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REVIEW

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Research in mental health in the Arab speaking world 1920 to 2018

Elie G. Karam[1,2*], Ahmed Okasha[3], Natalija Trojanovic[2], Josleen Al Barathie[2], Dahlia Saab[2], Natasha Hakim[2] and Nada Abbas[2]

Abstract

Background The progressive improvement in the educational level of the Arab world has been accompanied by a surge of scientific productivity. Mental health research, especially in the last four decades, is one such endeavor. Mental health research output over almost a century, from 1920 to 2018, is reviewed.

Method A literature review was conducted using PubMed, PsychInfo, Cochrane, and the IDRAAC search engine to identify mental health publications over the past 100 years. Trends of mental health research were explored over time with reference to country population and gross domestic product (GDP).

Results A total of 3373 articles were retrieved. The three countries with the highest number of mental health publications in the past century are Egypt, Kingdom of Saudi Arabia (KSA), and Lebanon, representing together 41.5% of the productivity of all 22 Arab countries. The top producers also had the highest collaboration rates with other Arab countries (20%) as well as non-Arab countries. The top three publishers per capita are Lebanon, Kuwait, and Bahrain. When GDP was factored in, the top three countries are Lebanon, Palestine, and Tunisia. Most publications over the last decade (80%) were in international non-local journals. The leading subjects of research were epidemiology, mood disorders, obsessive compulsive behavior, and mental health services.

Conclusion Arab speaking countries have been increasing their mental health productivity over the past 100 years; however, only a handful of those countries were relatively active. Those leaders also had the highest level of Arab and international collaboration. Investing in regional and international collaborations is a solid recommendation of this review.

Keywords Arab, Publications, Research, Past century

Background

In recent years, the advancement of mental health research can be attributed to an escalating awareness of the substantial impact imposed by mental health disorders on both quality of life and productivity [1–4]. Comparative analysis indicates that the burden of mental health disorders in nearly all Arab countries surpasses the global average [5]. Notably, the Global Burden of Disease study conducted within the Arab region revealed major depressive disorder (MDD) as the foremost contributor to years lived with disability (YLDs) in 1990, 2005, and 2010 [6]. Furthermore, MDD ranked fifth in terms of overall disease burden, with its contribution to disability-adjusted life years (DALYs) nearly doubling between 1990 and 2010 [6].

Despite these concerning statistics, the volume of mental health research output within Arab countries

*Correspondence:
Elie G. Karam
egkaram@idraac.org
[1] Department of Psychiatry and Clinical Psychology, St. George Hospital University Medical Center, Faculty of Medicine, Saint George University of Beirut, Beirut, Lebanon
[2] Institute for Development, Research, Advocacy & Applied Care (IDRAAC), Beirut, Lebanon
[3] Okasha Institute of Psychiatry, Ain Shams University, Cairo, Egypt

remains below optimal levels. A bibliometric analysis conducted between 1980 and 2008 demonstrated a notable increase in both frequency and volume of published mental health research, surpassing other disciplines such as biomedicine and science at large [7]. However, this surge was primarily driven by a subset of 20 specific countries, further highlighting the existing research gap [7].

Systematic assessments of research output generated by Arab countries remain limited. In 2014, a report disseminated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) indicated a relative rise in publications across multiple disciplines in Arab countries between 2005 and 2014 [8]. The report noted a focus on life sciences and relatively fewer publications in psychology, though the inclusion of comprehensive mental health research within the "psychology" category remained uncertain, potentially encompassing studies from medical or social science domains.

Additionally, prior investigations conducted by the Institute for Development, Research, Advocacy and Applied Care (IDRAAC) highlighted an increasing trend in mental health research output over four decades (1966–2006) [9]. A recent review encompassing the years 2009 to 2018 demonstrated an approximate 160% surge in research output, affirming a positive trajectory [10]. Although the increase was not a major contributor to the global mental health publications output per million population, it still competed with the output seen in Latin America and the Caribbean [9–12].

In 2018, a collaborative effort involving stakeholders aimed to assess challenges faced by mental health researchers within the Arab region and proposed evidence-based strategies to address them [13]. Challenges identified included stigma, political unrest, conflict, and funding shortages [13]. To address these issues, one of the primary strategies outlined was the establishment of a robust research infrastructure [13].

In our endeavor to contribute to improved research infrastructure, we conducted a systematic review of peer-reviewed mental health publications. This exploration and evaluation encompassed research outputs between 1920 and 2018 from both Arab countries and institutions affiliated with the region. This paper offers a comprehensive analysis of the evolving landscape of mental health research, presenting a detailed description and critical analysis of the progress within Arab countries. To the best of our knowledge, no other study in the existing literature performs a comparable exploration of mental health publications in the Arab world over the course of a century.

Methods

The team at IDRAAC built on previous research exploring the output of mental health research in the Arab world [9, 11] and in addition reviewed the most recent mental health research output in Arab countries between 2012 and 2018. The search included 22 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. The articles were retrieved through PubMed, PsychInfo, Cochrane, and the IDRAAC search engine from July 2012 to March 2018. Only original articles and reviews were included in our search. We excluded letters, editorial material, and corrections. To optimize the search, we used keywords and MeSH terms (Additional file 1: Appendix A) after consulting with experienced librarians, mental health clinicians, and researchers. This search generated 10,012 hits: PubMed with 6299 hits; PsychInfo with 3552 hits; and Cochrane with 161 hits.

All articles were imported using EndNote and any duplicates were removed. Articles were screened based on their abstracts; two reviewers screened the abstracts of each article, and a third reviewer was involved in cases where the initial reviewers had discrepancies. Publications were coded according to year of publication, language, topic, country affiliation of the author, location of the study, and journal type (app). Country affiliation refers to the countries of the authors' institutions; the publication was excluded if none of the authors were affiliated with an Arab country. Location of the study refers to the country where the study was conducted: if the study was conducted in a non-Arab country, then that publication was also excluded. Journal type could either be regional/local or international. Based on the above criteria, a total of 1107 articles were included.

To analyze the trends in mental health publications in Arab countries, we included previous research conducted by IDRAAC (retrieved from IDRAAC database http://www.idraac.org/home/research-and-publications/mental-health-research-in-the-arab-world)— a total of 4241 articles dating back to 1920. In total, combining all search engines 5348 articles were identified. A flow chart of the articles included in this study is presented in Additional file 1: Appendix B. Country affiliation was used as an indicator for Arab countries. To identify countries of affiliation, we used a keyword search for the name of Arab countries in the "author's address" column. A total of 4531 articles were indexed to EndNote, with 415 being excluded due to no reference of author affiliation. Articles which could not be indexed were manually identified. Of the 817 articles that could not be indexed to EndNote,

301 articles were included, whereas 516 articles were excluded of which 3 published between 1920 and 1928.

A total of 3373 articles were identified with at least one author affiliated to an Arab country. The trend indicators for each Arab country included were (1) number of publications per year; (2) number of publications per million capita per year; and (3) number of publications per US $1000 GDP per year. The figures used in our calculations for population size and GDP are from a 2018 World Bank report (with the exclusion of Syria, where the GDP was from 2007) [14, 15]. In addition to trends, descriptive analyses for articles from the past decade (2009 to 2018) were observed, including description of article topic and journal type.

Results

Trends in mental health research the past century

Over the past century, between 1920 and 2018, a total of 3373 mental health articles were identified with at least one author affiliated to an institution in Arab speaking countries. The findings indicate that the top five countries with the greatest cumulative number of publications were Egypt (634 articles), KSA (615 articles), Lebanon (469 articles), Kuwait (327 articles), and Tunisia (279 articles) (see Fig. 1). When looking at the top five countries with the highest cumulative number of publications per capita (total population 2018), Kuwait and Lebanon continue to be top producers along with Bahrain, UAE, and Jordan (79, 68.5, 50.3, 28.4, and 26 publications per one million capita, respectively) (see Fig. 2). Furthermore, when identifying the cumulative number of publications per $10 billion GDP (2018), the top five producers in the Arab world are Lebanon (82.8), Palestine (73.21), Tunisia (69.98), Jordan (61.33), and Egypt (25.27) (see Fig. 3).

Figure 4 shows the pattern of collaboration among Arab speaking countries and between Arab and non-Arab countries. The nodes (circles) represent the countries; the bigger the node the higher the total number of articles affiliated to the corresponding country. The edges (lines) represent the collaboration between countries; the thicker the edge, the higher the number of articles in collaboration between the two corresponding countries. Lebanon has the largest collaboration with non-Arab countries ($n=111$), followed by Iraq ($n=47$), KSA ($n=46$), and Egypt ($n=39$).

The ranking of total producers has changed over the years (see Additional file 1: Appendix C). We looked at two decades (1999–2008 and 2009–2018) where we found the following: Kuwait had the largest drop (possibly because of the decrease in publications which might have surged earlier due to the Iraqi invasion of 1990), followed by Bahrain, Syria, and Sudan, then KSA, UAE, Morocco, Oman, and Palestine. On the contrary, it went up for Egypt, Tunisia, Jordan, Lebanon, Qatar, and Iraq, the latter having the largest jump. The ranking for Algeria, Yemen, and Libya did not change over the past two decades.

When looking at articles published in the last decade of our search (2009–2018), Egypt ranked first having the highest number of articles published in

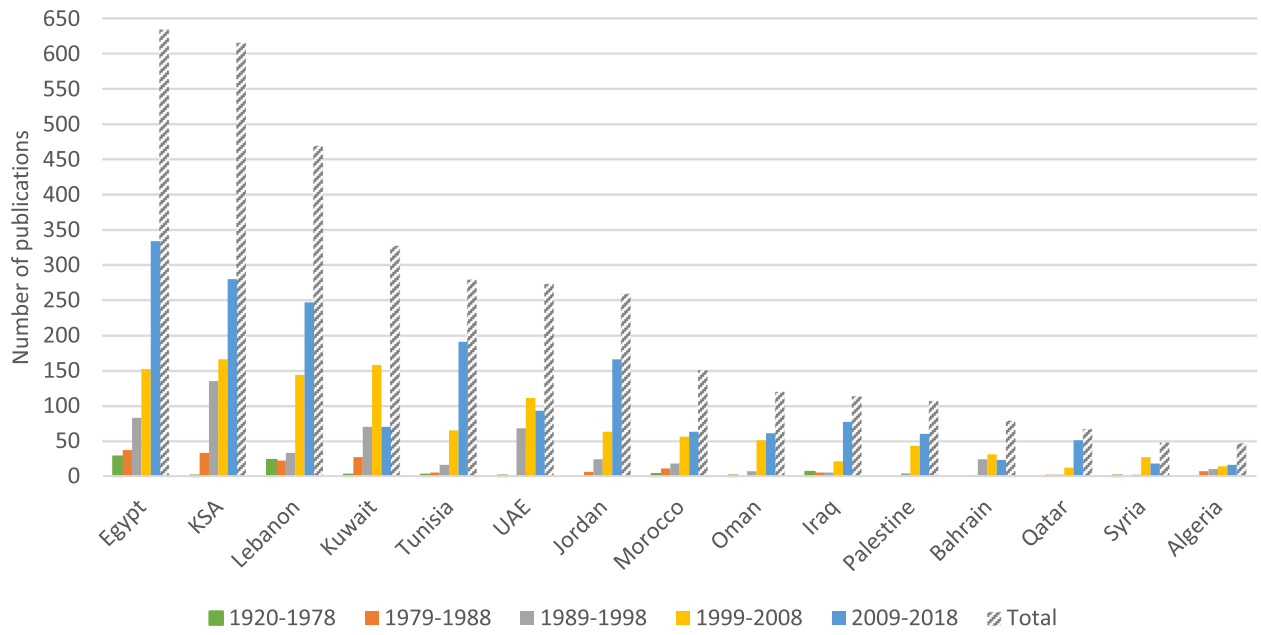

Fig. 1 Number of publications for the top 15 countries by year

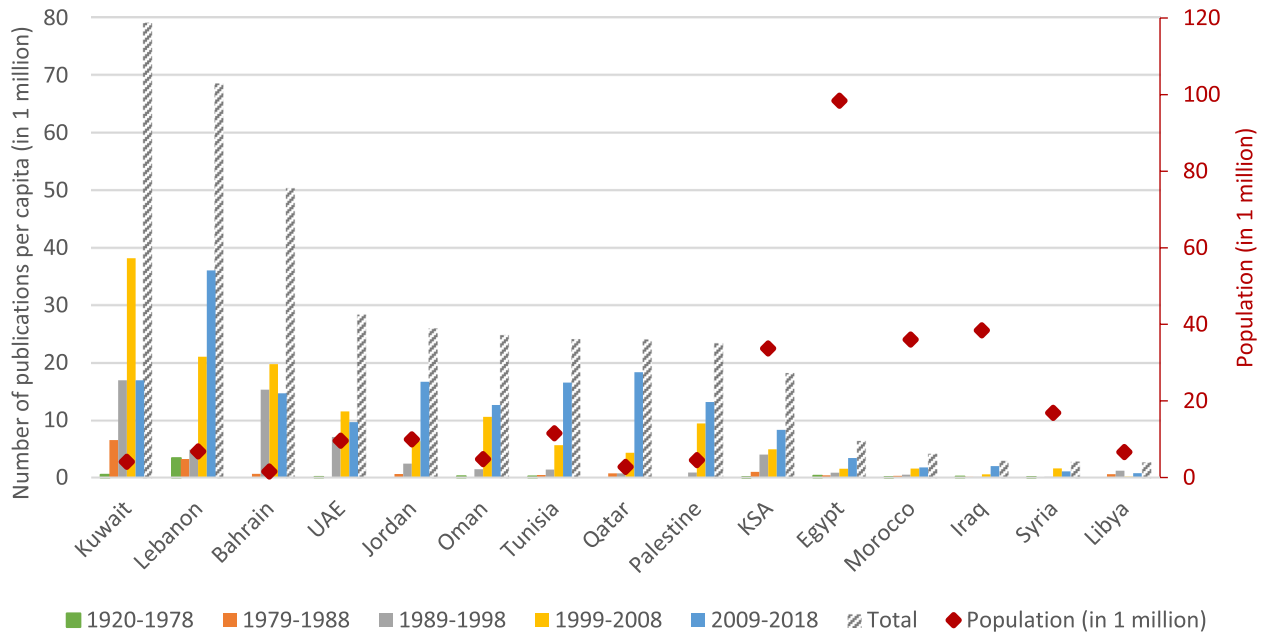

Fig. 2 Number of publications per 1 million capita for the top 15 countries by year

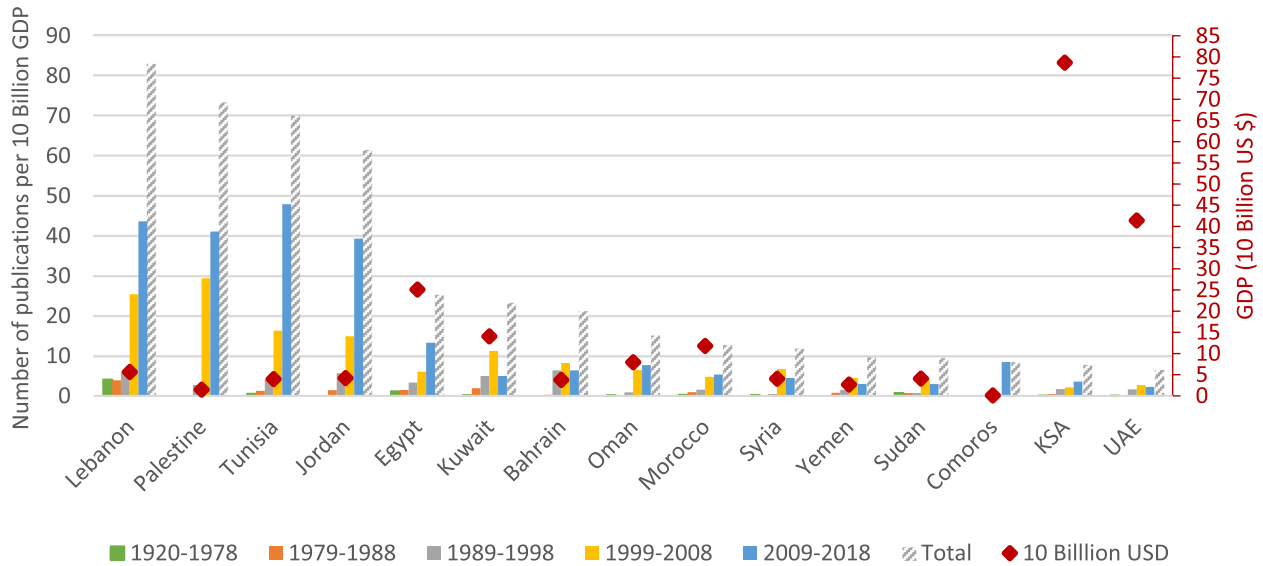

Fig. 3 Number of publications per GDP for the top 15 countries by year

international journals ($n=283$, 85% of the total articles from Egypt). Lebanon ranked second (226 articles, 91.5% of the total articles from Lebanon) followed by KSA, Jordan, and Tunisia (Table 1).

Finally, it is worth noting that the most common topics of mental health research output between 2012 and 2018 were found to be related to epidemiology, mood disorders, mental health promotion, and services.

Discussion

The number of scientific and technical articles and not only those related to mental health continues to be significantly lower for the Arab world compared to the rest of the world and represented in 2018 2% of the total world output [16], yet comprising 6% of the total world population. This has spurred us over the years to follow the mental health publications from the Arab world to shed the

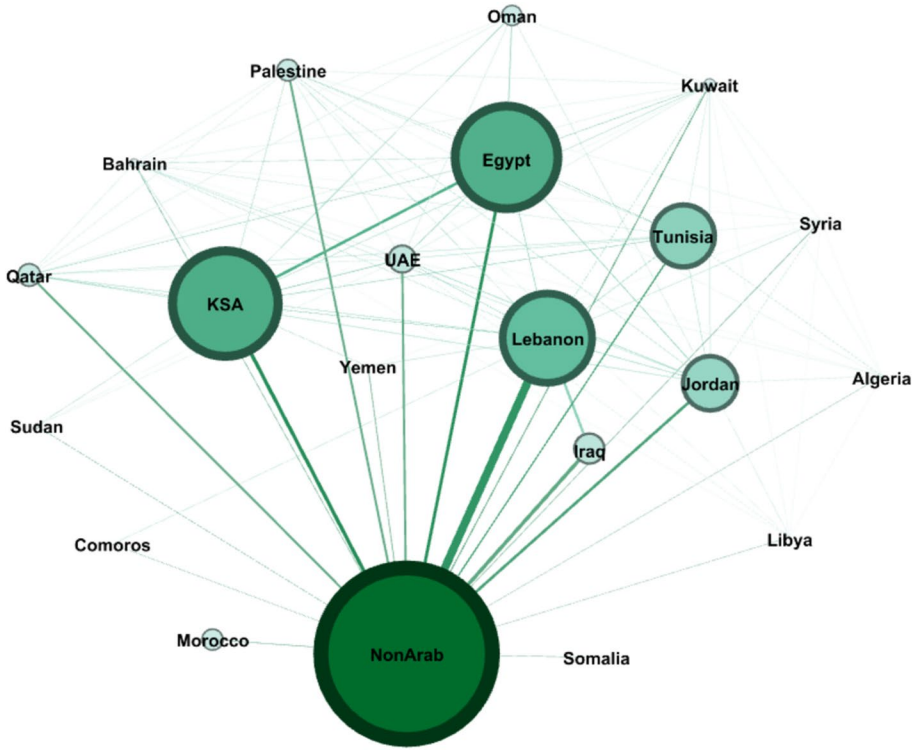

Fig. 4 Patterns of collaboration among Arab countries and between Arab and non-Arab countries (2012–2018)

light on the productivity in the mental health field. We could not find world numbers on this; thus, comparisons are not possible. This present study presents a review of a century of mental health research publications in all 22 Arab speaking countries from 1920 to 2018. While there have been some attempts to track mental health publications over shorter time frames, this is the first study to date, in the Arab world at least, to gather and review a century's worth of mental health publications. In line with the previous literature and research, we have looked at the output relative to the income and population of different countries, two potential major contributors to research publications.

Over a century, between 1920 and 2018, the Arab world published around 3323 articles related to mental health. In comparison to the 117,449 articles published globally on mental health in a single decade (1992–2001), the number in the Arab world is miniscule [17]. There appears to be a clear disparity globally in productivity, where the leading producers of mental health research output is being conducted by the USA and UK alone [17]. Limited funding could be a fundamental reason for the limited research outputs in the Arab world. This could be improved with the increased commitment of Arab governments and stakeholders. Still, the recent and continuing increase of productivity in some Arab countries and the rallying of some others is encouraging where we found that mental health research output in Arab countries in the last decade of our review (between 2009 and 2018) has increased by approximately 147% when compared to the preceding one. Quite telling and in line with previous research studies [10, 11]. Most of the publications emanate from a limited number of Arab countries (i.e., KSA, Lebanon, and Egypt) and a small number of institutions within these countries.

Overall, the Arab countries with the largest number of mental health publications over the last century, from 1920 to 2018, were Egypt, KSA, Lebanon, Kuwait, and Tunisia. Although there is a general increase in mental health research output, it was by no means uniform. In fact, the disparity is telling. When considering population size and GDP, the leading countries with the highest cumulative number of publications per capita in the past century are Lebanon, Kuwait, Bahrain, Jordan, and the UAE. Looking at publications per GDP, the top five countries were Egypt, Tunisia, Jordan, Lebanon, and Palestine.

While we attempted to compare our findings to publications in the USA and in Europe, we were unable to identify studies that look at the entire continent's production of mental health research. When comparing our findings to other reports research on mental health research output in Arab speaking countries, we found

Table 1 Arab countries ranked by the number of international journal articles published between 2009 and 2018

	Total number of articles	Articles published in international journals
	n	*n*
Egypt	333	283
Lebanon	247	226
KSA	280	216
Jordan	166	155
Tunisia	191	149
UAE	93	87
Kuwait	70	67
Iraq	77	62
Morocco	63	56
Oman	61	55
Palestine	60	54
Qatar	51	46
Syria	18	17
Bahrain	24	17
Algeria	16	15
Yemen	8	8
Sudan	12	7
Libya	5	5
Somalia	2	2
Comoros	1	1

that despite the different methodologies, it is possible to draw exploratory comparisons. It was interesting to find that the increase in publications over the last century is propelled by a limited number of countries, which was also found in previous research studies [10, 11]: Lebanon, Egypt, and KSA remain the top producing countries indicating a steady flow in mental health research output.

The productivity is also reflected on international collaboration. When we looked specifically then at the last 10 years of our search (2009 to 2018), we found that the majority of the articles are published in international journals. This trend is consistent with previous studies looking at mental health publications in the Middle East, with a steady increase of 67% in international collaboration in 1996–2005 and 78.9% in 2006–2012 [9]. The three countries with highest collaboration with non-Arab speaking countries were Lebanon followed by KSA and Egypt.

The change in ranking of productivity of mental health research output between the last two consecutive decades (1999–2008 vs 2009–2018) is an interesting finding especially when the drop is quite large in some countries, as is the case for Kuwait. A potential reason is that Kuwait in fact went back to its previous productivity, after a surge from 1999 for a few years. We speculate that the surge was probably influenced by the Iraqi invasion which took place in early 1990. This illustrates the effect of large-scale events (as has been the case recently with COVID-19) in the attempts of local researchers and their international collaborators to look closer at the mental health consequences of unusual events. Other outliers, Iraq and Qatar, surged in productivity. Iraq went up probably because of the US invasion from 2003 to 2011. For Qatar, the increase happened because it has steadily invested in research, higher education over the past several years, and increased its outreach to local and international collaborators and created funds dedicated to research.

Mapping existing research output helps in the identification of existing research gaps and ascertains the research advances necessary for the future. Through this review, we noticed that income does not necessarily translate with productivity. It takes years of economic prosperity before academia picks up. On the other hand, many unfortunate events, such as wars, have plagued some countries in the Arab region and led to a surge in publications (some examples include Kuwait, Iraq, Palestine, and Lebanon). This is also true internationally, when major disasters strike, research in mental health spikes.

That being said, there still appears to be barriers in enhancing the output of mental health research in the Arab world. The relative lack of awareness of mental health needs, on an official level, continues to be a major issue. The lack in institutional and funding resources persists. The sparsity of academic institutions with active mental health departments which invest in research is a tough reality.

Limitations

The findings of the study must be seen in light of some limitations. It is important to note that when we extracted the publications, we selected articles based on author affiliation. Based on the search strategy, we only selected articles with Arab authors or other authors that were part of an Arab institution; publications by non-Arab sources were excluded. Given the search strategy used, it is possible that some studies may have not been traced and thus the number of articles may be underestimated. For instance, articles written in Arabic without a translation may have not been identified by the search engines used in the current study. Consequently, affiliations could not be identified for all Arab countries. In an attempt to be consistent with previous search strategies, these studies were not included in the current analysis and thus probably have impacted the current findings. Moreover, the population size, GDP, and GDP per capita values used to generate trends were not extracted for each year. The

data was analyzed based on the values derived in 2018 (except for Syria, we had to use the 2007 available GDP). As such, it is possible that this biased our results due to the unequal increases/decreases in these indicators over the years.

Conclusion

In the past century, mental health research in the Arab region was initially meager and appears to have picked up recently, in the past four decades. The output however remains timid, but still joining a universal trend [18]. Only a handful of countries are active in mental health research. The incentives, on all levels, had been relatively lacking as evidenced by output where most active Arab countries are the less affluent ones. We found, instead, that international collaboration, as is the case of higher education, to be a major engine of progress and needs to be encouraged.

That being said, there still appears to be barriers in enhancing the output of mental health research. Stigma and the lack of awareness of mental health needs continue to be a major issue in the Arab world. The lack in institutional and funding resources for most areas of research persists. The Arab world, though attempting to improve, continues to have inadequate publishing opportunities. We have proposed previously an action plan that could provide a roadmap for Arab mental health researchers and research institutions [13]. It calls for various ways to build research infrastructure, strengthen the mental health workforce, and translate research findings into a call to action on societal and governmental level.

Abbreviations

DALYs	Disability-adjusted life years
GDP	Gross domestic product
IDRAAC	Institute for Development, Research, Advocacy and Applied Care
KSA	Kingdom of Saudi Arabia
MDD	Major depressive disorder
UAE	United Arab Emirates
UNESCO	United Nations Educational, Scientific, and Cultural Organization
YLDs	Years lived with disability

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s43045-023-00382-6.

Additional file 1: Appendix A. Keywords and MeSH terms. **Appendix B.** Flow chart of articles included in the study. **Appendix C.** Countries' ranking change based on the number of publications over two decades: 1999 to 2008 and 2009 to 2018.

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Authors' contributions

EK oversaw the manuscript's conceptualization, review, and editing. AO was responsible for critical review and editing the manuscript. NT contributed to the search for references and for writing. JB reviewed the draft and finalized the manuscript. DS oversaw conceptualization and supervised the extraction and screening of data. NH performed data extraction and screening. NA conducted analysis and generated figures.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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