

patients with schizophrenia from ethnic minorities in the UK revealed that those who participated in a culturally adapted form of CBT for psychosis achieved significantly better results than those who received treatment as usual, with some gains maintained at follow-up (Rathod *et al.*, 2013). High levels of satisfaction were also reported. A preliminary evaluation from Pakistan (Habib *et al.*, 2014) also reported that culturally adapted CBT was effective in reducing symptoms of psychosis and in improving insight in in-patient settings.

Another key area of adaptability is the use of medication. In keeping with recent research, the NICE guidelines have been revised to better accommodate conventional antipsychotics. While atypical antipsychotics are the preferred option in most high-income countries, a robust body of research has examined the efficacy and side-effect profile of conventional versus atypical antipsychotics; the conclusion is that, with clozapine as a notable exception, the cost of atypical antipsychotics is often unjustified (Brujnzeel *et al.*, 2014).

### Conclusion

The NICE guidelines are a useful template for care in Nigeria. Constraints to full implementation include human resources and cost. The guidelines need to factor in sociocultural differences. With modifications, they are suitable for use in Nigeria.

### References

- Brujnzeel, D., Suryadevara, U. & Tandon, R. (2014) Antipsychotic treatment of schizophrenia: an update. *Asian Journal of Psychiatry*, 11, 3–7. doi: 10.1016/j.ajp.2014.08.002.
- Gray, R. (2005) The NICE guidelines for schizophrenia. *Psychiatry*, 4(10), 11–13.
- Grimshaw, J. M. & Russell, I. T. (1993) Effect of clinical guidelines on medical practice: a systematic review of rigorous evaluation. *Lancet*, 342, 1317–1322.
- Gureje, O. & Bamidele, R. (1994) Thirteen year social outcome among Nigerian outpatients with schizophrenia. *Social Psychiatry and Psychiatric Epidemiology*, 34, 147–151.
- Habib, N., Dawood, S., Kingdon, D., *et al.* (2014) Preliminary evaluation of culturally adapted CBT for psychosis (CA-CBTp): findings from Developing Culturally-Sensitive CBT Project (DCCP). *Behavioural and Cognitive Psychotherapy*, 2, 1–9.
- NICE (2002) *Clinical Guideline 1. Schizophrenia: Core Interventions in the Treatment and Management of Schizophrenia in Primary and Secondary Care*. London: NICE.
- NICE (2009) *Schizophrenia: Core Interventions in the Treatment and Management of Schizophrenia in Primary and Secondary Care*. NICE.
- Rathod, S., Phiri, P., Harris, S., *et al.* (2013) Cognitive behavior therapy for psychosis can be adapted for minority ethnic groups: a randomized controlled trial. *Schizophrenia Research*, 143, 319–326.
- Rowlands, P. (2004) The NICE schizophrenia guidelines: the challenge of implementation. *Advances in Psychiatric Treatment*, 10, 403–412.
- Suleiman, G. T., Ohaeri, J. U., Lawal, R. A., *et al.* (1997) Financial cost of treating outpatients with schizophrenia in Nigeria. *British Journal of Psychiatry*, 171, 364–368.

RESEARCH  
PAPER

# Mental health research in the Arab world: an update

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**Publications on mental health were collected using PubMed and PsychINFO for 21 Arab countries. The data were then categorised according to the first author's country of affiliation, the year of publication, the topic of research and the type of journal. In 2006–12, the Arab world published 1029 articles (an average of 147 per year). The estimated increase in yearly productivity during this period was about 25% over the 7 preceding years. When considering the research output per million population, Kuwait, Bahrain and Lebanon were the top three producers, as they had been over the preceding four decades. After adjusting for gross domestic product (GDP) per capita, the five top producers were Egypt, Jordan, Tunisia, Lebanon and Morocco. Based on child and adolescent mental health research only, the Arab world's productivity was around one-sixth that of the United States and Europe.**

Mental disorders are significant contributors to the burden of disease in the Arab region (World Health Organization, 2008). Mental health research sheds light on local data such as the prevalence of disorders and the extent and modalities of treatments, which are crucial in planning national policies.

In a previous study, we identified 2213 published articles related to mental health from the Arab region over four decades (1966–2005) (Jaalouk *et al.*, 2012). We estimated that Arab countries produce around one-sixth of the global output of mental health research, an amount comparable to Latin America and Caribbean countries (Saxena *et al.*, 2006). That output had been growing fast: in the last decade of the study period (1996–2005), Arab countries produced eight times more publications than their average for 1966–75 and 1976–85 and double that for 1986–95. This productivity varied widely and when publications were calculated per million population, the top publishing countries

for the four decades were Kuwait, Bahrain and Lebanon (Jaalouk *et al*, 2012).

This study aims to update these results by studying Arab countries' output of mental health research to 2012. This is important since trends might be changing with the rapidly increasing wealth of many Arab countries, the creation of new universities and the clear willingness of many to pull their communities into the scientific mainstream.

## Method

Publications about mental health originating from the Arab world were identified using PubMed and PsychInfo for the years 2006–12. The search included 21 Arab countries: Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine (West Bank and Gaza), Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates (UAE), Yemen, Mauritania, Djibouti and Somalia. Publications were also categorised by region: Arab, Middle East and Gulf.

The publications were coded according to: year of publication, type of journal (local/regional versus international), topics covered and the first author's country of affiliation. Articles were categorised as 'specific' if the first author was affiliated to an Arab country or 'non-specific' when the first author was not.

As the previous study covering the four decades 1966–2005 (Jaalouk *et al*, 2012), the main indicators derived for each country included: mean number of publications per year, and number of publications per million population per year. Results were then compared across decades. Additionally, we calculated the number of articles per US\$10 billion gross domestic product (GDP) and US\$1000 GDP per capita. The population size, GDP and GDP per capita figures used in our calculations were derived from the year 2010 (United Nations, 2010; World Bank, 2010a, 2010b).

## Results

The total number of mental health publications in the Arab world in the period 2006–12 was 1029 (an average of 147 per year); 80.1% of them were categorised as specific. The five countries with the most publications per year were: Egypt, 22.4; Lebanon, 15.1; Tunisia, 14.7; Kuwait, 11.7; and Saudi Arabia, 10.9. The other Arab countries had fewer than 10 publications per year, ranging from 9.4 in Jordan to 0 in Djibouti and Mauritania (Fig. 1).

When studying the number of publications per million population per year, the top five producers in the period 2006–12 were: Kuwait, 4.3; Lebanon, 3.6; Bahrain and Oman, 2.1; and Jordan, 1.5. The range for other countries was 1.4 in Tunisia to 0 in Djibouti and Mauritania (Fig. 2).

Looking at the number of articles published per US\$10 billion GDP, the top five producers in the Arab world were: Lebanon, 28.6; Jordan, 25.0; Tunisia, 23.2; Egypt, 7.2; and Bahrain, 7.0. The range for the other countries was 6.8 in Kuwait to

0 in Djibouti and Mauritania (data available upon request).

Looking at the number of articles published per US\$1000 GDP per capita, the top five producers in the Arab world were: Egypt, 24.6; Jordan, 11.3; Tunisia, 10.9; Lebanon, 7.8; and Morocco, 7.4. The range for the other countries was 6.9 in Iraq to 0 in Djibouti and Mauritania (Fig. 3).

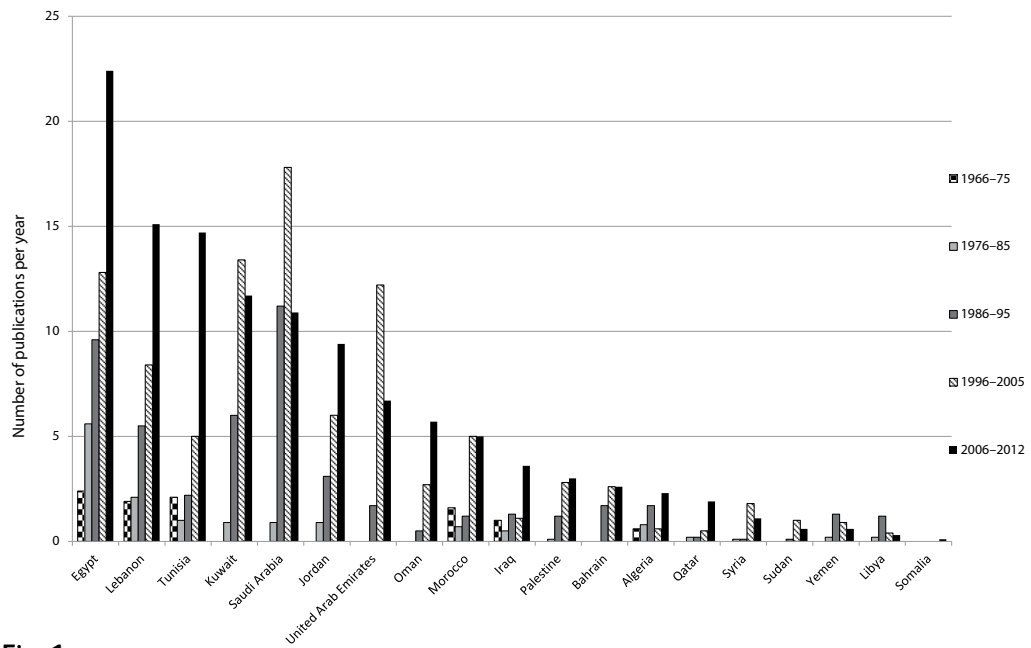
During the period 2006–12, 78.9% of the 'specific' articles were published in more than 300 international journals and the remaining 21.1% in regional or local journals. Most of the 'non-specific' articles (92.2%) were published in international journals. The topics covered by the 'specific' publications were diverse. Most addressed particular mental disorders: mood disorders (16.8% of all country-specific articles), anxiety disorders (12.9%), psychotic disorders (10.3%), substance use disorders (7.5%), autism disorders (5.8%), attention-deficit hyperactivity disorder (3.4%), dementia (3.2%), intellectual disability (2.1%), sleep disorders (2.1%) and eating disorders (1.6%). Other topics covered include: psychometric properties of instruments (6.2%), culture and the effect of war on mental health (5.8% and 4.1%, respectively), genetic studies on mental disorders (3.5%), pharmacological studies (3.3%), mental health services (3.0%), suicide (2.9%), the abuse of children (1.6%) or women (1.6%) and temperament (1.6%).

## Discussion

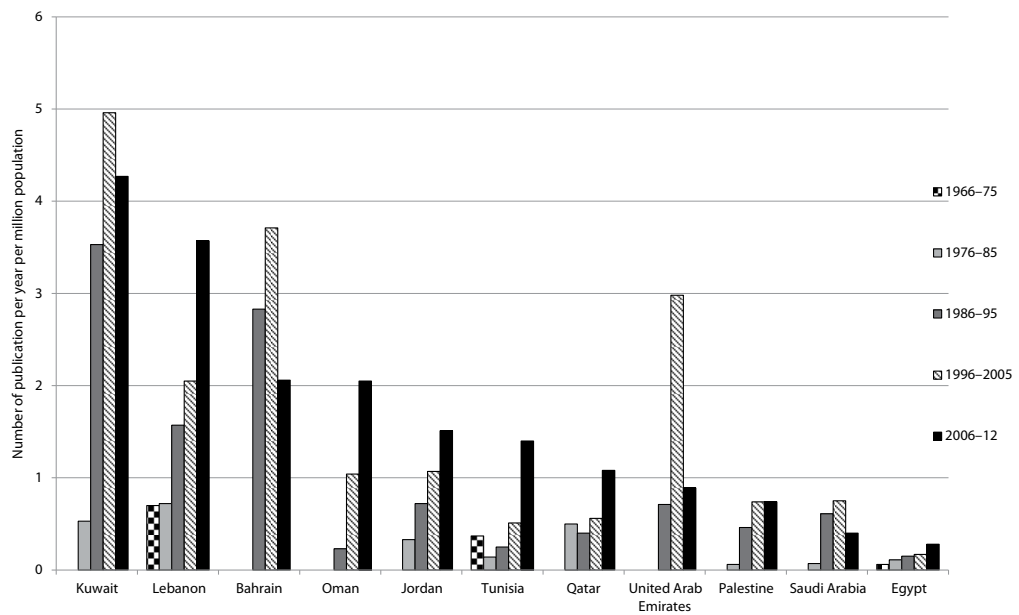
As in previous decades, Arab countries showed wide variation in mental health research productivity. Reassuringly, the increase that started since the first year of our surveillance of this subject (1966) is ongoing: the estimated increase in yearly productivity during the 2006–12 period is on average about 25% over the immediately preceding 7 years. Some countries have shown more robust growth – Tunisia almost triple and Egypt and Lebanon almost double – while others showed modest increases (Iraq, Algeria, Qatar, Oman and Jordan). There was a probable decline for others (Kuwait, Saudi Arabia and the UAE).

When considering output of research per million population, Kuwait, Bahrain and Lebanon are still the top three producers, as in the preceding four decades.

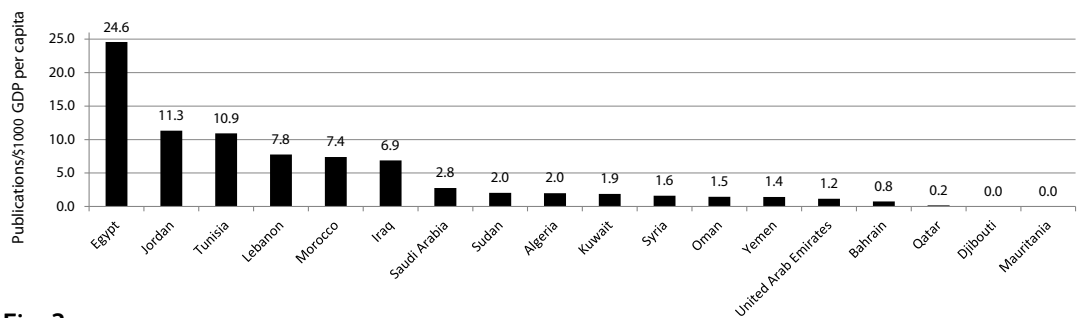
A search of the literature could not identify a study on the global output of mental health research during the period 2006–12. This was confirmed upon communication with academics interested in this topic. However, we found a study which focused on publications on mental health related to children and adolescents. Between 2005 and 2010, European countries and the USA published 2052 and 873 articles respectively on this topic (Albayrak *et al*, 2012). In comparison, our data showed that Arab countries produced 238 articles on the mental health of children and adolescents between 2006 and 2012. Europe and the USA produced 0.56 and 0.57 publications/million population/year respectively, whereas the



**Fig. 1**  
Number of country-specific publications per year across different time periods



**Fig. 2**  
Number of country-specific publications per million population per year (for the top 11 producers over 2006–12)



**Fig. 3**  
Number of articles per US\$1000 GDP per capita for the years 2006–12 (no data on GDP per capita were documented for Libya, Palestine and Somalia)

Arab world produced 0.09 publications per million population per year (around one-sixth of that of the European and US output). The numbers of articles per US\$1000 GDP per capita per year were 136, 35 and 10 articles for Europe, the USA and the Arab world, respectively. Hence, the Arab world produced around 7% of the European output and around 30% that of the USA. As such, research on child and adolescent mental health is possibly an indirect reflection of research on other mental health topics.

We calculated, for the first time, the number of articles per US\$10 billion GDP and per US\$1000 GDP per capita (this was not done in our previous studies). When adjusting for these indicators, which are markers of the country's economic performance, the top producers are Egypt, Jordan, Tunisia, Lebanon and Morocco.

This study showed, too, that the percentage of 'specific' articles published from the Arab world in peer-reviewed international journals increased from 67% in 1996–2005 to 78.9% in 2006–12, signifying the greater recognition and openness of the international community to Arab research. This may also represent increased efforts on behalf of Arab researchers to publish in international journals for greater recognition.

In an effort to compare Arab research priorities with those of other regions, researchers were surveyed from low- and middle-income countries (African  $n = 52$ , American  $n = 30$  and Asian countries  $n = 32$  excluding the Middle East) regarding their opinion on mental health priorities. The highest-ranked priorities for research were: (1) depression/anxiety, (2) substance use and (3) psychoses. While Arab researchers were not part of this study, the priorities of the published research mirror the main topics of interest found in our study, with mood, anxiety and psychoses ranking among the top subjects (Sharan *et al.*, 2009).

The results of this study should be interpreted in view of the following limitations. First, some studies may not have been caught in our search, yet the figures are surely indicative of trends in mental health research. Second, the estimates of

population size, GDP and GDP per capita used for our calculations derive from 2010. This may have introduced some bias in our results due to the possible unequal increases in these indicators over the years.

Some additional remarks might be warranted. First, the Arab region is still deficient in nationally representative studies on mental illnesses, a requirement for cross-national comparisons: the countries that have such data are Lebanon, Iraq and Morocco. Second, genetic research is still lacking, although this part of the world could offer opportunities because of a higher rate of consanguineous marriages. Third, academics working in medical fields within the Arab world are mostly compensated for teaching and clinical work, and have limited funding for research. This could be improved with the increased commitment of Arab governments and stakeholders.

## References

- Albayrak, O., Föcker, M., Wibker, K., *et al* (2012) Bibliometric assessment of publication output of child and adolescent psychiatric/psychological affiliations between 2005 and 2010 based on the databases PubMed and Scopus. *European Child and Adolescent Psychiatry*, 21, 327–337.
- Jaalouk, D., Okasha, A., Salamoun, M., *et al* (2012) Mental health research in the Arab world. *Journal of Social Psychiatry and Psychiatric Epidemiology*, 47, 1127–1131.
- Saxena, A., Paraje, G., Sharpan, P., *et al* (2006) The 10/90 divide in mental health research: trends over a 10-year period. *British Journal of Psychiatry*, 188, 81–82.
- Sharan, P., Gallo, C., Gureje, O., *et al* (2009) Mental health research priorities in low- and middle-income countries of Africa, Asia, Latin America and the Caribbean. *British Journal of Psychiatry*, 195, 354–363.
- United Nations (2010) World population prospects: the 2010 Revision Population Database. Population Division of the Department of Economic & Social Affairs of the United Nations Secretariat. Available at <http://esa.un.org/unpd/wpp/unpp/> (accessed May 2012).
- World Bank (2010a) Database on gross domestic product by country and year. Available at <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD> (accessed June 2013).
- World Bank (2010b) Database on gross domestic product per capita by country and year. Available at <http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD> (accessed June 2013).
- World Health Organization (2008) *The Global Burden of Disease: 2004 Update*. WHO.