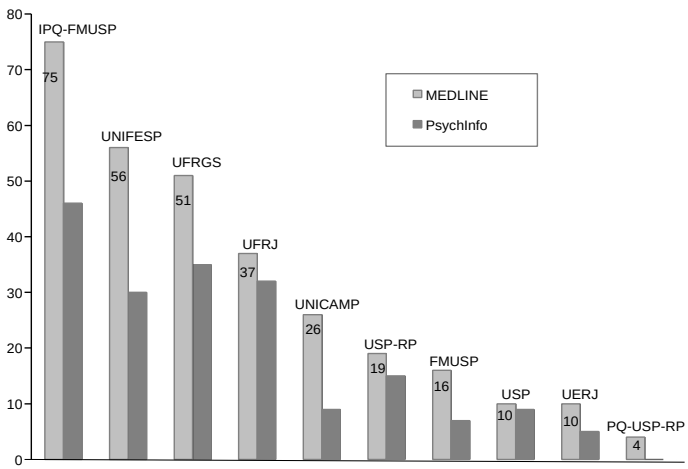
Each researcher was contacted by e-mail and mail addresses, and was asked to access the online version of the questionnaire through a personal password. The questionnaire was applied to all researchers who had published at least one paper as first author that was listed in the MEDLINE/PsychInfo database for the period 1999-2003 (within the above criteria), or who were in the *ad hoc* list of the *Revista Brasileira de Psiquiatria* (RBP), and/or who were supervisors of one of the nine postgraduate programs in Brazil involving mental health, psychiatry and/or psychobiology research. Quantitative analysis was carried out using the SPSS version 11.5 software, in order to code the following variables: total number of publications per database, number of publications in foreign journals per researcher, number of publications in regional journals per researcher, number of doctoral students supervised, number of researchers involved in master's and doctoral degree courses, number of projects per researcher, project themes, design studies for projects, number of projects receiving financial support, sources of research funding, mental disorder priorities per researcher, population priorities per researcher, reasons for choosing a journal to publish in, dissemination of scientific findings in the media, challenges relating to implementation of research findings, and research impact.

RESULTS

A total of 525 researchers in Brazil were identified as the first authors in the MEDLINE and PsychInfo databases. These researchers produced a total of 792 publications over the period 1999-2003. Figure 1 shows that the number of MEDLINE publications tripled (from 51 to 148) and the number in ISI doubled (from 51 to 108), over this period. Figure 2 displays the main institutions involved in mental health research in Brazil. The most productive institutions were: the Instituto de Psiquiatria (Institute of Psychiatry) of the Universidade de São Paulo, followed by three Federal Universities (Universidade Federal de São Paulo, Universidade Federal do Rio Grande do Sul and Universidade Federal do Rio de Janeiro).

Table 1 shows the main topics that these indexed publications dealt with: depression (29.1%), substance misuse (14.6), psychoses (10%), childhood disorders (7%) and dementia (6.7%).

The target sample for answering the questionnaire was comprised of 626 investigators: 525 researchers



Institute of Psychiatry of University of São Paulo, Ribeirão Preto; University of State of Rio de Janeiro, Federal University of Rio de Janeiro, Federal University of Rio Grande do Sul, University of the State of Campinas, Federal University of São Paulo, University of São Paulo, University of São Paulo - Ribeirão Preto, Faculty of Medicine of University of São Paulo, Institute of Psychiatry of Faculty of Medicine of University of São Paulo

Figure 2 - Brazilian publications by author's institution of origin.

Table 1 - Themes of indexed-publications and research projects developed by Brazilian researchers* for the period 1999-2003.

Mental disorder categories	Indexed publications N (%)	Research projects N (%)
Depression/anxiety	231 (29.1)	323 (38.0)
Substance use	116 (14.6)	231 (27.1)
Psychosis	79 (10.0)	101 (11.8)
Childhood disorders	56 (7.0)	99 (11.6)
Dementia	53 (6.7)	111 (13)
Eating disorders	35 (4.4)	69 (8.1)
Epilepsy	20 (2.5)	41 (4.8)
Suicide	18 (2.3)	60 (7.0)
Personality disorders	13 (1.6)	79 (9.2)
Learning disability	2 (0.0)	58 (6.8)
Others	238 (30.0)	212 (24.9)
Total	792 (100.0)	850 (100.0)

*269 respondents to a questionnaire

who were identified as the first authors in the MEDLINE and PsychInfo databases, and 101 from the RBP and supervisors lists. The number of questionnaires returned was 329. The sample was comprised equally of men and women, with a mean age of 44 years (26-74 years). The researchers were predominantly psychiatrists (55%) and psychologists (18%). Most of the subjects were from universities (82%), and the remaining 18% were from psychiatric hospitals (18%). Their formal training was in epidemiological methods (52%), qualitative methods (33%) and basic sciences (26%). A large proportion (80%) also had experience as journal reviewers, and 49% of them were participating in editorial boards for scientific journals (both national and international) during the period 1999-2003. Two-thirds of the interviewees had some involvement in educational activities: in courses for master's degrees (34.5%) and doctoral degrees (30.6%), and as advisors (67% had supervised at least one doctoral student and 26%, six or more students, for the period 1999-2003).

Mental health research and publications from 1999 to 2003

The themes of the 792 indexed publications produced by the 525 authors were analyzed according to 11 categories of mental disorders (Table 1). Furthermore, the 329 respondents were asked to report on five research themes developed over the period 1999-2003. Themes of these researches were also analyzed and then, compared with those indexed publications (Table 1), producing a total of 850 researches. Only 60 researchers (18.3%) reported no research during this period. A total of 62.5% reported two or more research and 26.7% reported five research and the median of research was three projects. Their studies were mainly on depression/anxiety, substance misuse and psychoses disorders (Table 1). The most common designs for these studies were epidemiological (23%), clinical (15%), social science (9%) and clinical trial (8%). A total of 200 (23.5%) of these research projects were conducted in collaboration with investigators in developed countries.

Mental health research priorities

The researchers ranked the main priorities in mental health research as depression/anxiety, substance misuse and psychoses disorders (in decreasing order of importance). Children and adolescents, persons exposed to violence, elderly people and women were considered to be vulnerable populations and priorities for research. They also ranked epidemiological studies, studies on health systems and clinical trials as the priorities in the designs of their studies. The researchers based their choices of these priorities that they mentioned on the burden of diseases, personal interests and availability of funds. Moreover, they considered that lacks of funds, research training and research culture were important challenges to implement research findings.

Researchers and research funding

The researchers were asked to detail the amounts of funding received for each research developed and also to report the total amount of funding received in 2003. Ninety-seven researchers (29%) received research funding in 2003 and the median amount was US$20,000.00, ranging from US$500.00 to US$1,000,000.00. However, 38.2% of them received US$50,000.00 or more. A total of 79 researchers with one publication or more in foreign journals reported having received some research funding in 2003. Researchers with publications in foreign journals showed a tendency towards receiving greater amounts of funding than those without such publications. The financial sources were non-governmental institutions (27%), research agencies (24.5%), universities (21.2%), ministries (12.3%), pharmaceutical companies (10.3%), multiples sources (9.3%) and WHO (3.3%).

Dissemination of research findings

Six percent of the sample had not published in local journals and 18% had not published in international journals, over the period 1999-2003. Averages of 70% and 90% of them, respectively, reported having had two or more publications in foreign and local journals over this period. They chose the journal to publish their last article on the basis of its impact factor (34%), readership (12%), personal interest in the journal (9%), better chance of acceptance for the paper (18%) and other reasons (11%).

A total of 792 papers were identified from the 525 authors: 71.8% from MEDLINE and 72.2% from the PsychInfo database. However, there was some overlapping between the publications, i.e. indexation in both databases. Two-thirds of these publications were published in 28 journals, of which 15 (53.7%) were national journals (impact factor less than 1.0) and 13 were foreign journals (Table 2). Fifty-seven articles (7.2%) were published in journals with impact factor greater than 2.0 and 22 articles were published in the following leading psychiatric journals: Archives of General Psychiatry, American Journal of Psychiatry, Biological Psychiatry, British Journal of Psychiatry, Psychological Medicine and Schizophrenia Bulletin, Schizophrenia Research and Journal of Clinical Psychiatry.

The findings from the research were disseminated by television (36.6%), radio (30.3%), local newspapers (52.4%), foreign newspapers (13.6%), leaflets (23.9%) and materials for policymakers (4.5%). One-third of the researchers considered that their studies had social impact, such as production of educational materials, clinical recommendations (guidelines), implementation of mental health services, new therapeutic interventions, professional training and local health policies.

DISCUSSION

The status of Brazilian scientific production relating to mental health has been discussed in the present study in terms of the focus of the publications, the financial resources involved and the dissemination of the research findings.

Topics within Brazilian mental health research

In the present study, the five main mental disorders

Table 2 - Brazilian and foreign Journals with more than five mental health papers (1999-2003).

	Journals	N (%)	IF*
Brazilian Journals (5 or more papers)			
	Revista Brasileira de Psiquiatria	107 (13.5)	-
	Arquivos de Neuro-Psiquiatria	105 (13.0)	<1.0
	Jornal Brasileiro de Psiquiatria	42 (5.3)	-
	Revista de Saúde Pública	29 (3.7)	<1.0
	Brazilian Medical Journal and Biological Research	23 (2.9)	<1.0
	Revista de Psiquiatria do Rio Grande do Sul	20 (2.5)	-
	Cadernos de Saúde Pública	18 (2.3)	
	Psicologia Reflexão e Crítica	13 (1.6)	-
	São Paulo Medical Journal	8 (1.0)	
	Estudos de Psicologia	7 (0.9)	
	Revista Brasileira de Psicanálise	7 (0.9)	
	Aleteia	7 (0.9)	
	Psicologia Teoria e Pesquisa	6 (0.8)	
	Revista da Associação Médica Brasileira	6 (0.8)	
	PSICO	5 (0.8)	
Total		403 (50.9)	
Foreign Journals (5 or more papers)			
	Journal of Clinical Psychopharmacology	15 (1.9)	4.41
	Cochrane Database Systematic Review	15 (1.9)	-
	Revista Latino Americana de Enfermagem	14 (1.8)	-
	Psychiatric Research	12 (1.5)	1.98
	Journal of Psychopharmacology	11 (1.4)	2.33
	Social Psychiatry and Psychiatric Epidemiology	9 (1.1)	1.53
	Substance Use and Misuse	9 (1.1)	0.56
	International Journal of Psychiatry	8 (1.0)	-
	Journal of Clinical Psychiatry	8 (1.0)	4.33
	Schizophrenia Research	6 (0.8)	3.88
	Acta Psychiatrica Scandinavica	5 (0.6)	2.28
	Addiction	5 (0.6)	3.06
	J Am Acad Child Adolesc Psychiatry	5 (0.6)	3.52
Total		116 (14.6)	
Others journals (<5 articles)		283 (35.8)	
Total		792 (100.0)	

Source: JCR, 2004.
*IF: Impact factor

of research projects were: depression/anxiety, substance misuse, psychoses, dementia and childhood disorders. These results show that the focus of Brazilian mental health research are in consonance with the fact that mental disorders represent more than 40% of the ten leading causes of disability and 12% of the global burden of disease. Depression disorders alone accounts for almost 12% of all disabilities.[10,18]

Considering the top twenty causes of disability, five mental disorders were included: depression, alcohol use disorders, schizophrenia, bipolar affective disorder, Alzheimer and other dementias. Developing countries have been considered to be potentially at risk of increasing burden of mental health disorders.[10,18]

Of note, researchers were aware of the burden of mental health disorders, and they predominantly reported burden as the main reason to perform mental health research.

Epidemiological studies of mental health disorders are important for identifying risk factors and community needs, whereas clinical studies are based on the demands of those seeking treatment.[5,17] Another role of epidemiology is to provide decision-makers with guidance for identifying health priorities, developing prevention strategies and evaluating treatment interventions.[5] Researchers reported a higher number of epidemiological (23%) studies than what was found in publications (6.6%). This could be partially explained by the low rate (52%) of researchers with formal training in epidemiology. Indirectly, it is reasonable to suppose that this low rate of training in epidemiological methods could also contribute towards the lack of research culture, and the difficulties faced by researchers in having their research findings implemented by policymakers.

A review of economic studies relating to mental health from developing countries identified one Brazilian study on cost-effectiveness.[15] Findings from economic studies in developed countries cannot be generalized to developing countries and therefore such studies in developing countries are essential for assessing the cost-benefit relationship of mental health interventions in these countries, particularly regarding evaluations of mental health services. Although epidemiological and economic studies are critical for developing mental health services, in order to enhance the quality and coverage of mental health care, policymakers and researchers need a better understanding of these matters.

Even though Brazilian researchers showed some ability to establish mental health priorities, there has been no significant response by decision-makers, such as the development of a research agenda guided by research findings and the country's needs. In this respect, the proportion of policymakers' requests for mental health research in this study was anecdotic (4.3%). Alem & Kebede[1] stressed that the low level of research culture is the main reason why policy and decision-makers in developing countries are not demand or utilize research.

Funding for mental health research in Brazil

The scale of financial support and grants for mental health research is still modest in Brazil. In 2002, the total allocation to mental health (US$3,400,000.00) corresponded to 3.4% of the total health budget.[8] Therefore, the total amount of US$5,900,000.00 that was reported in the present study by 97 researchers (29.5% of the researchers in this study) over the last year (2003) is an overestimate, since teams of researchers might be sharing the same budget for their projects. The vast majority of national funding for mental health research comes from governmental agencies such as: Fundação de Amparo à Pesquisa do Estado de São Paulo (Fapesp: the São Paulo State Research Foundation) (53.3%); the Health Section of Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes: the university-level staff advancement office) (30.2%); Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq: the National Research Council) (9.8%); and the Ministry of Health (6.8%).[8] All these agencies participate in the funding of mental health research, and there is no formal system for coordinating priorities.

Although changes to this scenario are incipient, one important recent initiative from the Ministry of Health and CNPq can be highlighted. In this, an allocation of US$2,500,000.00 was made, prioritizing specific purposes within mental health research, such as studies on primary care, violence, minorities, new technologies and healthcare interventions. A total of 159 research proposals were analyzed and 72 received funding. The budget allocated to these projects corresponded to an average of US$60,000.00

In addition to these priorities for funding allocation, another point that should be noted is that researchers with higher number of publications in foreign journals achieved higher amounts in grants. These data indicate that one of the consequences of allocating funds to experienced researchers is greater visibility in the international literature. However, a substantial proportion (20%) of such researchers continue not to have any funding resources, and this may hinder the attainment of research priorities such as cost-effec-

tiveness, epidemiological studies and clinical trials.

Dissemination of mental health findings

Although the visibility of Brazilian mental health publications in high impact factor journals is still modest, this scenario has been progressively changing. Publication takes place predominantly in national journals (50.3%) with lower impact factor, but a remarkable proportion of publication takes place in foreign journals (15%) and in those with higher impact factor (7.2%). The national mental health journals have a low impact factor (<1.0) and only two of them are indexed in the ISI database: Arquivos de Neuro-Psiquiatria and Revista Brasileira de Psiquiatria.

According to Saxena et al,[14] the main barriers against acceptance of mental health papers from low and middle-income countries by the most important journals were lack of guidance regarding research design and statistics, difficulty in writing in a foreign language, and material, financial, policy and infrastructure constraints. Furthermore, other reasons that could explain this low representation in foreign journals are the low submission rates and the lacks of trained researchers and funds.[11]

On the other hand, it is important to remember the acceptance bias against articles from low and middle-income countries. In this respect, these articles could be considered to be less relevant for the readership and consequently be rejected without going as far as the review process.[3,11,13] However, the editors of one prominent journal, Acta Psychiatrica Scandinavica, have argued that such papers are not rejected without rigorous assessment of their scientific merit. They have also emphasized their concern for being more receptive towards such papers but have stressed that they do not publishing papers of lower quality.[9]

In this respect, Saraceno & Saxena[12] that journals should not lower their standards to accept more papers from these low and middle-income countries, but rather to assist researchers in these countries to achieve the required standards in their research and presentation. Additionally, they stressed the need to prioritize research from these countries and suggested that reviewers for prominent journals could provide detailed recommendations to such authors and provide language-editing support.

The challenges in increasing the international research visibility of low and middle-income countries such as Brazil are associated with the development of good-quality research in these countries. For this purpose, Maj[7] stressed the need to establish a network of centers of excellence in both developed and developing countries in order to conduct international collaborative research, offer training to researchers and provide mentorship for these researchers when they return to their own countries. Furthermore, Doku & Mallet[4] emphasized that the lack of resources and intellectual isolation in developing countries could lead researchers to adopt the values, concepts, frames of reference and research agendas of the developed world, rather than pursuing research based on the mental health demands of their own countries.

In summary, the mental health research culture in Brazil requires urgent enhancement, and policymakers and researchers should become involved in developing research agenda priorities. Increased numbers of projects involving international partnership with developed countries, investments in training researchers and in their careers, dissemination of research findings to policymakers, inclusion of the disciplines of epidemiology and methodology in medical school curricula and allocation of more funds for mental health research are recommended.

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