

## COMMENTARY

## Sibling Authors Propose Bipolar Disorder Of Publishing Biomedical Research: With MEDLINE Footprint Imploding And Retraction Footprint Fudging, Can Pursuit For PubMed® Footprint Challenge Humane Human Imprinting By Physician Scientists?

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### Abstract

With continents and oceans in-between, sibling authors, one from a BRICS (Brazil, Russia, India, China, South Africa) nation and other from a G7 (Canada, England, France, Germany, Italy, Japan, United States) nation, propose christening bipolar disorder of publishing biomedical research.

### Keywords

BRICS nations; G7 nations; Brazil; Russia; India; China; South Africa; Canada; England; France; Germany; Italy; Japan; United States; Bipolar Disorder; Biomedical; Publishing; PubMed; Randomized Controlled Trial; MEDLINE; Retracted Publication; Retraction of Publication; Nobel Prize

### Commentary

Global researchers mesmerized to publish research with global reach (1-3) are not the creations of PubMed® created and maintained since 1997 by National Library of Medicine (NLM) – National Center for Biotechnology Information (NCBI) under National Institutes of Health (NIH) for the United States (U.S.) Government. By inspiring global researchers to have one and maybe more citations at PubMed®, PubMed® with more than 35 million citations and counting is just intending to fuel global exchange of biomedical sciences while ensuring trustworthy growth in biomedical literature (4-5). However, each nation's growth in terms of PubMed® citations may vary especially in terms of MEDLINE-indexed citations considering that each nation's infrastructure supporting biomedical sciences is constantly evolving sometimes with growth spurts as apparently observed while humanity fighting and maybe defeating COVID-19 pandemic globally. However, the existential question for biomedical researchers becomes how much is too much

unless it is never enough because it is always too little when it comes to sibling authors' proposed bipolar disorder of publishing biomedical research. Their existential question may become frightening for their kin unless either their kin are biomedical researchers already or their kin surrender by themselves joining late in their global race to publish at full throttle. However, their dependents get left out when their dependents are either too young or too old to join their race. Only time will tell if and how their pursuit for PubMed® footprint is going to challenge their imprinting (6-13) on their future genetic humanity and/or their future environmental legacy and what the consequences therein if any will be because only finite time is ever available for biomedical researchers which they have to humanely distribute among work-kin-me (14-23) according to their forced or unforced conditions in their genes and/or in their environments. To gauge the gravity of this proposed bipolar disorder of publishing biomedical research, sibling authors have explored and analyzed the public domain global

information in form of constantly updated statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government with those statistics being in public domain (24-28) making it non-human participant research. Sibling authors have filtered PubMed® statistics by placing in PubMed® Search Engine either of the following two queries:

**1. ("Nation's Name"[AD] OR "Nation's Name"[CN] OR "Nation's Name"[PL]) AND English[LA]:**

- This denoted the annual number of English language (as denoted by PubMed® format tag [LA]) publications' citations in PubMed® originating from a nation either per publications' (corporate) authors' addresses (as denoted by PubMed® format tag [AD]) or per publications' corporate authors' names (as denoted by PubMed® format tag [CN]) or per publications' place of publication (as denoted by PubMed® format tag [PL]). Thereafter, "Randomized Controlled Trial" was selected as a filter in "ARTICLE TYPE" to determine the annual number of gold standard evidence (29-32) called randomized controlled trials' citations among those English language publications' citations in PubMed® originating from a nation.

**2. ("Nation's Name"[AD] OR "Nation's Name"[CN] OR "Nation's Name"[PL]):**

- This denoted the annual number of any language publications' citations in PubMed® originating from a nation either per publications' (corporate) authors' addresses (as denoted by PubMed® format tag [AD]) or per publications' corporate authors' names (as denoted by PubMed® format tag [CN]) or per publications' place of publication (as denoted by PubMed® format tag [PL]). Thereafter, "MEDLINE" was chosen from "Additional filters" to show and thence selected as a filter in "OTHER" to determine how many among any language publications' citations in PubMed® originating from a nation were indexed in MEDLINE which is another gold standard (33-34). Additionally, to somewhat gauge the variability in quantified plagiarism among biomedical publishing globally (35-37), "Retracted Publication" and "Retraction of Publication" were chosen from "Additional filters" to show and thence selected as filters in "ARTICLE TYPE" to determine the annual number of retracted publications' citations plus retraction notices' citations among those any language publications' citations in PubMed® originating from a nation.

Thereafter, after downloading in April-May 2023 the public domain constantly updated statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government, our tabulated data in Tables 1-6 and our graphical

presentations in Figures 1-3, sourced from those downloaded public domain statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government as currently updated to May 2023, can decipher the following key-points:

- During 1992-2022, United States and England still lead in annual number of English language publications' citations in PubMed® but China and India are fast catching up in recent years ([Table 1](#) & [Figure 1](#)).
- During 1992-2022, United States and England lead way ahead in annual number of English language randomized controlled trials' citations in PubMed® and while India is not catching up, China is catching up but only very slowly ([Table 2](#) & [Figure 2](#)).
- During 1992-2022, none of the BRICS/G7 nations has ever broken the 5% glass ceiling in terms of percent randomized controlled trials' citations among English language publications' citations annually in PubMed® ([Table 3](#) & [Figure 3](#)).

The comparison of 1992-2022 period with pre-1992 period reveals the following as detailed in [Table 4](#):

- The growth in English language publications' citations in PubMed® cumulatively from BRICS nations primarily driven by China and India is significantly different ( $P < 0.001$ ) from the growth in English language publications' citations in PubMed® cumulatively from G7 nations.
- The growth in English language randomized controlled trials' citations in PubMed® cumulatively from BRICS nations primarily driven by China and Brazil is significantly different ( $P < 0.001$ ) from the growth in English language randomized controlled trials' citations in PubMed® cumulatively from G7 nations.
- The growth in percent randomized controlled trials' citations among English language publications' citations in PubMed® cumulatively from BRICS nations primarily driven by Brazil and South Africa is significantly different ( $P < 0.001$ ) from the growth in percent randomized controlled trials' citations among English language publications' citations in PubMed® cumulatively from G7 nations.

With any language publications' citations' numbers in PubMed® being available annually for all BRICS/G7 nations only since 1948, the comparison of 1992-2022 period with 1948-1991 period reveals the following as detailed in [Tables 5](#) & [Table 6](#).

- The growth in any language publications' citations in PubMed® cumulatively from BRICS nations primarily driven by China and India is significantly different ( $P < 0.001$ ) from the growth in any language publications' citations in PubMed® cumulatively from G7 nations.
- The growth in any language MEDLINE-indexed citations in PubMed® cumulatively from BRICS

nations primarily driven by China and India is significantly different ( $P < 0.001$ ) from the growth in any language MEDLINE-indexed citations in PubMed® cumulatively from G7 nations.

- The decline in percent MEDLINE-indexed citations among any language publications' citations in PubMed® cumulatively from BRICS nations primarily driven by India and China is significantly different ( $P < 0.001$ ) from the decline in percent MEDLINE-indexed citations among any language publications' citations in PubMed® cumulatively from G7 nations.
- The growth in any language retracted publications' and retraction notices' citations in PubMed® cumulatively from BRICS nations primarily driven by China and India is significantly different ( $P < 0.001$ ) from the growth in any language retracted publications' and retraction notices' citations in PubMed® cumulatively from G7 nations.
- The growth in percent retracted publications' and retraction notices' citations among any language publications' citations in PubMed® cumulatively from BRICS nations primarily driven by China and India is significantly different ( $P < 0.001$ ) from the growth in percent retracted publications' and retraction notices' citations among any language publications' citations in PubMed® cumulatively from G7 nations.

Henceforth, after performing the above-mentioned virtopsy (virtual autopsy) of PubMed® citations' public domain statistics to compare BRICS nations with G7 nations, sibling authors wonder the following:

- Do kin of biomedical researchers deserve Nobel "Peace" Prize whether or not those biomedical researchers are being awarded Nobel Prize in Physiology or Medicine?
- Will BRICS nations' biomedical researchers catch up G7 nations' biomedical researchers in terms of Nobel Prize laureates in Physiology or Medicine considering that the current tally for 1901-2022 period from BRICS nations (6 with 50% from South Africa if considering primary affiliation with a nation and 16 with 50% from Russia if considering their affiliation with multiple nations) lags way behind the current tally for 1901-2022 period from G7 nations (175 with 59% from U.S. if considering primary affiliation with a nation and 205 with 54% from U.S. if considering their affiliation with multiple nations) (38-39)?
- As similar to overtaking with their economic contributions to gross world product (40-41), will BRICS nations overtake G7 nations with their scientific contributions to gross research product?
- Will the growing PubMed® footprint of BRICS nations prompt biomedical researchers across the globe to increasingly cite biomedical publications from BRICS nations as references in their future scientific works (42-44)?

- Has social media hyperactivity evolved or forced all humans across the globe to become hyperactive writers (45) with or without the help of artificially intelligent large language models which may further expand the universe of PubMed® footprint globally?

Summarily, as physician scientists themselves, the sibling authors are just hoping for the expanding universe of PubMed® footprint to not collapse humane human imprinting especially by all those suffering from or due to the proposed bipolar disorder of publishing biomedical research.

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**Tables**

**TABLE 1 ANNUAL NUMBER OF ENGLISH LANGUAGE PUBLICATIONS' CITATIONS IN PUBMED® FROM BRICS AND G7 NATIONS**

Year	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
<b>Pre-1992</b>	7,267	2,949	106,166	16,351	29,363	160,331	1,522,326	67,565	260,195	73,716	148,289	3,694,631
<b>1992</b>	1,505	413	5,146	2,297	1,531	14,270	80,501	11,853	23,494	10,627	22,265	192,553
<b>1993</b>	1,284	480	4,946	2,180	1,470	14,319	85,513	12,438	25,007	11,102	22,931	199,080
<b>1994</b>	1,647	476	5,031	2,527	1,567	14,754	89,406	12,965	26,448	11,786	24,138	206,906
<b>1995</b>	1,707	573	5,189	2,683	1,517	14,804	94,045	13,644	28,166	12,041	25,262	213,659
<b>1996</b>	1,914	845	5,548	3,061	1,628	15,168	95,924	14,352	30,939	13,236	26,764	218,034
<b>1997</b>	2,233	884	5,658	3,465	1,584	15,454	98,637	14,785	31,592	13,489	28,271	210,453
<b>1998</b>	2,618	988	6,111	3,896	1,486	15,650	105,165	15,898	34,297	14,239	31,336	217,386
<b>1999</b>	3,178	1,106	6,581	4,714	1,445	16,507	109,804	16,585	35,650	15,155	32,243	228,036
<b>2000</b>	3,848	1,548	7,810	5,803	1,731	17,931	118,828	17,635	40,066	16,210	35,948	248,453
<b>2001</b>	4,292	1,599	8,145	6,991	1,781	18,068	122,188	17,924	43,305	17,443	36,072	254,267
<b>2002</b>	5,288	1,688	8,803	8,653	1,751	18,903	126,686	18,482	45,742	18,337	37,000	260,817
<b>2003</b>	5,866	1,844	9,932	11,042	1,765	20,142	133,555	19,363	48,128	19,965	38,071	273,999
<b>2004</b>	6,961	1,851	10,725	14,141	1,944	21,363	144,689	20,379	50,915	21,776	39,409	292,334
<b>2005</b>	8,076	2,026	12,767	19,479	2,105	23,906	159,826	22,432	57,871	23,674	41,604	317,336
<b>2006</b>	10,165	1,910	14,666	24,254	2,277	25,946	175,549	23,927	62,710	25,658	42,155	332,364
<b>2007</b>	12,058	2,057	17,496	29,030	2,529	27,871	188,560	24,709	67,358	27,833	43,937	344,618
<b>2008</b>	13,756	2,396	19,605	36,597	2,832	29,738	200,891	26,724	71,677	29,959	45,443	366,421
<b>2009</b>	15,037	2,558	22,184	45,010	2,763	31,820	215,821	27,748	76,263	31,356	46,639	378,271
<b>2010</b>	16,863	2,616	26,839	54,969	2,994	32,759	232,241	29,322	83,866	33,253	48,262	402,458
<b>2011</b>	19,120	2,719	32,790	66,949	3,472	34,758	251,587	31,498	91,536	36,015	51,934	431,889
<b>2012</b>	21,888	3,040	38,315	81,540	4,031	37,037	267,809	33,327	97,350	39,482	54,832	455,930
<b>2013</b>	23,515	3,502	43,344	99,428	4,359	39,701	290,391	36,446	102,069	43,962	56,705	477,189
<b>2014</b>	27,619	4,860	49,141	123,090	6,075	47,800	306,617	45,119	116,348	52,762	61,867	496,162
<b>2015</b>	32,194	6,236	51,249	145,355	7,187	54,348	326,441	50,711	125,963	58,290	66,046	509,733
<b>2016</b>	34,522	7,603	52,320	157,992	8,203	58,698	344,780	56,171	131,816	62,381	69,108	509,768
<b>2017</b>	36,041	7,697	51,694	177,647	8,744	62,184	355,745	59,239	134,681	64,498	71,958	522,145
<b>2018</b>	38,360	8,556	52,903	206,886	9,606	65,357	360,559	60,780	139,487	67,785	74,118	529,657
<b>2019</b>	39,644	9,823	56,179	241,307	10,317	68,549	379,635	61,682	142,363	72,703	75,605	542,576
<b>2020</b>	47,718	12,716	71,155	289,400	12,623	78,771	427,000	70,425	160,585	92,508	86,414	605,791
<b>2021</b>	51,297	14,769	82,782	327,868	13,960	85,299	448,896	73,867	177,910	97,255	93,735	631,020
<b>2022</b>	46,146	14,693	83,935	390,114	13,981	81,002	426,442	68,497	172,340	91,345	88,593	610,058
<b>TOTAL</b>	543,627	127,021	975,155	2,604,719	168,621	1,263,208	8,286,057	1,076,492	2,736,137	1,219,841	1,666,954	15,173,994

Source: "Courtesy of the U.S. National Library of Medicine" public domain global information based statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government

**TABLE 2 ANNUAL NUMBER OF ENGLISH LANGUAGE RANDOMIZED CONTROLLED TRIALS' CITATIONS IN PUBMED® FROM BRICS AND G7 NATIONS**

Year	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
<b>Pre-1992</b>	55	0	341	104	457	1,103	17,916	884	3,368	1,403	358	23,987
<b>1992</b>	19	2	95	37	53	320	1,922	254	641	362	137	3,534
<b>1993</b>	20	4	88	53	53	331	2,138	246	643	445	169	3,962
<b>1994</b>	30	2	89	54	54	378	2,438	324	809	519	220	4,637
<b>1995</b>	29	4	82	66	62	420	2,587	351	849	509	285	5,285
<b>1996</b>	28	5	105	64	51	428	2,541	343	863	499	262	5,182
<b>1997</b>	43	7	115	109	49	451	2,568	364	872	505	278	5,342
<b>1998</b>	52	4	132	107	53	430	2,827	385	916	538	299	5,442
<b>1999</b>	84	2	151	124	57	500	2,964	390	958	565	402	5,882
<b>2000</b>	78	8	142	129	40	481	2,921	369	912	556	383	5,724
<b>2001</b>	104	6	168	141	61	460	3,023	409	1,082	607	382	6,177
<b>2002</b>	117	12	173	188	40	518	3,101	410	1,116	639	403	6,372
<b>2003</b>	161	10	199	230	46	537	3,445	438	1,231	684	454	6,805
<b>2004</b>	181	9	258	223	52	625	3,991	453	1,361	738	523	7,557
<b>2005</b>	220	13	239	341	67	677	4,348	505	1,483	793	505	7,859
<b>2006</b>	316	18	265	408	65	659	4,704	520	1,628	828	624	8,127
<b>2007</b>	383	17	333	467	63	818	5,474	551	1,794	875	575	8,657
<b>2008</b>	450	18	320	535	60	821	5,521	527	1,827	858	646	8,950
<b>2009</b>	467	17	397	679	66	858	5,889	574	1,978	898	696	9,311
<b>2010</b>	559	21	487	780	83	891	6,605	658	2,259	1,036	795	9,969
<b>2011</b>	635	19	527	946	88	995	7,567	719	2,657	1,074	906	11,064
<b>2012</b>	763	23	589	1,299	95	1,105	8,101	740	2,762	1,235	1,045	11,954
<b>2013</b>	842	47	675	1,488	122	1,303	8,953	886	3,026	1,348	1,094	12,842
<b>2014</b>	911	87	700	1,755	235	1,779	9,194	1,209	3,405	1,632	1,165	13,132
<b>2015</b>	1,060	97	709	2,000	258	2,025	9,263	1,421	3,584	1,702	1,255	12,951
<b>2016</b>	989	113	771	1,941	288	2,114	9,122	1,472	3,622	1,727	1,311	12,252
<b>2017</b>	1,036	135	730	2,011	262	2,187	9,623	1,571	3,615	1,798	1,301	11,843
<b>2018</b>	1,066	119	785	1,937	257	2,063	8,655	1,501	3,498	1,747	1,325	11,592
<b>2019</b>	1,111	150	736	2,248	254	2,144	8,648	1,446	3,366	1,587	1,417	11,520
<b>2020</b>	1,295	150	850	2,872	303	2,280	9,094	1,599	3,583	1,746	1,499	12,337
<b>2021</b>	1,390	197	1,073	3,215	295	2,315	9,098	1,584	3,687	1,659	1,533	12,387
<b>2022</b>	1,121	165	995	4,010	277	1,979	8,367	1,468	3,258	1,489	1,405	11,404
<b>TOTAL</b>	15,615	1,481	13,319	30,561	4,266	33,995	192,608	24,571	66,653	32,601	23,652	294,039

Source: "Courtesy of the U.S. National Library of Medicine" public domain global information based statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government

**TABLE 3 PERCENT RANDOMIZED CONTROLLED TRIALS’ CITATIONS AMONG ENGLISH LANGUAGE PUBLICATIONS’ CITATIONS ANNUALLY IN PUBMED® FROM BRICS AND G7 NATIONS**

Year	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
<b>Pre-1992</b>	0.76	0.00	0.32	0.64	1.56	0.69	1.18	1.31	1.29	1.90	0.24	0.65
<b>1992</b>	1.26	0.48	1.85	1.61	3.46	2.24	2.39	2.14	2.73	3.41	0.62	1.84
<b>1993</b>	1.56	0.83	1.78	2.43	3.61	2.31	2.50	1.98	2.57	4.01	0.74	1.99
<b>1994</b>	1.82	0.42	1.77	2.14	3.45	2.56	2.73	2.50	3.06	4.40	0.91	2.24
<b>1995</b>	1.70	0.70	1.58	2.46	4.09	2.84	2.75	2.57	3.01	4.23	1.13	2.47
<b>1996</b>	1.46	0.59	1.89	2.09	3.13	2.82	2.65	2.39	2.79	3.77	0.98	2.38
<b>1997</b>	1.93	0.79	2.03	3.15	3.09	2.92	2.60	2.46	2.76	3.74	0.98	2.54
<b>1998</b>	1.99	0.40	2.16	2.75	3.57	2.75	2.69	2.42	2.67	3.78	0.95	2.50
<b>1999</b>	2.64	0.18	2.29	2.63	3.94	3.03	2.70	2.35	2.69	3.73	1.25	2.58
<b>2000</b>	2.03	0.52	1.82	2.22	2.31	2.68	2.46	2.09	2.28	3.43	1.07	2.30
<b>2001</b>	2.42	0.38	2.06	2.02	3.43	2.55	2.47	2.28	2.50	3.48	1.06	2.43
<b>2002</b>	2.21	0.71	1.97	2.17	2.28	2.74	2.45	2.22	2.44	3.48	1.09	2.44
<b>2003</b>	2.74	0.54	2.00	2.08	2.61	2.67	2.58	2.26	2.56	3.43	1.19	2.48
<b>2004</b>	2.60	0.49	2.41	1.58	2.67	2.93	2.76	2.22	2.67	3.39	1.33	2.59
<b>2005</b>	2.72	0.64	1.87	1.75	3.18	2.83	2.72	2.25	2.56	3.35	1.21	2.48
<b>2006</b>	3.11	0.94	1.81	1.68	2.85	2.54	2.68	2.17	2.60	3.23	1.48	2.45
<b>2007</b>	3.18	0.83	1.90	1.61	2.49	2.93	2.90	2.23	2.66	3.14	1.31	2.51
<b>2008</b>	3.27	0.75	1.63	1.46	2.12	2.76	2.75	1.97	2.55	2.86	1.42	2.44
<b>2009</b>	3.11	0.66	1.79	1.51	2.39	2.70	2.73	2.07	2.59	2.86	1.49	2.46
<b>2010</b>	3.31	0.80	1.81	1.42	2.77	2.72	2.84	2.24	2.69	3.12	1.65	2.48
<b>2011</b>	3.32	0.70	1.61	1.41	2.53	2.86	3.01	2.28	2.90	2.98	1.74	2.56
<b>2012</b>	3.49	0.76	1.54	1.59	2.36	2.98	3.02	2.22	2.84	3.13	1.91	2.62
<b>2013</b>	3.58	1.34	1.56	1.50	2.80	3.28	3.08	2.43	2.96	3.07	1.93	2.69
<b>2014</b>	3.30	1.79	1.42	1.43	3.87	3.72	3.00	2.68	2.93	3.09	1.88	2.65
<b>2015</b>	3.29	1.56	1.38	1.38	3.59	3.73	2.84	2.80	2.85	2.92	1.90	2.54
<b>2016</b>	2.86	1.49	1.47	1.23	3.51	3.60	2.65	2.62	2.75	2.77	1.90	2.40
<b>2017</b>	2.87	1.75	1.41	1.13	3.00	3.52	2.71	2.65	2.68	2.79	1.81	2.27
<b>2018</b>	2.78	1.39	1.48	0.94	2.68	3.16	2.40	2.47	2.51	2.58	1.79	2.19
<b>2019</b>	2.80	1.53	1.31	0.93	2.46	3.13	2.28	2.34	2.36	2.18	1.87	2.12
<b>2020</b>	2.71	1.18	1.19	0.99	2.40	2.89	2.13	2.27	2.23	1.89	1.73	2.04
<b>2021</b>	2.71	1.33	1.30	0.98	2.11	2.71	2.03	2.14	2.07	1.71	1.64	1.96
<b>2022</b>	2.43	1.12	1.19	1.03	1.98	2.44	1.96	2.14	1.89	1.63	1.59	1.87
<b>TOTAL</b>	2.87	1.17	1.37	1.17	2.53	2.69	2.32	2.28	2.44	2.67	1.42	1.94

Source: "Courtesy of the U.S. National Library of Medicine" public domain global information based statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government

**TABLE 4 TIME PERIOD COMPARISON BETWEEN BRICS NATIONS' GROUP AND G7 NATIONS' GROUP IN TERMS OF RANDOMIZED CONTROLLED TRIALS' CITATIONS IN PUBMED®**

PUBMED CITED NUMBER OF PUBLICATIONS IN ENGLISH LANGUAGE BY BRICS/G7 NATIONS SINCE EVER												
By Nation	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
Pre-1992	7,267	2,949	106,166	16,351	29,363	160,331	1,522,326	67,565	260,195	73,716	148,289	3,694,631
1992-2022	536,360	124,072	868,989	2,588,368	139,258	1,102,877	6,763,731	1,008,927	2,475,942	1,146,125	1,518,665	11,479,363
By Group	BRICS					G-7						
Pre-1992	162,096					5,927,053						
1992-2022	4,257,047					25,495,630						
PUBMED CITED NUMBER OF RANDOMIZED CONTROLLED TRIALS IN ENGLISH LANGUAGE BY BRICS/G7 NATIONS SINCE EVER												
By Nation	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
Pre-1992	55	0	341	104	457	1,103	17,916	884	3,368	1,403	358	23,987
1992-2022	15,560	1,481	12,978	30,457	3,809	32,892	174,692	23,687	63,285	31,198	23,294	270,052
By Group	BRICS					G-7						
Pre-1992	957					49,019						
1992-2022	64,285					619,100						
PERCENT RANDOMIZED CONTROLLED TRIALS AMONG PUBLICATIONS IN ENGLISH LANGUAGE BY BRICS/G7 NATIONS SINCE EVER												
By Nation	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
Pre-1992	0.76	0.00	0.32	0.64	1.56	0.69	1.18	1.31	1.29	1.90	0.24	0.65
1992-2022	2.90	1.19	1.49	1.18	2.74	2.98	2.58	2.35	2.56	2.72	1.53	2.35
By Group	BRICS					G-7						
Pre-1992	0.59					0.83						
1992-2022	1.51					2.43						

Source: "Courtesy of the U.S. National Library of Medicine" public domain global information based statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government

**TABLE 5 TIME PERIOD COMPARISON BETWEEN BRICS NATIONS' GROUP AND G7 NATIONS' GROUP IN TERMS MEDLINE-INDEXED CITATIONS IN PUBMED®**

PUBMED CITED NUMBER OF PUBLICATIONS IN ANY LANGUAGE BY BRICS/G7 NATIONS SINCE 1948												
By Nation	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
1948-1991	48,835	484,240	83,858	53,496	30,872	161,986	1,367,326	495,314	826,574	357,341	393,680	3,470,389
1992-2022	568,695	292,948	869,741	2,902,298	139,635	1,110,739	6,755,481	1,205,585	2,704,723	1,195,669	1,708,504	11,478,778
By Group	BRICS					G-7						
1948-1991	701,301					7,072,610						
1992-2022	4,773,317					26,159,479						
PUBMED CITED NUMBER OF MEDLINE-INDEXED PUBLICATIONS IN ANY LANGUAGE BY BRICS/G7 NATIONS SINCE 1948												
By Nation	Brazil	Russia	India	China	South Africa	Canada	England	France	Germany	Italy	Japan	United States
1948-1991	48,187	484,119	78,406	52,973	30,427	140,014	1,319,717	490,194	803,935	355,653	389,565	3,258,003



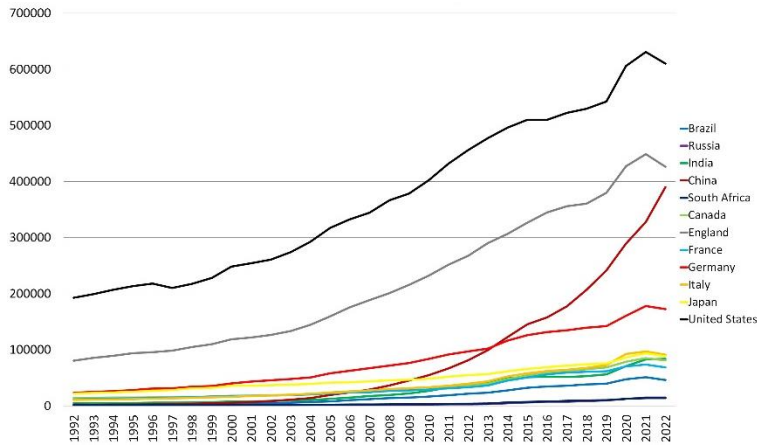
<b>1992-2022</b>	486,118	252,724	558,411	2,172,196	113,333	944,545	5,889,616	1,054,710	2,266,264	1,015,084	1,471,583	9,760,823
By Group	<b>BRICS</b>					<b>G-7</b>						
<b>1948-1991</b>	694,112					6,757,081						
<b>1992-2022</b>	3,582,782					22,402,625						
<b>PERCENT MEDLINE-INDEXED PUBLICATIONS AMONG PUBLICATIONS IN ANY LANGUAGE BY BRICS/G7 NATIONS SINCE 1948</b>												
By Nation	<b>Brazil</b>	<b>Russia</b>	<b>India</b>	<b>China</b>	<b>South Africa</b>	<b>Canada</b>	<b>England</b>	<b>France</b>	<b>Germany</b>	<b>Italy</b>	<b>Japan</b>	<b>United States</b>
<b>1948-1991</b>	98.67	99.98	93.50	99.02	98.56	86.44	96.52	98.97	97.26	99.53	98.95	93.88
<b>1992-2022</b>	85.48	86.27	64.20	74.84	81.16	85.04	87.18	87.49	83.79	84.90	86.13	85.03
By Group	<b>BRICS</b>					<b>G-7</b>						
<b>1948-1991</b>	98.97					95.54						
<b>1992-2022</b>	75.06					85.64						
<i>Source: "Courtesy of the U.S. National Library of Medicine" public domain global information based statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government</i>												

**TABLE 6 TIME PERIOD COMPARISON BETWEEN BRICS NATIONS' GROUP AND G7 NATIONS' GROUP IN TERMS OF RETRACTED PUBLICATIONS' AND RETRACTION NOTICES' CITATIONS IN PUBMED®**

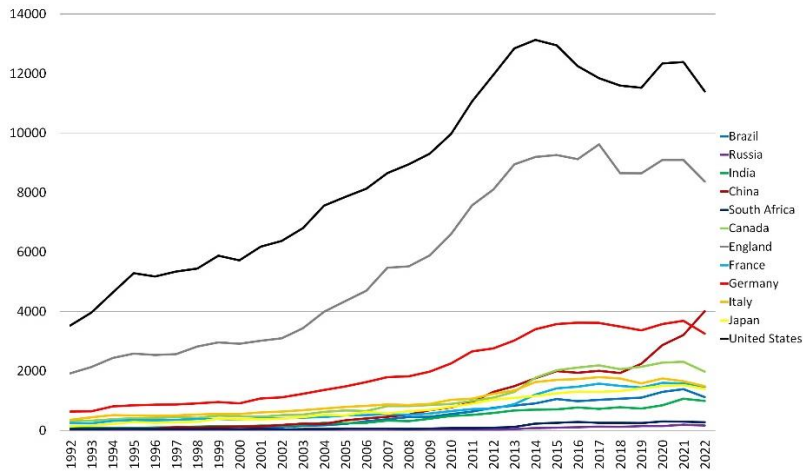
<b>PUBMED CITED NUMBER OF PUBLICATIONS IN ANY LANGUAGE BY BRICS/G7 NATIONS SINCE 1948</b>												
By Nation	<b>Brazil</b>	<b>Russia</b>	<b>India</b>	<b>China</b>	<b>South Africa</b>	<b>Canada</b>	<b>England</b>	<b>France</b>	<b>Germany</b>	<b>Italy</b>	<b>Japan</b>	<b>United States</b>
<b>1948-1991</b>	48,835	484,240	83,858	53,496	30,872	161,986	1,367,326	495,314	826,574	357,341	393,680	3,470,389
<b>1992-2022</b>	568,695	292,948	869,741	2,902,298	139,635	1,110,739	6,755,481	1,205,585	2,704,723	1,195,669	1,708,504	11,478,778
By Group	<b>BRICS</b>					<b>G-7</b>						
<b>1948-1991</b>	701,301					7,072,610						
<b>1992-2022</b>	4,773,317					26,159,479						
<b>PUBMED CITED NUMBER OF RETRACTED PUBLICATIONS AND RETRACTION NOTICES IN ANY LANGUAGE BY BRICS/G7 NATIONS SINCE 1948</b>												
By Nation	<b>Brazil</b>	<b>Russia</b>	<b>India</b>	<b>China</b>	<b>South Africa</b>	<b>Canada</b>	<b>England</b>	<b>France</b>	<b>Germany</b>	<b>Italy</b>	<b>Japan</b>	<b>United States</b>
<b>1948-1991</b>	0	0	2	0	0	12	79	3	28	0	9	263
<b>1992-2022</b>	265	66	1,397	8,048	46	385	6,896	556	1,568	1,114	1,805	12,280
By Group	<b>BRICS</b>					<b>G-7</b>						
<b>1948-1991</b>	2					394						
<b>1992-2022</b>	9,822					24,604						
<b>PERCENT RETRACTED PUBLICATIONS AND RETRACTION NOTICES AMONG PUBLICATIONS IN ANY LANGUAGE BY BRICS/G7 NATIONS SINCE 1948</b>												
By Nation	<b>Brazil</b>	<b>Russia</b>	<b>India</b>	<b>China</b>	<b>South Africa</b>	<b>Canada</b>	<b>England</b>	<b>France</b>	<b>Germany</b>	<b>Italy</b>	<b>Japan</b>	<b>United States</b>
<b>1948-1991</b>	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01
<b>1992-2022</b>	0.05	0.02	0.16	0.28	0.03	0.03	0.10	0.05	0.06	0.09	0.11	0.11
By Group	<b>BRICS</b>					<b>G-7</b>						
<b>1948-1991</b>	0.00					0.01						
<b>1992-2022</b>	0.21					0.09						
<i>Source: "Courtesy of the U.S. National Library of Medicine" public domain global information based statistics created by NIH/NLM/NCBI at PubMed® for U.S. Government</i>												

**Figures**

**FIGURE 1 ANNUAL NUMBER OF ENGLISH LANGUAGE PUBMED CITATIONS BY BRICS/G7 NATIONS DURING 1992-2022**



**FIGURE 2 ANNUAL NUMBER OF ENGLISH LANGUAGE RANDOMIZED CONTROLLED TRIALS' PUBMED CITATIONS BY BRICS/G7 NATIONS DURING 1992-2022**



**FIGURE 3 PERCENT RANDOMIZED CONTROLLED TRIALS AMONG ENGLISH LANGUAGE PUBMED CITATIONS BY BRICS/G7 NATIONS DURING 1992-2022**

