

# Mental health research in the Arab world

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## Abstract

**Purpose** To assess the progression of mental health research over four decades in the Arab world.

**Methods** Publications on mental health in 21 Arab countries from 1966 to 2006 were screened using PubMed and Psycinfo. Data were collected and analyzed for Arab authors and affiliations, publication year, topic and type of journal.

**Results** In 40 years (1966–2005), the Arab world published 2,213 articles on a vast variety of topics, most common being mood, anxiety and substance use disorders, and mostly in international journals. By the last decade, the total yearly publications increased about eightfold since the first two decades, and nearly doubled from the third one. The disparity of output was high across countries. The highest yearly output was from Egypt, Saudi Arabia, Kuwait and Lebanon. Per million population, the top four

producing countries were Kuwait, Bahrain, Lebanon and United Arab Emirates.

**Conclusions** Over a decade, the Arab world produced approximately 17% of the global output of mental health publications/million population and was comparative to Latin American and Caribbean countries. There is a wide gap in comparison with the industrialized world, with a fertile ground for cross-cultural and genetic studies.

**Keywords** Arabs · Mental health · Research · Productivity

## Introduction

Globally, mental disorders comprise three of the ten leading causes of disease burden [1]. Mental health illnesses account for more than one-eighth of the burden of disease and is expected to reach 16.4% by 2020 [2]. The past two decades have witnessed some progress in mental health research worldwide, and the Arab region was no exception. There remain many gaps in mental health research in the Arab world, among them a relative lack of national data, studies on cultural differences in risk factors, prognosis and treatment behaviors.

Worldwide, mental health publications over a 10-year period (1992–2001) constituted 3.6% of the total health publications of about three and a quarter million [3]. An attempt [4] was conducted on mental health publications in the Arab world over a 16-year period (1987–2002) and found that mental health research from the Arab world constituted 1.2% of “biomedical citations” in that region using PubMed only. Other assessments of mental health research in the Arab world focused on specific topics, such as randomized control trials [5] or on specific regions, such as the United Arab Emirates (UAE) or the Gulf [6].

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## Aim of the study

Another assessment, a more comprehensive one, using multiple search engines in two phases [7, 8] found a total of 1,058 mental health articles produced by the Arab world over a 30-year period from 1966 to mid 1996 and 211 mental health articles over nearly 4-year period from mid 1996 to 1999. Building on the previous two phases, this paper aims to study the evolution of research in mental health for the past four decades (1966–2005) in the Arab world.

## Methods

The team at the Institute for Development Research Advocacy and Applied Care (IDRAAC) built on the two previous phases from 1966 to 1996 and from 1996 to 1999 [7, 8] and gathered information from 1999 to end of 2006 using PubMed and PsycInfo. The following 21 Arab countries and 3 regions were included in the search: Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine (West Bank and Gaza), Qatar, Saudi Arabia, Sudan, Syria, Tunisia, UAE, Yemen, Mauritania, Djibouti, Somalia, Arab, Middle East and Gulf. All articles resulting from the search engines (original primary research, reviews, commentaries, letters, case reports, etc.) that relate to mental health on Arab study samples were included.

Articles were then sorted by year of publication and country of the first author's institutional affiliation and then categorized into either specific or non-specific. "Specific" articles had to have the first author's institutional affiliation in an Arab country. "Non-specific" articles included studies on Arab populations, wherein the first author's institutional affiliation cannot be traced to a specific Arab country. The topics covered and the journals (international vs. regional/local) where articles have been published were examined.

Statistical analyses for calculating the mean number of publications per year and the number of publications per million population were conducted on Microsoft Excel 2007. To compute the total number of publications produced per million population, data on total population size of Arab countries were obtained for the years 1975 (1st decade), 1985 (2nd decade), 1995 (3rd decade) and 2005 (4th decade and total) [9].

## Results

### Update on the third phase (1999–2006)

The total number of mental health publications in the Arab world in the third phase (8 years) was 1,114, out of which

78.6% were categorized as specific, which were traceable to a specific Arab country. The number of articles published per year during that period was 139. Saudi Arabia had the highest number of publications per year (18.2 articles/year). This was followed by Kuwait (16.9), Egypt (14.5), Lebanon (11.5), UAE (11.2), Jordan (6.6), Tunisia and Morocco (each 5.5), Oman (4.8), Palestine (3.5), Bahrain (2.8) and Syria (2.4). The other Arab countries had less than 2 publications per year in Phase III ranging from 1.6 for Iraq to 0.1 for Libya.

### Specific publications over the past four decades (1966–2005)

Mental research output from the Arab countries from 1966 to 2005 amounted to a total of 2,213 specific and non-specific articles. Out of the 21 Arab countries assessed, three did not publish (Mauritania, Djibouti and Somalia). Over 40 years (1966–2005), the average number of country-specific publications in the Arab world per year was 42.1 articles. The countries with the highest (labeled here as "very high") number of publications per year (7.6–4.5 articles/year) were Egypt, Saudi Arabia, Kuwait and Lebanon. These were followed by countries with a "high" number of publications per year (3.5–2.1 articles/year): UAE, Tunisia, Jordan and Morocco. The remaining countries had less than two articles per year over the past four decades.

By the last decade (1996–2005), the total yearly publications (95 articles/year) had increased about eightfold since the first two decades (average for both decades 11.9 articles per year) and nearly doubled from the third one (49.8 articles per year). This was largely due to a surge in output from Saudi Arabia, Kuwait and UAE; these countries started practically publishing only from the third decade with a dramatic increase since then (Table 1). Jordan, Lebanon and Egypt had increased their outputs from about threefold to sixfold from the second to the fourth decade. Tunisia and Morocco had similar trends, but their actual number of publications was less than Egypt and Lebanon. The remaining countries had no or minimal output in the first two decades and this changed only modestly in the last two decades (Table 1).

We computed next the total output per million population per decade and over 40 years. The top four producing countries over 40 years were Kuwait, Bahrain, Lebanon and UAE, followed by Jordan, Saudi Arabia and Oman (Table 2). In the last decade, Kuwait (49.6 articles/million population), Bahrain (37.1), UAE (29.8) and Lebanon (20.5) were the four top publishing Arab countries per million population. Next were Jordan, Oman, Saudi Arabia, Palestine, Qatar and Tunisia. The remaining Arab countries had less than 2 publications per million population in the last decade (Table 2).

**Table 1** Number of country-specific publications per year and in four decades

	Number of specific articles per year					Total number of articles in all four decades
	1st decade (1966–1975)	2nd decade (1976–1985)	3rd decade (1986–1995)	4th decade (1996–2005)	In all four decades	
<b>Very high</b>						
Egypt	2.4	5.6	9.6	12.8	7.6	304
Saudi Arabia	0.0	0.9	11.2	17.8	7.5	299
Kuwait	0.0	0.9	6.0	13.4	5.1	203
Lebanon	1.9	2.1	5.5	8.4	4.5	179
<b>High</b>						
United Arab Emirates	0.0	0.0	1.7	12.2	3.5	139
Tunisia	2.1	1.0	2.2	5.0	2.6	103
Jordan	0.0	0.9	3.1	6.0	2.5	100
Morocco	1.6	0.7	1.2	5.0	2.1	85
<b>Low</b>						
Bahrain	0.0	0.0	1.7	2.6	1.1	43
Palestine	0.0	0.1	1.2	2.8	1.0	41
Iraq	1.0	0.5	1.3	1.1	1.0	39
Algeria	0.6	0.8	1.7	0.6	0.9	37
<b>Very low</b>						
Oman	0.0	0.0	0.5	2.7	0.8	32
Yemen	0.0	0.2	1.3	0.9	0.6	24
Syria	0.0	0.1	0.1	1.8	0.5	20
Libya	0.0	0.2	1.2	0.4	0.4	18
Sudan	0.0	0.0	0.1	1.0	0.3	11
Qatar	0.0	0.2	0.2	0.5	0.2	9
<b>Total</b>	<b>9.6</b>	<b>14.2</b>	<b>49.8</b>	<b>95.0</b>	<b>42.1</b>	<b>1,686</b>

**Table 2** Number of country-specific publications per million population

	1st decade (1966–1975)	2nd decade (1976–1985)	3rd decade (1986–1995)	4th decade (1996–2005)	Total in four decades
Kuwait	0.0	5.3	35.3	49.6	75.2
Bahrain	0.0	0.0	28.3	37.1	61.4
Lebanon	7.0	7.2	15.7	20.5	43.7
United Arab Emirates	0.0	0.0	7.1	29.8	33.9
Jordan	0.0	3.3	7.2	10.7	17.9
Saudi Arabia	0.0	0.7	6.1	7.5	12.7
Oman	0.0	0.0	2.3	10.4	12.3
Palestine	0.0	0.6	4.6	7.4	10.8
Tunisia	3.7	1.4	2.5	5.1	10.4
Qatar	0.0	5.0	4.0	5.6	10.0
Egypt	0.6	1.1	1.5	1.7	3.9
Libya	0.0	0.5	2.5	0.7	3.1
Morocco	0.9	0.3	0.4	1.6	2.8
Iraq	0.8	0.3	0.6	0.4	1.4
Yemen	0.0	0.2	0.8	0.4	1.1
Algeria	0.4	0.4	0.6	0.2	1.1
Syria	0.0	0.1	0.1	0.9	1.0
Sudan	0.0	0.0	0.0	0.3	0.3

## Topics covered and types of journals

In the last decade, nearly 67% of the specific articles that could be traced to a specific country (see above) were published in a variety of more than 300 international journals and the remaining 33% in regional and local journals. The majority of the remaining articles (non-specific) (95%) were published in international journals and 5% in regional and local ones.

Topics covered by mental health publications in the Arab world in the last decade varied widely. Many studies addressed specific mental disorders: mood disorders (14.1% of all country specific articles), anxiety disorders (12.4%), substance use disorders (11.1%), psychotic disorders (4.4%), eating disorders (2.2%), personality disorders (1.5%), sleep disorders (1.1%), attention-deficit hyperactivity disorder (ADHD) (0.9%), somatoform disorders (0.7%), sexual disorders (0.7%), autism disorders (0.3%). Others covered mental retardation (2.6%), mental health services (2.3%), suicide (2.2%), training of physicians in psychiatry (2.0%), and genetic studies of mental disorders (1.5%). The remaining articles were related to a diversity of determinants, services, cultural issues, and psychometric properties of instruments.

## Discussion

Over 40 years (1966–2005), the Arab world with a population of about 300 million had published around 2,213 articles related to mental health. This is minute compared, for example, to the 117,449 articles published globally on mental health in a single decade spanning 1992–2001. There is a huge disparity globally in productivity, whereby the USA and UK alone (about 6% of world's population) contributed more than 50% [3]. Other studies from the “non-Western” world showed, for example, that Iran published a total of 3,113 articles in mental health and related scientific fields such as neuroscience over 30 years (1973–2002) as identified by the IranPsych database [10]. This is more than the total output from the 21 Arab countries in four decades. Another assessment from 30 Latin American and Caribbean countries reported a total of 2,397 mental health publications indexed in Medline and PsycInfo in the decade spanning 1993–2003 [11].

In the last decade, the total number of publications in the Arab world had increased about eightfold since the first two decades and nearly doubled from the third one. The top producers of mental health publications over 40 years in the Arab world were Egypt, Saudi Arabia, Kuwait and Lebanon. Arab countries showed a wide gap in mental health research productivity, when assessed per population size where the top producers over 40 years per million

population were Kuwait, Bahrain, Lebanon and UAE. In fact, if we assess the number of articles in the last decade per million population for the Arab world in comparison with other regions, we find that the 3.2 articles/million population in one decade in the Arab world are estimated to be about one-sixth of the globally produced articles in a decade (19.6 articles/million population) [3], but comparative to Latin American and Caribbean countries [11].

The analyses of search results showed that there are several areas for improvement: (1) except for Lebanon, Iraq, Morocco and Egypt [12–16], nationally representative studies are almost lacking, thus cross-country comparisons from the region and comparisons to non-Arab countries are not feasible, if at all possible; (2) local determinants, treatment, remissions and relapses of mental disorders need to be explored in more depth; (3) very few studies reported on the development and implementation of community-based interventions; (4) genetics research in this part of the world seems to be a novice. There is a need for epidemiological studies that allow for cross-country comparisons [15, 16].

Nevertheless, our review showed that the topics that were covered in published mental health research produced by Arab countries were diverse and wide-ranging, tackling many important elements of mental illness [4]. More importantly, the large majority of those publications were in peer-reviewed international journals [4], thus denoting the recognition and openness of other counterparts to Arab research. Promising attempts for genetics studies are emerging in Arab countries (such as a joint study on bipolar disorders between Qatar and Lebanon); this is an untapped source of potentially interesting data not only for the Arab world but also for the international community, especially in the context of the high rates of consanguineous marriages with estimates ranging from 18% in Lebanon to 43% in Libya [17].

The results of this review should be interpreted in the context of the following three limitations: first, it is possible that many publications may not have been traced by the methodology used. Nevertheless, results are still indicative of the status of research on mental health in the Arab world. Second, for abstracts where the first and corresponding authors were not affiliated to an Arab country, we tried to circumvent by looking at the other authors' affiliations and the nationality of the sample to identify the reference's specificity to an Arab country. Third, although there has been a differential increase in population size over the years, we used the population estimates for year 2005 to compute the total productivity per million population over 40 years. This might have introduced some error in these specific results.

Although most Arab psychiatrists received training in the “Western” world and are very active in international

organizations, yet only a small handful is engaged in mental health research in spite of the presence of first class academic settings. This might be because the latter do not seem to have the real commitment and lack infrastructure and funds to welcome such endeavors. This is true for all medical fields where academicians are remunerated for teaching and clinical work [18], with very small budgets, if ever, available for research. There are no reliable data on figures of research money dedicated to mental health but, for example, in Lebanon it constitutes less than half a million US dollars from all sources, the major donors being from outside the Arab world for the year 2009. This shows that funding research is not a priority to governments and stakeholders. We suspect this to be the same elsewhere with some variations. So the challenge is to maintain a long-term commitment to serious research with the needed expertise, especially in the presence of frequent political volatility which has been a major threat to research because of the brain drain. In fact, many Arab psychiatrists reside in the Western world and have contributed in a major way to research in these countries.

## Conclusion

Publications in the area of mental health in the Arab world have been increasing over the past 40 years. There is a wide variation across countries of the region in output, and some countries are newcomers on the scene and growing in their output. The Arab region still lags behind the international average when calculated per million population. While this is only at 17% of the global output (over one decade), still it is close to Latin American and Caribbean countries. The fact that two-thirds of the publications are in international journals could be a window of opportunity for badly needed and potentially very informative fields not only in cross-cultural and religious comparisons but also in the field of genetic studies, because of the unique social fabric of the more traditional Arab countries.

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**Conflict of interest** The authors declare that they have no conflict of interest.

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