

Iran's Contribution to Child and Adolescent Mental Health Research (1973–2002): A Scientometric Analysis

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Objective: This study aimed to describe the characteristics of Iran's child and adolescent mental health research published from 1973 to 2002.

Method: The articles were drawn from IranPsych, which is a national database of published research in mental health and related fields. This database gathers scientific papers on psychiatry, psychology, and neuroscience published in both national and international journals. Bibliometric data, general scientific areas of research, specific subject topics and research design, were extracted from articles.

Egypt was selected as one of the Middle East countries that has some similarities with Iran. Iranian and Egyptian child and adolescent mental health research articles indexed in ISI 1994 to 2004 also were compared.

Results: From a total of 883 articles, 9% appeared in international journals. There was a marked increase in the number of publications over time, especially in the last 5 years. Psychology and clinical research constituted 70%, and 32% of articles, respectively; followed by epidemiology 11%, health service research 2% and neuroscience 0.7%. During the first five years of the mentioned period Iran fell behind Egypt in terms of international child and adolescent mental health research articles; however, in the last five years, Iranian articles numbered 2.75 times the Egyptian's.

Conclusion: This study showed that it is feasible to outline the status of research activity of a country by using databases that cover publications and would yield several remarkable findings that could be used as a basis for policy making and strategy development in child and adolescent mental health research.

Key words:

Adolescent, Child, Egypt, Iran, Mental health, Research

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Iran J Psychiatry 2006; 1: 93- 97

The last two decades have witnessed a surge in clinical and research interest in child and adolescent mental health. An array of various publications including books, new (sub)specialty journals, and publications in general psychiatry journals have mushroomed.

The reasons for such growing interest in child and adolescent mental health are multifold. However, two important lines of evidence in the 1990's precluded this renewed attention to the field. The first involved new scientific findings in both developmental neuroscience and genetics. Those findings provided invaluable support for early identification and preventive strategies (1). The second line of evidence was the recognition of high rates of mental disorders experienced by children and adolescents, and thus, an increasing realization by clinicians and policy makers that mental disorders are

common and handicapping in this age group (2).

World Health Organization predicts that by the year 2020, childhood neuropsychiatric disorders will rise proportionately, to become one of the five most common causes of mortality, morbidity, and disability among children (3). It is noteworthy that nearly of the rise in research and findings in child and adolescent mental health over the last two decades comes disproportionately from developed countries. For example, a recent survey of six leading psychiatric journals revealed that 6% of the articles originate from parts of the world that lodge over 90% of the global population (4). Most of the world's young population live in developing countries where the gross imbalance between the burden of child and adolescent mental disorders and mental health resources calls for more studies on child and adolescent mental health.

Figure 1. Trend of Iran's child and adolescent mental health research articles published in international journals over a 30-year period (1973-2002)

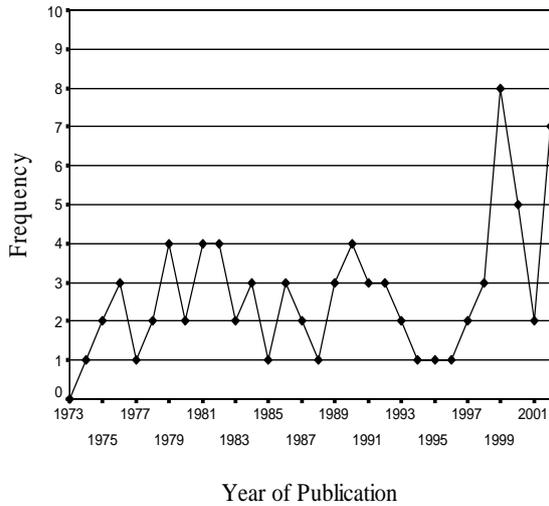
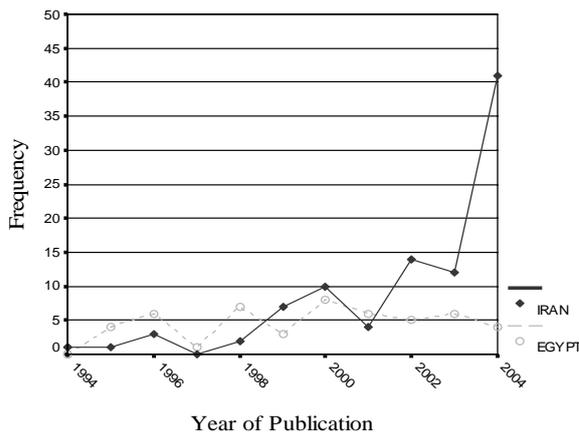


Figure 2. Trend of Iran's child and adolescent mental health research articles published in local journals over a 30-year period (1973-2002)



Figure 3. Comparison between Iran and Egypt in regard with trend of child and adolescent mental health research articles that had been indexed in ISI during the years 1994 to 2004.



This study aimed to describe the characteristics of Iran's child and adolescent mental health research, published in both national and international journals, over a 30-year period (1973-2002).

Additionally, for the purpose of comparison we selected Egypt as one of the most important Middle East countries that has some similarities with Iran in terms of total population, gross national product and status of mental health system (9,10). We compared Iranian and Egyptian child and adolescent mental health research articles indexed in ISI 1994 to 2004.

We tried to give a panoramic view of Iran's child and adolescent mental health research activity. This would allow for the identification of particular areas of need and provide a basis for research planning and policy making.

Method

The articles were drawn from IranPsych, which is a national database of published research in mental health and related fields (9). This database was developed at the National Research Center of Medical Sciences and gathers scientific papers on psychiatry, psychology, and neuroscience published in both domestic and international journals. The international papers are those indexed in ISI, MEDLINE, or PsycLIT that are either written by an author(s) affiliated with a center in Iran or have described Iranian data. Citations and abstracts are available online (<http://pprc.tums.ac.ir/iranpsych>). Our search was limited to published articles in the 30-year period of 1973-2002, for which IranPsych provided the most complete coverage. For the study purpose, 'research article' was defined as the article that presented original, first-hand data collected in a systematic fashion by using some clearly defined methodology.

Research products are required to feed information to and direct the clinical practice, and the design and management of service delivery system (6,7). The knowledge of the status of research in any country is a prerequisite to research planning and policy making. This type of knowledge could be gained through a scientometric study on the published literature that analyzes research products of the country in a scientific field.

Iran's scientific output, although relatively small, has rocketed in the last decade— more than tripled from 1996 to 2002 (8,9). In the area of mental health and related disciplines, a myriad of papers have been published in domestic and international academic journals. Although Iran has a rather young population— roughly 40% of the population are under 15 years—to our knowledge, there has been no comprehensive analysis of child and adolescent mental health research activities in Iran or any other developing country.

Table 1. Frequency of the publications concerned with child and adolescent mental disorders in Iran's child and adolescent mental health research articles published over a 30-year period (1973-2002).

Disorders	N	% †
Mental Retardation	79	8.94
Anxiety Disorders	41	4.64
Mood Disorders	34	3.85
Attention Deficit Hyperactivity Disorder	28	3.17
Learning Disorders	18	2.03
Elimination Disorders	14	1.58
Disruptive Behavior Disorders	11	1.24
Communication Disorders	7	0.07
Pervasive Developmental Disorders	5	0.05
Substance Related Disorders	4	0.04
Tic Disorders	2	0.02
Psychotic Disorders	1	0.01

† The percentages are calculated against the total number of articles (i.e., 883).

The following data were extracted from search: (1) bibliometric data including publication year and source of the article, as well as gender and education of the first author, (2) general scientific areas of research, (3) specific subject topics, (5) research design, and (6) locations of data collection. It should be noted that each article could be rated on more than one of the abovementioned categories (except for research design). For comparison between Iran and Egypt, we assessed child and adolescent mental health research articles that had been indexed in ISI during the year 1994 to 2004 from Iran and Egypt. Search strategy was based on using the term "child" or "adolescent" in the search field Topics, and "Egypt" or "Iran" in the search field Country. Then in regard to our definition of mental health, the relevant abstracts were selected.

Data were collected by five psychiatrists and a master's of psychology. The team attended an intensive training program where they independently rated several articles and discussed the ratings to reach consensus on definitions and ratings of categories. Throughout the study, all the raters attended weekly sessions to resolve ambiguities and to reach consensus. An overall agreement of 84% was achieved on interrater reliability. Ratings were made using full texts of the articles, with the exception of comparing Iran and Egypt for which abstracts would suffice.

Results

Of a total of 3113 Iranian mental health articles published in the 30-year period, the topic of child and adolescent mental health constituted 883 (28%) articles. Among these articles 81 (9%) appeared in international journals and the remaining were published in domestic journals (no international indexing). Among the first authors, 65% were male and 50% had a doctoral degree. Figures 1 and 2 illustrate the trends of publications over time in the international and national journals. Analysis of publication trends showed a marked increase in the number of publications over time, especially in the last 10 years, with more than 2 times increase in the international and 15 times rise in the national publications.

Table 2. Study designs of Iran's child and adolescent mental health research articles published over a 30-year period (1973-2002)

Study Design	N	%
Cross-Sectional	514	58.21
Experimental	156	17.66
Case Report	40	4.33
Prospective	6	0.67
Case-Control	13	1.47
Qualitative	3	0.33
Instrument Development	50	5.66
Others (include: content analysis, reviews, and cost analysis)	101	11.43

Trends of scientific output of Iran and Egypt in the field of child and adolescent mental health in terms of articles indexed in ISI during 1994–2004 are shown in Figure 3. Total number of articles during this period was 95 for Iran and 50 for Egypt. During the first five years (1994–1999) the number of articles per year was 1.5 for Iran and about 3.5 for Egypt; however, during the last five years (2000–2004) this ratio got about 17.5 for Iran and 6.5 for Egypt.

Among areas of general research, psychology and clinical research constituted the largest proportions, with 617 articles (70%), and 280 articles (32%), respectively; followed by epidemiology (90, 11%), health service research (19, 2%), and neuroscience (6, 0.7%).

With respect to the specific subject topics, 334 articles (38%) were in the category of child and adolescent mental disorders. The frequencies of articles related to mental disorders are shown in Table 1. The study of vulnerable children and adolescents in the community was the topic of 43 (5%) articles, including problems of parentlessness, delinquency, beggary, homelessness, child abuse and working children. Again, it should be noted that an article could be rated on more than one topic.

The most commonly used research method was cross-sectional, with experimental designs comprising less than 18% and prospective research accounting for only about 0.7% of the published articles (Figure 3).

The locations of data collections are presented in Table 3, showing that schools and hospitals are the most preferred.

Discussion

The present study aimed to portrait the status and trends of child and adolescent mental health research activity in Iran over the years 1973–2002.

Of 883 articles published in this period, more than 90% appeared in domestic journals. Currently 23 journals in the field of mental health are published in Iran. None of these journals are indexed in international databases, though (11). In addition, databases such as ISI or MEDLINE represent just a scant proportion of the research from third world countries (12). Therefore, any scientometric study that is undertaken only on indexed articles would miss on representing the total research

activity of the country. Trend of publication has had a rising trajectory especially in the last 5 years. This is paralleled by the striking rise in Iran's science production over the last decade. A study on scientific productivity of Iran as measured by the number of papers indexed in ISI revealed that the production rose from 0.03% of the world's scientific output in 1991 to 0.3% in 2003, which indicates a ten-fold increase in less than fifteen years (9).

Several factors might have contributed to this achievement. Following the end of the imposed war on Iran in 1988, the number of universities, faculty members and graduate students have increased, postdoctoral graduates returned to the country, doctoral programs expanded in several universities, investments in the research sector increased, incentives were made for research publications, several research centers were established within universities, and a multitude of domestic journals got published, many of which have a special focus on mental health related issues.

In a comparable study on mental health research in Arab world, it was shown that Egypt has been one of the most productive Arab countries in terms of research over the last three decades (13). We intended to compare Iranian and Egyptian child and adolescent mental health research articles that had been indexed in ISI during the 1994 to 2004. In regard to our definition of mental health in this research, we found that during the first five years of the mentioned period Iran fell behind Egypt in terms of international child and adolescent mental health research articles; however, in the last five years, Iranian articles numbered 2.75 times the Egyptian's.

Although absolute numbers of international publication shows an upward trajectory, the relative number of international articles has been decreased (this ratio was 27% for the year 1992 versus 4% for the year 2002). The rapidly increasing number of articles published in Iranian journals show that science production does in fact take place, but for some reasons the international contribution is sparse. Under representation of research articles from developing countries has been determined in previous studies. For example, although British Journal of Psychiatry aspires to be more international, Saxon et al. showed that only 1% of BJP's published articles come from lower and middle income countries (5).

Table 3. Locations of data collection in Iran's child and adolescent mental health research articles published over a 30-year period (1973-2002)

Location of data collection	N	%
Schools	464	52.54
Hospitals	99	11.21
Health centers	25	2.83
Outpatient clinics	23	2.60
Doctor's offices	14	1.58
Houses	13	1.47
Institutions	11	1.24
Consultation centers	9	1.01
Universities	8	0.09
Laboratories	4	0.04
Prisons	4	0.04
Workplaces	2	0.02

One critical factor is certainly the lower quality of indigenous publications, in these countries (14). Other reasons for this under-representation, may include research barriers such as lack of funding, poor facilities, limited technical support and inadequate training. Many researchers from developing countries are not fluent at English, even as a second language. Fear of being rejected by journals, uncertainty about which journal would be the best to publish research, not feeling comfortable with publication, and different ministry and donor driven agendas for research are some of the unseen barriers facing developing-country, including Iranian, researchers (15). A possible unfavorable bias towards papers submitted from developing countries would have effects of unclear magnitude.

Of all the general research areas of mental health, most articles belonged to psychology and clinical research, and only about 10% and 2% dealt with epidemiology and child and adolescent mental health service research, that are highly important for mental health planning and policy making. These two areas of research are especially needed in developing countries where child and adolescent mental health problem are paramount and resources are limited.

Among the locations of data collection, it seems that most researchers preferred schools, where children or adolescents are easily available. This finding along side with lack of a national school-based mental health program raises concern that feasibility of research might be a prime factor influencing type and location of data collection.

The most common research design was the cross-sectional research that comprised more than half of the articles. The causes of this could be many, including the immediate applicability and feasibility of this type of research (16), the important role of the concrete number of publications in the faculty academic promotion, as well as lack of appropriate infrastructures and funding to conduct longitudinal research. This reflects in the proportion of prospective research that made up less than 1% of the articles— compare it to the proportion of prospective research in American psychiatry that was about 16% of the published research in 1989–1990 (16). With regard to the specific subject topics, more than one third were devoted to studies of mental disorders (primarily mental retardation, anxiety disorders, mood disorders and attention deficit hyperactivity disorder (ADHD)). Mental retardation is part of the child psychiatry case load in developing countries. In the region, prevalence rate is 8–12 per 1000 children aged between three and ten years, and this could have attracted more attention to such research (17).

According to previous epidemiological studies, anxiety disorder, mood disorder and ADHD are among the most prevalent child and adolescent psychiatric disorder in the western countries (17). To our knowledge, there has been no published epidemiological survey for child and adolescent mental disorders in Iran, but according to the unpublished work of Alaghband-rad et al. (2000) on more than 12000 children and adolescents in all regions

of Iran by means of K-SADS (Ref) and also World Health Organization (WHO) case studies done in a number of countries (Egypt, Nigeria, India, Indonesia, Thailand and Sri Lanka), the rate of child and adolescent mental disorders approximates very closely to rates of disturbances reported in studies in developed countries (17).

So we can conclude indirectly, that topics of prime notice in child and adolescent psychiatric research in Iran is to some extent in concert with most prevalent disorders in the country.

Another significant finding of the study was the paucity of research about substance related disorders in children and adolescents. It should be noted that the prevalence of drug abuse/ dependence is very high in Iran (19) and many of drug users start illicit drug use from teenage, so there could be more attention paid to and support of such research.

The limitations of this study include: (i) the source of the articles was IranPsych that is reasonably the most comprehensive database for mental health research in Iran. However, it is quit possible that some publications might have not been indexed in the IranPsych. (ii) classification of the articles into categories of research area and subject topics were arbitrary. However we reached good reliability among the raters who did the categorizations. And finally, (iii) this study could not answer the questions about the quality of the published articles, especially in domestic journals that would be an important topic for future research using critical appraisal methodologies. It is projected that from now on, the rate of publications would increase much higher as the formal academic field of child and adolescent psychiatry was just established in 1997. Therefore, the number of current and future submitted manuscripts, not reflected in this paper's analysis, would be much higher. In conclusion, Iran's overall share of child and adolescent mental health research has increased in the past decade. This growth seems to be more than that observed in a comparable country like Egypt. Nevertheless, there are also deficits and short comings like paucity of mental health service research and relative lack of longitudinal studies. This study showed that it is feasible to outline the status of research activity of a country by using databases that cover pertinent publications and research on research projects would yield several remarkable findings that could be used as a basis for policy making and strategy development in child and adolescent mental health research.

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