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Artigo Especial

Special Article

# Mental health research in Brazil: policies, infrastructure, financing and human resources

## A pesquisa em saúde mental no Brasil: políticas, infra-estrutura, financiamento e recursos humanos

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### Keywords

Mental health. Bibliometrics. Health policy. Bibliography, national. Research support, statistics & numerical data. Research support, trends. Research support, organization & administration.

### Abstract

The objective of this descriptive study was to map mental health research in Brazil, providing an overview of infrastructure, financing and policies mental health research. As part of the Atlas-Research Project, a WHO initiative to map mental health research in selected low and middle-income countries, this study was carried out between 1998 and 2002. Data collection strategies included evaluation of governmental documents and sites and questionnaires sent to key professionals for providing information about the Brazilian mental health research infrastructure. In the year 2002, the total budget for Health Research was US\$101 million, of which US\$3.4 million (3.4%) was available for Mental Health Research. The main funding sources for mental health research were found to be the São Paulo State Funding Agency (FAPESP, 53.2%) and the Ministry of Education (CAPES, 30.2%). The rate of doctors is 1.7 per 1,000 inhabitants, and the rate of psychiatrists is 2.7 per 100,000 inhabitants estimated 2000 census. In 2002, there were 53 postgraduate courses directed to mental health training in Brazil (43 in psychology, six in psychiatry, three in psychobiology and one in psychiatric nursing), with 1,775 students being trained in Brazil and 67 overseas. There were nine programs including psychiatry, neuropsychiatry, psychobiology and mental health, seven of them implemented in Southern states. During the five-year period, 186 students got a doctoral degree (37 per year) and 637 articles were published in Institute for Scientific Information (ISI)-indexed journals. The investment channeled towards postgraduate and human resource education programs, by means of grants and other forms of research support, has secured the country a modest but continuous insertion in the international knowledge production in the mental health area.

### Descritores

Saúde mental. Bibliometria. Política de saúde. Bibliografia nacional. Apoio à pesquisa, estatística & dados numéricos. Apoio à pesquisa, tendências. Apoio à pesquisa, organização & administração.

### Resumo

O presente estudo, descritivo teve como objetivo mapear a pesquisa em saúde mental no Brasil, fornecendo uma visão de infraestrutura, financiamento e políticas em saúde mental das pesquisas. O estudo faz parte do Projeto Atlas da Organização Mundial da Saúde realizado nos países de média e baixa renda per capita, entre os anos de 1998-2002. A coleta de dados incluiu a avaliação de documentos governamentais e páginas da web, e questionários enviados para os profissionais

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*chave para fornecer informações acerca da infra-estrutura de pesquisa em saúde mental no Brasil. No ano de 2002, o orçamento total para a pesquisa em saúde foi de 101 milhões de dólares, dos quais 3,4 milhões (3,4%) foram aplicados em Pesquisa para Saúde Mental. As principais fontes financiadoras para pesquisa mental foram a Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP, 53,2%) e o Ministério da Educação (CAPES, 30,2%). A proporção de doutores é de 1,7 por um mil habitantes, e a taxa de psiquiatras é de 2.7 por 100 mil habitantes, estimadas pelo censo de 2000. Em 2002, havia 53 cursos de pós-graduação direcionados a educação em saúde mental no Brasil (43 em psicologia, seis em psiquiatria, três em psicobiologia e um em enfermagem psiquiátrica, com 1.775 alunos sendo treinados no Brasil e 67 no exterior. Há nove programas dedicados para a psiquiatria, neuropsiquiatria, psicobiologia e saúde mental no País, sete deles localizados na região Sudeste. No período de cinco anos, 186 estudantes receberam o título de doutor (37 por ano) e 637 artigos foram publicados em revistas indexadas no Institute for Scientific Information (ISI). O investimento canalizado para os programas de pós-graduação na formação de recursos humanos, por meio de bolsas de estudos e fomento à pesquisa, tem permitido ao País uma modesta, mas crescente presença na pesquisa em saúde mental no cenário internacional.*

## INTRODUCTION

Research is no longer perceived as an discretionary activity, given its critical role in helping countries to reduce the health burden due to mental disorders worldwide. Research-generated information has been identified by the World Health Organization (WHO) as essential to determine needs, propose new cost-effective individual or collective interventions, monitor process implementation and evaluate the changes intended. Also, it is helpful to explore obstacles that prevent recommended cost-effective actions from being carried out. Conceivably, if information systems are indeed implemented and used appropriately, developing countries will be able to better utilize their mental health resources. Research can thus become an instrument for change.

In December 2002, WHO organized a meeting on Research for Change to discuss mental health research in low and middle-income countries. Participants to this meeting included researchers from developing and developed countries, WHO Collaborating Centers, national research institutes and research councils, international research organizations, editors of scientific journals, policy advisors and program planners as well as representatives of funding agencies and donors. The meeting clearly brought out the paucity of mental health research activities and the inadequacy of infrastructure to support such research in these countries. The need for concerted actions for supporting research was recognized and many steps have been taken. One of these was the Atlas-Research Project that aims to obtaining information about mental health-related research (research amount and quality) and mental health research infrastructure

(policies, network, manpower) from low and middle-income countries. The project is currently being implemented in 13 countries producing more than 2% of research from low- and middle-income countries: India, South Africa, Brazil, Russia, China, Poland, Mexico, Turkey, Thailand, Pakistan, Hungary, Nigeria, and Croatia.

An important action to improve mental health in Brazil is to provide information about its research infrastructure. These data will be useful to discuss the future of mental health research in the country and the steps proposed for attaining such goals. These findings will serve as a ready reference on Brazil's resources and could help evidence-based advocacy for the government and international organizations aiming at increasing investments in mental health research. Strengthening the system for conducting mental health research would provide input for decision making on policies and strategies that could promote appropriate actions.

This study aimed at obtaining data on the country's policies (vision, mission, goals and priorities), ethical aspects, infrastructure (councils, institutions), financing, human resources (training, researchers and lectures), including the actual research production and dissemination. Relevant issues related to general health and health care will also be addressed since mental health and mental health care are embedded in the former.

## DATA COLLECTION

To assess Brazil's mental health research capability information about several aspects of mental health

**Table 1** - The WHO Atlas Questionnaire for investigating mental health research infrastructure.

Section and subsection	Focus	Content areas
A. Stewardship		20
Vision, mission and goals	Goals of research, factors that were considered in formulating the vision	4
Priorities	Process of setting priorities, collaborators, issues regarding community participation and equity	7
National medical research council(s)	Functions	3
Ethics	Guidelines, implementation and process	6
B. Financing	Amount spent, cash flow, priorities, environment, constraints	5
C. Creating and sustaining resources		11
Support to research units	Type and focus of support, databases and national library	4
Researchers	Number and type, incentives	3
Training	Type, international links, brain drain	4
D. Producing and utilizing research		9
Research and publications	Areas of research, public health orientation, number of publications, journals, conferences, practice standards and manuals, forums for exchange with users (including media)	4
Dissemination of research		5

research and research infrastructure was obtained under the following content fields: Stewardship, Financing, Creating and Sustaining Resources, and Producing and Utilizing Research (Table 1) and sub-fields: 1) Vision, mission and goals; 2) Priorities; 3) Medical Research Councils; 4) Ethical aspects; 5) Financing; 6) Institution's support; 7) Research Manpower; 8) Training possibilities; 9) Research and research publications; 10) Dissemination. These content fields were developed as a part of the Atlas-Research Project of the WHO Department of Mental Health and Substance Abuse through literature search and several rounds of discussion with experts from developed and developing countries. The Brazilian branch of the Atlas-Research Project is coordinated by the present study's leading author.

Information concerning vision, mission, goals, and priorities of the Brazilian government were obtained from several documents including: Zago et al<sup>9</sup> (2002), Ministry of Health<sup>8</sup> (1999),\* Guimarães<sup>4</sup> 2003. Information concerning Brazil's ethical policies was based on key documents from the *Comissão Nacional de Ética em Pesquisa* (National Commission of Ethics in Research - CONEP) and from the *Comitê Nacional de Ética* (National Ethics Committee). The number of projects approved by the ethics committees for the year 2002 was estimated based on a list of projects approved by *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (National Research Council - CNPq) and *Fundação de Amparo à Pesquisa do Estado de São Paulo* (State of São Paulo Research Council - FAPESP), since a ethical committee clearance is requested for all projects approved by CNPq, FAPESP or *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (Coordination for the Advancement of Higher Education Staff - CAPES).

Also, a questionnaire was sent to the Ministry of Health, Ministry of Education (through CAPES),

Ministry of Science and Technology (through CNPq), and to the four largest state funding agencies (São Paulo, Minas Gerais, Rio Grande do Sul, and Rio de Janeiro) in order to obtain information about funding health and mental health research. The contact was made via regular mail and e-mails. Only the research funding agency of the State of Rio de Janeiro (FAPERJ) did not reply to the questionnaire.

Data on the country's main institutions supporting mental health research was obtained by consulting CAPES and the Ministry of Education. Information about mental health research manpower was gathered by means of a questionnaire sent to the psychiatry and psychobiology post-graduate programs (PGPs) registered at CAPES. Questionnaires were sent to the Ministry of Education Psychology and Nursing consultants. The number of doctors was obtained from the National Medical Board website. The total number of doctors involved in research was extracted from the 2000 CAPES Post-graduate Annual Report (Ministry of Education). using the number of supervisors of all post-grad programs in health, which does not include doctors working in biomedical sciences. To estimate the number of psychologists and nurses the websites of the National Psychology Board and National Nursing Board were visited, respectively. The number of graduate nursing schools was obtained from the Ministry of Education website. The number of nurses involved in research was extracted from the 2000 CAPES Report, by counting all supervisors of nursing PGPs. The number of psychology students was estimated based on research data provided by the Ministry of Education psychology consultant.

Data on mental health research training opportunities was gathered by means of a questionnaire sent to the heads of the most productive PGPs on psychiatry (5) and psychobiology (3). Other institutions that do not have specific PGPs known by their mental health

\*Ministério da Saúde, Secretaria de Políticas de Saúde, Departamento de Ciência e Tecnologia em Saúde. Diretrizes para planejamento de ações de ciência e tecnologia em saúde. Brasília (DF); 2002.

research production were also included: *Universidade Federal da Bahia*, *Universidade Católica de Pelotas*, *Universidade Federal de Pelotas* and *Universidade Estadual de Campinas (Unicamp)*.

The number of research and scientific publications was estimated based on the 2000 CAPES Report. To obtain data on general health research and scientific publication, a database was created including all CAPES PGPs in health, which included Nursing, Pharmacy, Dentistry, Physical Education, Public Health and Medicine (biological sciences were not included in this estimate).

Data on the dissemination of mental health research production were obtained by means of surveys at the *Instituto Brasileiro de Informação em Ciência e Tecnologia* (Brazilian Institute of Information in Science and Technology - IBICT). The number of journals at Literature Latin American Health Sciences (LILACS) was taken from the LILACS Database 2002. The relevant journals in Psychology were given by the Ministry of Education psychology consultant.

To obtain data on patents a survey was carried out in the INPI website (National Institute of Industrial Property, Ministry of Development - *Ministério do Desenvolvimento*). The year under consideration was 2001, because the registration may be published within 18 months of the application.

## VISION, MISSION AND GOALS FOR NATIONAL MENTAL HEALTH RESEARCH

The Brazilian Mental Health Policy is essentially based on the Caracas Declaration (1991). The Brazilian Ministry of Health proposed a mental health law, approved by the Congress in 1999, which essentially establishes the progressive substitution of psychiatric beds for Community Social Psychiatric Centers, so-called *Centros de Atenção Psicossocial - CAPS*. In addition, the law has introduced a program for paying a monthly bonus for families of long-stay patients, so as to encourage them to leave the hospital and return home (*Programa de Reabilitação Assistida - PRA*, Ministry of Health, 1999).

## PRIORITIES FOR MENTAL HEALTH RESEARCH

There is no explicit health research agenda in Brazil, which indicates that health research carried out to date has not adequately addressed national health priorities. Resources allocated to health research have been granted through a system of peer review under competitive conditions, but not spe-

cifically designed for national priorities. Therefore, there has been continuous inequality and low selectivity, i.e., insufficient capacity to establish and follow health priorities.<sup>4</sup>

However, the commitment to approach inequity in the health sector (i.e., increasing equity in the health system) has recently become the basis for developing a new policy. In June 2003, a process of developing an agenda of priority health research issues began with the study of Brazil's health conditions. However, peer health research review competition is usually led by the scientific community, and a document<sup>9</sup> from the Brazilian Academy of Science has raised the following subjects: a) social inequalities in Brazil, the problem of the inverse care law; b) absence of cost-benefit studies in implementing mental health services; c) health coverage, the country does not provide universal access for severe mental disorders; and d) training of primary care physicians in mental health practice.

The change in demographic profiles, which resulted from the move from rural settings to urban environments in the last few decades, with a predominance of housing in cities with populations of over half a million inhabitants, may be correlated to several factors. For example, worsening of living conditions, difficulties in labor insertion, lack of leisure and violence arising from social inequities. The central role of inequities and social exclusion as determinants of poor health conditions is undisputable, leading to a worldwide growing interest for research on this subject-matter, particularly in Latin America and the Caribbean (Almeida-Filho et al,<sup>1</sup> 2003). The impact of social inequality and social adversity on a cluster of diseases such as common psychiatric disorders, post-traumatic stress disorders, drug dependence, behavioral disorders and obesity, i.e., the mental health of the urban poor, has been well recognized. The consequences of rapid urbanization may be associated to an excess of common psychiatric disorders (mainly anxiety states), observed in epidemiologic studies carried out in the community (Lima et al,<sup>6</sup> 2004). Such a profound social debt in health justifies the needs for future research and the development of efficacious interventions for reducing health burden and sufferance in the country.

Brazil has not yet eradicated health problems associated to poverty, such as intestinal and respiratory infections, and have to face the emerging conditions due to these rapid demographic changes: cancer, cardiovascular diseases and mental disorders. Indeed, the increase in longevity and the reduction in fertility rates resulting from such a demographic transition give way

to an increment in mental disorders in senescence (depression and dementia states, among others). The economic and social burden of psychiatric disorders has clearly not been properly assessed in Brazil. The phenomenon of the "inverse care law," in which lower income populations, with an excess of morbidity, do not receive minimum care for mental health, while the more privileged population could be receiving excessive assistance, is clearly a matter of concern for mental health planners (Lima et al,<sup>5</sup> 1999).

There has been an increase of psychosocial care centers in the last few years, an evidently positive experience in terms of the humanization of mental health care. Nevertheless, the mental health care system is relatively scarce and poorly distributed among the different regions in the country. Therefore, there is a need for more evaluation studies to comparing the cost-benefits of alternative care models so as to improve coverage. Also, it is necessary to implement training for health managers in mental health. These providers must be knowledgeable in epidemiology, anthropology, biostatistics, health policy, health economy, and planning.

There is a need for more and better data on Brazil's mental health situation. Epidemiological research in the country has experienced a significant improvement in terms of both the number of papers published and the quality of research conducted. Indeed, several cross-sectional studies have addressed the prevalence and risk factor for common mental disorders, and many of them used sophisticated methods of sample selection and analysis. Few cohort, case-control, and randomized controlled studies conducted in South America were exclusively published locally (Lima et al,<sup>6</sup> 2004). This may reflect the fact that researchers select their higher quality papers for submission to international journals. There is a need for improving the quality of existing journals, and increasing its distribution and access in the region. However, there is much to be done, considering local needs, cultural/ethnic features of the

populations and current relevant issues such as crime, violence, and substance use.

## COORDINATING MENTAL HEALTH RESEARCH

Health research in Brazil has been funded by a variety of institutions: a) the health section of the Brazilian Ministry of Science and Technology, and CNPq; b) the health section of CAPES/Ministry of Education; c) the Department of Science and Technology in Health, Brazilian Ministry of Health; and d) the state research funding agencies (the most important is FAPESP). All these agencies are involved mental health research funding, and there is not a formal system for coordinating priorities. However, the vast majority of the scientific production in Brazil is concentrated in the universities' PGPs.

## ENSURING ETHICS IN MENTAL HEALTH RESEARCH

Resolution 196/96 is the national law for ethics in health research. Ethics committees are coordinated by the National Commission of Ethics in Research (CONEP) subordinated to the National Health Council (*Conselho Nacional de Saúde*) at the Ministry of Health. Resolution 196/96 was based on international documents that derived from declarations and guidelines involving human beings, such as: Nuremberg Code (1947); Human Rights Declaration (1948); Helsinki Resolution (1964, and posterior versions: 1975, 1983, 1989); United Nations International Agreement on Civilian and Political Rights (1966); International Proposal and Guidelines for Biomedical Research Involving Human Beings (CIOMS/WHO 1982 and 1983); and The International Guidelines for the Ethical Review of Epidemiological Studies (CIOMS/WHO 1991). The national resolution establishes that all research officially funded are to be approved by institutional, state or national ethics committee, accredited by CONEP. In 2002, 383 state/provincial ethics committees were certified by CONEP.

**Table 2** - Funds allocated by national government sources to health and mental health research. Brazil, 2002.

Funding agencies	Mental Health		Health	
	Brazilian currency (Reais)	Proportion (%)	Brazilian currency (Reais)	Proportion (%)
Ministry of Health	695,248.00	6.8	3,272,649.00	4.4
CAPES	3,095,645.63	30.2	48,813,320.00	16.1
CNPq	1,000,000.00	9.8	125,000,000.00	41.2
FAPESP	5,441,451.00	53.2	105,230,390.00	34.6
FAPERGS	6,000.00	0.1	529,221.71	0.2
FAPEMIG			10,905,536.00	3.6
Total	10,238,344.63	100.0	303,751,116.70	100.0

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES - Ministry of Education), Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq - Ministry of Science and Technology), the state funding agencies: Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG), and Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS). The Ministry of Health's budget refers to the year 2001.

**Table 3** - Distribution of health researchers and service providers. Brazil, 2002.

Professionals	Academic clinicians (N)	Researchers (N)	Service providers (N)
Doctors	29,400	6,181	289,863
Nurses	7,880	368	100,181
Psychiatrists	400	97	4,546
Psychologists	2,970	611	125,397

## FINANCING OF MENTAL HEALTH RESEARCH

As can be seen in Table 2, the total budget allocation for health research was 303,751,116.70 Reais (equivalent to US\$101 million). The share for mental health research was 10,238,344.63 (approximately 3.4 million dollars), corresponding to 3.37% of the total budget (1 US\$ = 3.00 Reais approximately). The main funding sources for mental health research were Fapesp (53.2%) and CAPES (30.2%).

## INSTITUTIONS SUPPORTING MENTAL HEALTH RESEARCH

The CAPES Report is a yearly report provided by each post-grad program officially operating in the country, where it is given reliable information on research themes, disciplines taught and the scientific production of the research team. The Portal CAPES allows students and academic staff of 97 universities and research institutions in Brazil free, comprehensive and high performance web access to the full-text of over 3,500 scientific and technical international journals from 1995 to the present. This library includes free access to mainstream mental health journals such as Archives of General Psychiatry, American Journal of Psychiatry, British Journal of Psychiatry, and Schizophrenia Research, among others, all over the country (the maintenance of the Portal CAPES costs around US\$20 million yearly). The free access is guaranteed as long as an educational institution has at least one pos-graduate course rated as 5.

In the same direction, the Regional Latin American Library of Medicine (BIREME), supported by the Pan American Health Organization (PAHO), offers access to 5,937 national journals and 5,421 international journals. The Scientific Electronic Library (SciELO) linked to the Internet is part of the BIREME/PAHO/WHO library, which main goal is to contribute for the development of local research, through perfecting and enlarging the ways of dissemination, publication and evaluation of the best available scientific publications in Latin America and Caribbean countries.

## MENTAL HEALTH RESEARCH MANPOWER

Data on the distribution of health researchers and service providers is displayed in Table 3. According to

the National Medical Board website, as of March 6 2004, there were 289,863 medical doctors legally practicing in Brazil. The number of academic clinicians is a rough estimate. There were 98 medical schools registered in the National Medical Board (2004 March 6). The number of clinicians working in academic settings was estimated by multiplying 98 x 300, 29,400. The total number of doctors involved in research was extracted from the 2000 CAPES Report, using the number of supervisors of all post-grad programs in health (1,721 Medicine I; 1,905 Medicine II, 1,221 Medicine III and Public Health 1,334, leading to a total of 6,181). This estimate does not include medical doctors working in biomedical sciences labs. The total number of psychiatrists (4,546) was provided by the Brazilian Psychiatric Association, and the number of psychiatrists working in academic settings was a rough figure, obtained by multiplying the number of medical schools (98) by an estimate average of 5, equals to 490. By using the 2000 census (population estimated at 169,799,170), the rate of medical doctors is therefore 1,7 per 1,000 inhabitants, and the rate of psychiatrists is 2,7 per 100,000 inhabitants.

As seen in the National Psychology Board website, as of June 13 2002, there were 125,397 professionals. The number of psychologists in academic settings was estimated by means of research data provided by the Ministry of Education psychology consultant. The total number of registered nurses (100,181) was extracted from the National Nursing Board website on March 4 2004. In 2004, there were 394 nursing schools in the country, and the number of nurses in university settings (7,880) was a rough estimate (394 x 20 academics per school). The number of nurses involved in research (368) was extracted from the 2000 CAPES Report, by counting all supervisors of nursing PGPs.

## TRAINING POSSIBILITIES

According to CAPES, there were 1,489 Master's degree programs and 857 doctoral programs approved by the Ministry of Education, and the number of scholarships was 13,467 for Master's and 10,181 for doctoral degrees in 2001. The vast majority of the science produced in Brazil is developed in PGP's, a annual production of around 13,000 papers in ISI-indexed journals. CAPES has played an important role in Brazilian scientific growth since it has imple-

**Table 4** - Courses and trainees in mental health. Brazil, 2002.

Areas*	Courses (N)	Trainees (N)	Trainees overseas (N)
Psychiatry	6	271	11
Psychobiology	3	118	1
Psychiatric Nursing	1	49	4
Psychology	43	1,337	44
Total	53	1,775	60

\*7 occupational therapists were on overseas training

mented policies that have contributed to personnel development for teaching and research. CAPES audits and assesses the quality of the Brazilian PGP, and formulates the National Post-graduate Plan.

As it can be seen in Table 4, there were 53 courses for mental health training in Brazil (43 in psychology, six in psychiatry, three in psychobiology and one in psychiatric nursing). In 2002, there were 1,775 students being trained in Brazil and 67 training overseas. In the period 1998-2002, three students trained overseas did not return after completing training, 10 Brazilians left the country to occupy academic positions abroad and two foreign researchers came to work in Brazil. Nine of the 53 PGPs are dedicated to psychiatry, neuropsychiatry, psychobiology and mental health. The PGP name does not necessarily describe its research production. For instance, psychobiological research is developed in psychobiology, psychiatry or even in mental health PGPs. The same is true for epidemiological and clinical research. All but two PGPs are based in state universities located in the south and southeast regions of the country. With the exception of Neuropsychiatry - UFPE, that has only a Master's degree program, all PGPs have doctoral and Master's degree programs accredited by CAPES. PGPs have wide variation in the number of supervisors, indirectly reflecting the size of the programs. The number of supervisors ranged from 6 to 29 (average:13). According to the 2001-2003 CAPES evaluation, six of the nine PGPs dedicated to psychiatry, neuropsychiatry, psychobiology and mental health have scored grade 5 (Table 5), indicating good performance by Brazilian standards, and one psychobiology PGP scored grade 7, i.e. at the same level as the leading world institutions.

During the period, 295 students got a Master's degree and 186 students got a doctoral degree in psychiatry and related sciences (Bressan et al,<sup>2</sup> 2005). A total of 481 theses were published, approximately 37 doctoral theses per year. Large PGPs such as Psychiatry - USP, with 29 supervisors, produced more ISI-indexed papers than the majority of other programs, but their productivity (1 ISI-indexed paper per year) was only average.<sup>2</sup> Unifesp and USP/RP psychobiology PGPs had the highest productivity (2.0 and 1.7 ISI-indexed papers per year, respectively). This may reflect a higher concentration on laboratory animal studies, which tend to produce more papers than clinical studies.

## RESEARCH AND RESEARCH PUBLICATIONS

Over the period studied, 1,719 articles were published in regular journals, 637 of them in ISI-indexed journals and 680 in MEDLINE journals.<sup>2</sup> The mean impact factor of ISI-indexed journals where the articles were published was 1.9 (with a range 0.1-30.0). More than 50% of the ISI-indexed papers were published in journals with impact factor higher than 2. Approximately 10% of the articles (63) were published in journals with impact factor 4, and 10 articles (1.6%) in journals with impact factors higher than 8. PGPs that produced more ISI-indexed papers were Psychobiology - USP/RP (n=151) and Psychiatry - USP (n=144). The number of Medline and ISI-indexed articles has progressively increased over the study period.<sup>2</sup> The number of articles published in journals not indexed in the Medline has declined from 2000 to 2002, and has reached lower numbers than Medline articles. On average the supervisors from all PGPs have published 5.5 ISI-indexed papers dur-

**Table 5** - Data on post-graduate programs, year of foundation, number of supervisors and Capes evaluation. Brazil, 2001/2003.

Acronym	University	Post-graduate Program	Foundation year		Supervisors N	CAPES grade
			Master's	Doctoral		
UFPE	Universidade Federal de Pernambuco	Neuropsychiatry	1994	-	6	4
UFRGS	Universidade Federal do Rio Grande do Sul	Psychiatry	2000	2000	9	5
UFRN	Universidade Federal do Rio Grande do Norte	Psychobiology	1985	1998	11	5
UFRJ	Universidade Federal do Rio de Janeiro	Psychiatry, Psychoanalysis and Mental Health	1972	1975	13	4
UNIFESP	Universidade Federal de São Paulo	Psychobiology	1986	1986	8	5
UNIFESP	Universidade Federal de São Paulo	Psychiatry and Psychological Medicine	1984	1984	14	5
USP	Universidade de São Paulo	Psychiatry	1974	1979	29	5
USP/RP	Universidade de S. Paulo/ Campus Ribeirão Preto	Medicine (Mental Health)	1991	1991	12	5
USP/RP	Universidade de S. Paulo/ Campus Ribeirão Preto	Psychobiology	1984	1989	18	7

CAPES: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior



ing the five-year-period evaluated, and the productivity rate has been 1.1 ISI-indexed articles per year. Psychiatry/psychobiology PGPs published 178 articles in the Medline during 2002. There is a predominance of research on anxiety disorders (22%) and organic disorders (12%). A large percentage of the articles involved laboratory animals (24%), followed by cross-sectional assessments of symptoms and side effects of psychiatric patients (22%).

Data reported in this chapter does not reflect the entire scientific production in psychiatry and psychobiology developed in Brazil. A large proportion of research on neurophysiology, neuropathology, psychopharmacology, genetics and molecular biology of psychiatric disorders has been developed in basic research PGPs and were not included herein.

Furthermore, the total number of articles evaluated herein was based on the number produced by each PGP individually. There might be collaboration between PGPs and cross-authorship, thus it is possible that some articles have been counted twice. This would introduce an overestimation of the total number of publications, which may well reduce the total by as much as 10%. On the other hand, poor record of the publications in the CAPES reports has lead to the loss of articles. Approximately 10 articles were missed out each year. As this study clearly shows, CAPES audits are a very important instrument for evaluating Brazilian scientific production. In 2002 the number of ISI-indexed health papers was 3,302 and as there were 125 ISI-indexed papers in psychiatry, the proportion of psychiatry related to the health area was 3.79%, a figure close to the financing of the mental health research area. The number of scientific papers in the Psychology/Psychiatry section of the Journal of Citation Report (JCR) during the period 1999-2003 was 496, which was lower than that found in the present study (637), probably because some papers were classified in the neuroscience and social sciences sections of the JCR (see Bressan et al,<sup>2</sup> 2005 for further details).

## DISSEMINATION OF MENTAL HEALTH RESEARCH

The IBICT listed 201 journals under the headings: psychiatry, mental health, psychotherapy, psychol-

ogy, psycanalysis. As for the Lilacs Database, 36 journals were found using the same keywords.

The Brazilian Psychiatry Conference, a yearly national meeting sponsored by the Brazilian Psychiatric Association, received more than 4,000 participants in its last gathering (Salvador, 2004). The abstracts are peer reviewed and have been published yearly by the *Revista Brasileira de Psiquiatria*, the official journal of the Brazilian Psychiatric Association. In addition, there are regional annual workshops organized by the Brazilian Psychiatric Association, and mental health research is also an open topic for the National Conference on Health and National Conference on Mental Health, both held by the Ministry of Health.

## CONCLUSIONS

Considering the major education role that research and scientific methodology plays in the physician's training, a significant proportion of Brazilian physicians are educated on the margin of this system and are not prepared to keep up with and absorb breakthroughs in health, which are closely linked to scientific development.<sup>9</sup> Between 1998 and 2002, the number of mental health and psychiatric ISI-indexed papers has doubled without significant increase in the number of post-graduate students or academic theses suggesting that PGPs are now more research-oriented resulting in greater scientific quality and productivity. Based on these data, it is plausible to predict a tendency for increasing production over the next few years. However, further sustained investments are essential to keep and even improve this growth.<sup>7</sup> It is expected that the results from this preliminary evaluation study will contribute to form an evidence-based information system on mental health research and the infrastructure supporting it, which will help in harnessing resources available to developing countries towards promotion of mental health and prevention/reduction of mental disorder burden.

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## REFERENCES

1. Almeida Filho N, Kawachi I, Pellegrini Filho A, Dachs JN. Research on health inequalities in Latin America and the Caribbean: bibliometric analysis (1971-2000) and descriptive content analysis (1971-1995). *Am J Public Health* 2003;93(12):2037-43.
2. Bressan RA, Gerolin J, Mari JJ. The modest but growing Brazilian presence in psychiatric, psychobiological and mental health research: assessment of the 1998-2002 period. *Braz J Med Biol Res* 2005;38(5):649-59.

3. Caracas Declaration. Princípios para proteção de pessoas acometidas de transtorno mental e melhoria de assistência à saúde. Caracas: Organização Mundial da Saúde; 1991.
4. Guimarães R. Directing Brazil's health research resources towards health priorities. *Res Action* 2003;33(3):3-4.
5. Lima MS, Hotopf M, Mari JJ, Béria JU, Bastos AB, Mann A. Psychiatric disorder and the use of benzodiazepines: an example of the inverse care law from Brazil. *Soc Psychiatry Psychiatr Epidemiol* 1999;35(6):316-22.
6. Lima MS, Soares BG, Mari JJ. Mental health epidemiological research in South América: recent findings. *World Psychiatry* 2004;3(2):120-2.
7. Meis L, Velloso A, Lannes D, Carmo MS, Meis C. The growing competition in brazilian science: rites of passage, stress and burnout. *Braz J Med Biol Res* 2003;36(9):1135-41.
8. Ministério da Saúde (Ministry of Health). Por uma política de saúde mental. Brasília (DF); 1999.
9. Zago MA, Mari JJ, Carneiro JR, Silva LJ, Luz PL. Área de ciências da saúde. *Parcerias Estratég* 2002;4(14 Pt 5):161-206.