Research Article

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Research on Suicide in Muslim majority countries: A bibliometric analysis

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Abstract: *Objectives*. A bibliometric analysis of suicide would identify the potential research gaps in Muslim majority countries. For that purpose, the present study reviews articles on suicide in Muslim majority countries. *Methods*. The Scopus database was searched to identify publications from inception to the search date using search terms. *Results*. The search identified 154 articles published from 1970 to 2022 with a recent increase in the number of papers. The highest number of papers was published from Iran (38), followed by Bangladesh (32) and Turkey (23). No studywas found from 28 Islamic States. The highest number of papers was published by the Aga Khan University of Pakistan, followed by the Enam Medical College and Hospital of Bangladesh and theTehran University of Medical Sciences. The greatest number of papers (n=9) was published in the Asian Journal of Psychiatry, followed by the Iranian Journal of Psychiatry and Behavioral Sciences (n=7), and the *Crisis* (n=5). *Conclusion*. This analysis revealed that there is an extreme dearth of research on suicide in Muslim countries becausemore than half of the countries do not have published articles listed in Scopus.

Keywords: Suicide in Muslim countries; Suicide Research; Bibliometric analysis; Scientometric analysis; Self-harm

1 Introduction

Suicide is a global public health problem: more than 700,000 people died by suicide in the world in 2019; among them, 77% died in low and middle-income countries (LMICs) [1]. The global age-standardized rate of suicide was 9.0 per 100,000 in 2019, with variation from region to region and country to country [1]. It has been asserted that the suicide rate is lower in Muslims and Muslim majority countries compared to the global average, as well as to that in Western countries [1-3]. However, the actual rate of suicides in those Muslim and Muslim majority countries needs further verification.

There are 49 Muslim territories globally: the majority of them are located in Asia and Africa with LMICs populations [4]. Among the 49 Muslim-majority territories, 18 countries are located in Africa, 27 in Asia, and the other two countries in Europe together comprised the 47 countries (excluding Mayotte and Western Sahara from the list). The dearth of research on suicide and suicide prevention in Muslim countries is perhaps related to the LMICs background, social stigma towards suicide, and criminal legal status of suicidality. [5-7]. Among the 49 Muslim majority regions including 47 Muslim majority countries (Supplementary file 1), only five countries (Bangladesh, Indonesia, Iran, Pakistan, and Turkey) published psychological autopsy studies, and only seven countries (Bangladesh, Egypt, Indonesia, Iran, Iraq, Malaysia, and Pakistan) had assessed the quality of news reporting of suicide [8,9]. These findings indicate that risk factors for suicide have not been studied in most of the Muslim majority countries and that the impact of media coverage on suicidality has been under-assessed.

Despite the religious homogeneity, there are variations based on the culture, lifestyle, and social constructs between Asian and African Muslims [10]. One recent ecological study identified that the average suicide rate was lower in Muslim countries than the global average; however, it was significantly higher in African Muslim countries compared to the Asian and European Muslim countries [4]. That study also reported that except for Syria and Kazakhstan, the suicide rate was inversely associated with the income level and Human Development Index (HDI) of the country [4]. Another recent analysis identified that among the Muslim regions, Sub-Saharan African countries had the highest suicide rate, which was even higher than the global average [2]. That study also identified that countries in Southeast Asia had the lowest suicide rate among the Muslim regions.

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Implementation of suicide prevention strategies must be substantiated by local evidence. Although suicide is a global problem and LMICs are facing the major burden, the bulk of studies rely on data from Western high-income countries. Additionally, we do not know the extent of burden and possible culture-sensitive prevention strategies in LMICs and Muslim majority countries. Therefore, a bibliometric analysis is posited as an important way to assess the distribution and domains of research and to identify the potential authors, institutions, geographical distribution, and funding agencies [11]. Fundamentally, it helps reveal the research gaps in specific countries, areas, anddomains. Nevertheless, no previous attempt has been identified in the Muslim-majority countries to assess the estimates and distribution of suicide research. Therefore, the present authorsconducted a bibliometric analysis of published articles on suicide in Muslim majority countries.

2 Methods

2.1 List of the Muslim Majority Countries

The list of 49 Muslim majority countries and/or regions from the World Population Review was constructed [12]; previous studies have also used that list [2,7]. The country details can be found in Supplementary File 1.

2.2 Search Details

For this bibliometric analysis, the published articles in Scopus (www.scopus.com) on July 09, 2022, around 2.00 pm (Bangladesh Standard Time; GMT +6hrs) were searched. Scopus, the multidisciplinary database developed by Elsevier, and accepted as the most comprehensive data source,was also consulted[13]. Scopus also includes some ready-made analyses of the available data based on several parameters such as distribution of papers, type of papers, distribution of publication year, countries, authors, and institutions, and total number of citations. Articles published since inception to search date by search terms were also included; see Supplementary File 2.

2.3 Data analysis

The list of articles from Scopus and analyzed Microsoft Excel version 2010 for Windows was exported and the data sheet from secondary analysis available in Scopus classified as year-wise distribution, author-wise distribution, institution-wise output, country-wise productivity, published journals, article types, and mentioned funders was downloaded. Data was presented focusing on the top 10 productive authors, institutions, countries, and journals, counting the number of citations from inception to search date. The descriptive statistics are presented in frequency and percentages.

3 Results

3.1 Distribution of Articles

The search identified 154 (3.3 per country) papers published from 1970–2022. Only 8 papers were published up to year 2000, 25 papers were published between 2001 and 2010, and the 121 paperswere published after 2010. Among the 154 papers, 117 were published as articles, 16 were published as letters, 9 were review articles, and 1 was an erratum.

3.2 Top Ranked Countries

Authors from 38 countries published articles on suicide in Islamic States. Among these, 50% of the countries (n=19) were non-Islamic States. Among the 49 Islamic States, Iran published the highest number of papers (n=38) followed by Bangladesh (n=32), and Turkey (n=23) as a single country. Iran published (24.68%) papers; however, Iran was the third-lowest country of international collaboration after Turkey, and Malaysia (Table 1). Bangladesh had the highest number of total citations (544),whereas the United Kingdom (UK) had the highest number of citations per paper (Table 1).

3.3 Top Ranked Institutions

A total of 160 institutes were affiliated with the published articles on suicide in Islamic States. The Aga Khan University of Pakistan published the highest number of papers on suicide followed by the Enam Medical College and Hospital in Bangladesh and Tehran University of Medical Sciences in Iran (Table 2). Among the top 10 institutes, organizations, six were from Iran that published 39 papers followed by Bangladesh (3 institutes; 27 papers) and Pakistan (1 institute; 15 papers).

3.4 Top Ranked Journals

The 154 articles were published in 96 journals. The Asian Journal of Psychiatry published the greatest number of papers (n=9), followed by the Iranian Journal of Psychiatry and Behavioral Sciences (n=7), and Crisis (n=5). Among these top 10 journals, the International Journal of Mental Health and Addiction received the maximum number of citations per paper (Table 3).

3.5 Top Ranked Authors

A total of 159 authors published their papers on suicide in Islamic States. Among the paper, S.M. Yasir Arafat of Bangladesh published the maximum number of papers (n=18) followed by Murad M Khan from Pakistan (n=14). Iran was less prominent based on research output by an individual author. Murad M. Khan was the author most frequently cited,whereas Mark D. Griffiths had the highest number of citations per paper (Table 4).

4 Discussion

4.1 Major Findings

This study assessed the distribution of suicide research output in Muslim majority countries by bibliometric analysis. The Scopus search identified only 154 articles in 47 Islamic States, with an average of 3.3 papers in the

Table 1: Top ten countries that published research on suicide in Muslim countries

SN	Country	TP	TC	CPP	%TP	ICP	%ICP
1	Iran	38	338	8.89	24.68	9	23.68
2	Bangladesh	32	544	17	20.78	19	59.38
3	Turkey	23	205	8.91	14.94	1	4.35
4	United Kingdom	20	514	25.7	12.99	14	70
5	United States	20	177	8.85	12.99	13	65
6	Pakistan	18	486	27	11.69	14	77.78
7	Malaysia	9	48	5.33	5.84	2	22.22
8	India	6	6	1	3.9	6	100
9	Australia	5	93	18.6	3.25	4	80
10	Iraq	3	23	7.67	1.95	2	66.67

TP – Total publications; TC – Total citations; CPP – citations per publication

Table 2: Top ten institutes that contributed to suicide research in Muslim countries

SN	Institution	Country	TP	TC	CPP	%TP	ICP	%ICP
1	Aga Khan University	Pakistan	15	306	20.4	9.74	11	73.33
2	Enam Medical College and Hospital	Bangladesh	14	31	2.21	9.09	9	64.29
3	Tehran University of Medical Sciences	Iran	8	102	12.75	5.19	4	50
4	Shahid Beheshti University of Medical Sciences	Iran	7	114	16.29	4.55	0	0
5	Jahangirnagar University	Bangladesh	7	375	53.57	4.55	6	85.71
6	Ilam University of Medical Sciences	Iran	7	80	11.43	4.55	0	0
7	Bangabandhu Sheikh Mujib Medical University	Bangladesh	6	92	15.33	3.90	2	33.33
8	Kermanshah University of Medical Sciences	Iran	6	24	4	3.90	1	16.67
9	Iranian Legal Medical Organization	Iran	6	27	4.5	3.90	1	16.67
10	Kerman University of Medical Sciences	Iran	5	58	11.6	3.25	2	40

TP – Total publications; TC – Total citations; CPP – Citations per publication

Table 3: Top ten journals that published suicide research in Muslim countries

SN	Journal	TP	TC	CPP	%TP	ICP	%ICP
1	Asian Journal of Psychiatry	9	75	8.33	5.84	2	22.22
2	Iranian Journal of Psychiatry And Behavioral Sciences	7	35	5	4.55	2	28.57
3	Crisis	5	193	38.60	3.25	1	20
4	International Journal of Mental Health And Addiction	4	167	41.75	2.60	3	75
5	Brain And Behavior	3	1	0.33	1.95	3	100
6	Health Science Reports	3	0	0	1.95	3	100
7	Iranian Journal of Public Health	3	0	0	1.95	0	0
8	Journal of Forensic And Legal Medicine	3	19	6.33	1.95	0	0
9	Journal of Research In Health Sciences	3	12	4	1.95	1	33.33
10	Acta Medica Iranica	2	14	7	1.30	0	0

TP – Total publications; TC – Total citations; CPP – Citations per publication

Table 4: Top ten authors contributed to suicide research in of Muslim countries

SN	Author	TP	First author	TC	CPP	%TP	ICP	%ICP
1	Arafat, S.M.Y.	18	18	100	5.56	11.69	11	61.11
2	Khan, M.M.	14	8	336	24.00	9.09	9	64.29
3	Mamun, M.A.	7	5	275	39.29	4.55	6	85.71
4	Menon, V.	5	0	6	1.20	3.25	5	100.00
5	Sayehmiri, K.	5	0	79	15.80	3.25	0	0.00
6	Delpisheh, A.	4	0	23	5.75	2.60	0	0.00
7	Shoib, S.	4	0	5	1.25	2.60	4	100.00
8	Akter, H.	3	0	38	12.67	1.95	0	0.00
9	Griffiths, M.D.	3	0	165	55	1.95	3	100.00
10	Haniff, J.	3	0	31	10.33	1.95	0	0.00

TP – Total publications; TC – Total citations; CPP – Citations per publication

duration of more than 50 years, from inception to search date (1970–09 July 2022), indicating an extreme dearth of studies on suicide and suicide prevention. This could be explained by the challenges of publishing articles in Scopus-indexed journals due to the failure of producing standard research output on suicidal behavior in Muslim countries. Additionally, there might have been published articles in the local journals available outside the Scopus database. Fortunately, an increased number of publications has been noted in the recent decade, as evidenced by about 76% of the papers published after 2010. These findings could be attributed to several possibilities, such as a recent surge of publications during the COVID-19 pandemic and recent attention to research on suicide and suicide prevention in the countries.

The study identified that authors from 38 countries published articles on suicide in Islamic States. Among the countries, half of them were non-Islamic States and the remaining 50% were Muslim majority countries. Among the 19 Muslim majority countries, only three countries are located in Africa, 15 in Asia, and one in Europe. Among the 47 Islamic States, 28 (59.57%) no published article on suicide as listed in *Scopus*. Among the 18 African Islamic States, only 16.67% published papers on suicide:55.56% (15/27) in Asia and 50% in Europe. The leading countries of suicide research among the Islamic States are located in Asia, i.e., Iran (24.68%), Bangladesh (20.78%), Turkey

(14.94%), and Pakistan (11.69%). The findings clearly indicate a relative lack of a number of articles in African Islamic States. The top published institutions are located in Asian countries i.e., the Aga Khan University of Pakistan, the Enam Medical College, and Hospital of Bangladesh, and the Tehran University of Medical Sciences of Iran. The prominent authors identified were located in Bangladesh and Pakistan. Again, no institute from African Muslim-majority countries was identified in the top ten list, indicating a probable lack of institutional research on suicide in African Islamic States. The findings identified a paradox: a high suicide rate but low research in African Muslim countries. This could be explained by an absence of national prioritization of suicide as a problem, socio-economic conditions, burden of communicable disease, and low resources, both human and financial, in those countries.

4.2 Implications

The results of the present study have several implications. First, there is a lack of published studies on suicide in Scopus databases from Islamic States, as evidenced by only 3.3 papers per country in a time span greater than 50 years. International and regional bodies should highlight the necessity of research on suicide to formulate effective suicide prevention strategies. Second, the study clearly indicates the extreme necessity of suicide research in African Islamic States. This study indicates an extreme dearth of published papers from African Muslim countries although it has been shown that the suicide rate was significantly higher in African countries than in Asian and European countries [4], and even higher than the global average [2]. Global, regional, and national bodies should address the extreme research gap on suicide. Initiatives such as prioritization of suicide prevention as a national, regional, and continental issue, training the researchers to enhance the capacity, ensuring more budgets on suicide research could be initiated. Third, collaborations with prominent authors and institutions of other Muslim countries could enhance the research activities in the countries with low research output. Fourth and finally, this dearth of research on suicide is presumed to hinder the suicide prevention in the countries. International organizations like WHO and theInternational Association for Suicide Prevention (IASP) could prioritize that research: without reducing suicide in these huge population the global target wouldn't be fulfilled.

4.3 Strength and Limitations of the study

To the best of author's knowledge, this is the first bibliometric study on suicide research in Muslim-majority countries that identifies the potential strength and gaps. However, it has some important limitations. First, the search was conducted only in Scopus. Therefore, articles published in other journals have been excluded. Secondly, due to the search terms, there may be chances of excluding some papers, as only suicide and self-harm were used.

5 Conclusions

This analysis revealed that there is an extreme dearth of research on suicide in Muslim countries with a recent increase in number of papers. More than half of the Muslim countries did not have published articles on suicide in Scopus. Iran, Bangladesh, and Turkey are the leading Islamic States even though the amount is inadequate. Global attention is warranted to address the research gap with a special focus on the African Muslim countries. Nevertheless, a prudential interpretation is necessary due to the limitation of the study while generalizing the results.

Funding information

The author states no funding involved.

Conflict of interest

The author states no conflict of interest.

Ethical Approval

The conducted research is not related to either human or animal use. Data was collected from already available sources without any human involvement, ethical approval for this study was unnecessary.

Data Availability Statement

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

References

[1] World Health Organization. Suicide worldwide in 2019: Global Health Estimates. Geneva: World Health Organization; 2021 [cited 2021 Sep 15]. Available from: from https://www.who.int/publications/i/item/9789240026643

[2] Lew B, Lester D, Kõlves K, Yip PS, Chen YY, Chen WS, et al. An analysis of age-standardized suicide rates in Muslim-majority countries in 2000-2019. BMC Public Health. 2022 May;22(1):882. Erratum in: BMC Public Health. 2022 Sep;22(1):1786.

[3] Shoib S, Armiya'u AY, Nahidi M, Arif N, Saeed F. Suicide in Muslim world and way forward. Health Sci Rep. 2022 Jun;5(4):e665.

[4] Arafat SM, Marthoenis M, Khan MM, Rezaeian M. Association between Suicide Rate and Human Development Index, Income, and the Political System in 46 Muslim-Majority Countries: An Ecological Study. Eur J Investig Health Psychol Educ. 2022 Jul;12(7):754–64.

[5] Pritchard C, Iqbal W, Dray R. Undetermined and accidental mortality rates as possible sources of underreported suicides: population-based study comparing Islamic countries and traditionally religious Western countries. BJPsych Open. 2020 Jun;6(4):e56.

[6] Mishara BL, Weisstub DN. The legal status of suicide: A global review. Int J Law Psychiatry. 2016;44:54–74.

[7] Pritchard C, Amanullah S. An analysis of suicide and undetermined deaths in 17 predominantly Islamic countries contrasted with the UK. Psychol Med. 2007 Mar;37(3):421–30.

[8] Arafat SY, Shoib S, Marthoenis M, Kar SK, Menon V, Ittefaq M, et al. Media reporting of suicide in Muslim countries. Ment Health Relig Cult. 2020;23(10):941–4.

[9] Arafat SM, Khan MM, Menon V, Ali SA, Rezaeian M, Shoib S. Psychological autopsy study and risk factors for suicide in Muslim countries. Health Sci Rep. 2021 Oct;4(4):e414.

[10] Lester D. Suicide and islam. Arch Suicide Res. 2006;10(1):77–97.

[11] Ellegaard O, Wallin JA. The bibliometric analysis of scholarly production: how great is the impact? Scientometrics. 2015;105(3):1809–31.

[12] World Population Review. Muslim Majority Countries. 2021 [cited 2021 Jun 15]. Available from: https://worldpopulationreview.com/countryrankings/muslim-majority-countries

[13] Grover S, Gupta BM, Dhawan SM. Schizophrenia research in India: A scientometric assessmentof India's publications during 1990-2019. Asian J Psychiatr. 2021 Feb;56:102521.

Supplementary 1: List of the Muslim countries

Country	Muslim Population	pop2021	Muslim %
Afghanistan	34836014	39835.428	99.6
Albania	1797645	2872.933	58.8
Algeria	41240913	44616.624	99
Azerbaijan	9735074	10223.342	96.9
Bahrain	1063239	1748.296	73.7
Bangladesh	153700000	166303.498	90.4
Bosnia and Herzegovina	1955084	3263.466	50.7
Brunei	355045	441.532	78.8
Burkina Faso	12141769	21497.096	61.5
Chad	9183207	16914.985	58
Comoros	807204	888.451	98.3
Djibouti	857496	1002.187	97
Egypt	87500000	104258.327	92.35
Gambia	2002743	2486.945	95.7
Guinea	10563171	13497.244	89.1
Indonesia	229000000	276361.783	87.2
Iran	82500000	85028.759	99.4
Iraq	38465864	41179.35	95.7
Jordan	10165577	10269.021	97.2
Kazakhstan	13158672	18994.962	70.2
Kuwait	2175684	4328.55	74.6
Kyrgyzstan	4679436	6628.356	80
Lebanon	3519743	6769.146	57.7
Libya	6551871	6958.532	97
Malaysia	16318355	32776.194	61.3
Maldives	386193	543.617	98.4
Mali	17508398	20855.735	95
Mauritania	3840429	4775.119	100
Mayotte	253439	279.515	97
Morocco	37930989	37344.795	99
Niger	21101926	25130.817	98.3
Oman	2427000	5223.375	85.9
Pakistan	200400000	225199.937	96.5

Country	Muslim Population	pop2021	Muslim %
Palestine	4298000	5222.748	97.5
Qatar	1566786	2930.528	77.5
Saudi Arabia	31878000	35340.683	97.1
Senegal	15112721	17196.301	96.1
Sierra Leone	6067706	8141.343	78.6
Somalia	10978000	16359.504	99.8
Sudan	39585777	44909.353	97
Syria	16700000	18275.702	93
Tajikistan	7621700	9749.627	96.7
Tunisia	11190000	11935.766	99.8
Turkey	79850000	85042.738	99.2
Turkmenistan	4830000	6117.924	93.3
United Arab Emirates	4615081	9991.089	76
Uzbekistan	26550000	33935.763	96.5
Western Sahara	599633	611.875	99.4
Yemen	27784498	30490.64	99.1

Source: World Population Review, nd. Muslim Majority Countries 2021. (accessed on June 15, 2021). https://worldpopulationreview.com/country-rankings/muslim-majority-countries

Supplementary 2: Search Terms

(TITLE-ABS-KEY (“suicid* in United Arab Emirates” OR “self?harm* in United Arab Emirates” OR “suicid* in Uzbekistan*” OR “self?harm* in Uzbekistan*” OR “suicid* in Western Sahara” OR “self?harm* in Western Sahara” “suicid* in Yemen*” OR “self?harm* in Yemen*”)) OR (TITLE-ABS-KEY (“suicid* in Leban*” OR “self?harm* in Leban*” OR “suicid* in Libya*” OR “self?harm* in Libya*” OR “suicid* in Malaysia*” OR “self?harm* in Malaysia*” OR “suicid* in Maldiv*” OR “self?harm* in Maldiv*” OR “suicid* in Mali*” OR “self?harm* in Mali*” OR “suicid* in Mauritania*” OR “self?harm* in Mauritania*” OR “suicid* in Mayot*” OR “self?harm* in Mayot*” OR “suicid* in Morocc*” OR “self?harm* in Morocc*” OR “suicid* in Niger” OR “self?harm* in Niger” OR “suicid* in Oman*” OR “self?harm* in Oman*” OR “suicid* in Pakistan*” OR “self?harm* in Pakistan*” OR “suicid* in Palestin*” OR “self?harm* in Palestin*” OR “suicid* in Qatar*” OR “self?harm* in Qatar*” OR “suicid* in Saudi Arabia*” OR “self?harm* in Saudi Arabia*” OR “suicid* in Senegal*” OR “self?harm* in Senegal*” OR “suicid* in Sierra Leon*” OR “self?harm* in Sierra Leon*” OR “suicid* in Somalia*” OR “self?harm* in Somalia*” OR “suicid* in Syria*” OR “self?harm* in Syria*” OR “suicid* in Tajikistan*” OR “self?harm* in Tajikistan*” OR “suicid* in Tunisia*” OR “self?harm* in Tunisia*” OR “suicid* in Turk*” OR “self?harm* in Turk*” OR “suicid* in Turkmenistan*” OR “self?harm* in Turkmenistan*”)) OR (TITLE-ABS-KEY (“suicid* in Muslim countr*” OR “self?harm* in Muslim countr*” OR “suicid* in Afghanistan*” OR “self?harm* in Afghanistan*” OR “suicid* in Albania*” OR “self?harm* in Albania*” OR “suicid* in Algeria*” OR “self?harm* in Algeria*” OR “suicid* in Azerbaijan*” OR “self?harm* in Azerbaijan*” OR “suicid* in Bahrain*” OR “self?harm* in Bahrain*” OR “suicid* in Bangladesh*” OR “self?harm* in Bangladesh*” OR “suicid* in Bosnia* or Herzegovin*” OR “self?harm* in Bosnia* or Herzegovin*” OR “suicid* in Brunei*” OR “self?harm* in Brunei*” OR “suicid* in Burkina*” OR “self?harm* in Burkina*” OR “suicid* in Chad*” OR “self?harm* in Chad*” OR “suicid* in Comor*” OR “self?harm* in Comor*” OR “suicid* in Djibouti*” OR “self?harm* in Djibouti*” OR “suicid* in Egypt*” OR “self?harm* in Egypt*” OR “suicid* in Gambia*” OR “self?harm* in Gambia*” OR “suicid* in Guinea*” OR “self?harm* in Guinea*” OR “suicid* in Indonesia*” OR “self?harm* in Indonesia*” OR “suicid* in Iran*” OR “self?harm* in Iran*” OR “suicid* in Iraq*” OR “self?harm* in Iraq*” OR “suicid* in Jordan*” OR “self?harm* in Jordan*” OR “suicid* in Kazakhstan*” OR “self?harm* in Kazakhstan*” OR “suicid* in Kuwait*” OR “self?harm* in Kuwait*” OR “suicid* in Kyrgyzstan*” OR “self?harm* in Kyrgyzstan*”))