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A bibliometric analysis of Koro syndrome

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Abstract

Objective: Koro is a culture-bound syndrome that primarily affects males in China, South Asia and Africa. Our objective was to perform a bibliometric analysis of the available published literature on koro, to date.

Materials and methods: The Scopus database was searched, from inception, for publications on koro using a combination of terms "koro syndrome" or "genital retraction". The available articles were screened to identify those relevant.

Results: A total of 62 relevant articles were found in the Scopus database and included in the study. The majority (n=46;74.2%) of these were original articles. Then medicine (n=61;98%) followed by psychology (n=8; 12.9%) were the common originating specialities for research on koro. The oldest publication was in 1973; the maximum number of publications was in 1990 (n=6;9.68%,) followed by 2005 (n=5;8.06%). The British Journal of Psychiatry published the maximum number of articles on koro (n=6). The Culture, Medicine, and Psychiatry, Journal of Urology and Medicine Clinica had 3(4.8%) publications each. A total of 131 authors from 67 institutes and 24 countries contributed to research output on koro; of them, most publications were from the US (n=10).

Conclusion: Although koro is a well-known entity, the number of publications on koro is scarce, sporadic and not globally representative.

Keywords

Koro, Culture-Bound Syndrome, Research, Bibliometric Analysis, Scientometric Analysis, Review.

INTRODUCTION

Over the past several decades, multiple culture-bound syndromes have been identified from different corners of the world; koro being one of them. The core manifestation of koro is centred around the belief of the retraction of the sexual organs (including the penis, breast or nipples) into the body, which leads to the associated fear and anxiety related to its disappearance, which would result in death (Kar et al., 2021). Koro, though primarily described in the context of males, similar phenomenology has also been reported among females. Originally believed to be indigenous to Southeast Asia, koro has also been detected in Africa, South Asia and North America mostly since the 1970s to date (Buckle et al., 2007; Cheng, 1996; Kar et al., 2021; Mattelaer and Jilek, 2007). However, in 1895, koro was first mentioned in Western medical literature (Chowdhury, 1998).

In the Medieval period, Western countries, too, had similar beliefs related to genital shrinkage and disappearance (Mattelaer and Jilek, 2007). The Afro-Asian culture harbours the belief that genitalia is the symbol of strength, stamina and power. So, the shrinkage of genitalia and its anticipated disappearance is perceived as a loss of power, eventually leading to death (Kar et al., 2021). Also, certain cultures have prevailing beliefs that shrinkage of the penis may result in infertility and impotence (Mattelaer and Jilek, 2007).

Complaints of genital shrinking are also occasionally verbalised by Western patients, but these cases are different

from the culturally related "genital shrinking" syndrome as they are associated with other, usually chronic, neurotic, psychotic, or organic conditions; and the patient's ethnic-cultural group. Western society does not share the belief in the reality of genital disappearance and ensuing death (Johnson and Stewart, 2002).

It has been reported that people may present with complaints of genital retraction and accompanying distress with little dramatisation, which is often referred to as "syndrome of genital retraction" and may have little association of it being related to a cultural belief system; hence referred to as "koro-like symptoms" (Chowdhury, 1996). Koro often has an episodic presentation and the episodes often last for minutes to hours.

Attempts have been made to fit koro into the etic or externally defined psychiatric nosology (the brand of medicine related to classifying diseases), including acute hysterical panic reaction, anxiety states, depersonalisation, conversion disorder, or atypical somatoform disorder (as set of conditions with symptoms that cannot be accounted for medically) (Simons and Hughes, 1985).

In the modern classificatory system, koro was introduced as a culture-bound syndrome in DSM-III R and ICD-10 (Chowdhury, 1996). Koro was also included in the Chinese Classification of Mental Disorders, Second Edition (CCMD-2). This diagnosis was retained in DSM-IV and Chinese Classification of Mental Disorders, Third Edition (CCMD-3) (Bandinelli et al., 2011). The DSM-5 has repositioned koro under "other specified obsessive- compulsive and related disorders" and removed it from the categories of cultural concepts of distress (where other culture- bound syndromes are kept) (American Psychiatric Association, 2013).

The manifestations of koro, often centred around body dysmorphic disorder (BDD); hence, researchers proposed to keep koro under BDD in ICD-11 (Veale and Matsunaga, 2014). Research evidence supports that patients with koro are often from a rural background with poor education and are primarily young individuals (adolescents or young adults) (Chowdhury and Brahma, 2020).

The research in koro is very sporadic and mostly limited to case studies. However, original research articles are present which mainly discusses the entity during epidemics of koro. This paper is a bibliometric analysis of all published research on koro in the Scopus database to date, giving insight into the trend in koro research.

METHODS

For analysis of the global published literature on koro to date, a literature search was done in the Scopus database (www.scopus.com) on 20 September 2021, around 7.40pm (Bangladesh standard time; GMT +6hrs). The search was carried out from inception to search date using a combination of the following keywords: "koro syndrome" or "genital retraction" in order to get the number of globally published articles (62 in total). It was refined further by evaluating the document type, subject area in which it is most studied and the yearly distribution of articles. All the data was further refined on the basis of the top journals, authors, institutes, and countries of publication in order to look for the top 5 countries with the highest number of publications. All citations were counted from inception to search date.

We extracted and analysed data using Microsoft Excel version 2010 for Windows.

RESULTS

The Scopus search engine yielded 62 publications related to the koro syndrome published from inception till September 2021. The majority (n=46;74.2%) of the publications were articles; 9.7% as letters (n=6); 9.7% (n=6) were published as reviews; 3.2% (n=2) appeared as conference papers; 1.6% (n=1) was published as a note and 1.6% (n=1) was a short survey. There were four publications which involved collaboration at an international level. The subject area was majorly medicine (n=61;98%) followed by psychology (n=8;12.9%). Art and humanities were the subject areas in 9.7% (n=6) of publications. Social sciences, neuroscience and nursing comprised 8.1% (n=5), 6.4% (n=4) and 3.2% (n=2) of the publications respectively.

On the assessment of the year-wise distribution of articles it was found that the maximum publications were in the year 1990 (9.68%;n=6) followed by 2005 (8.06%;n=5). There were 4(6.45%) publications each in 1998 and 2007. The years of 2010, 1991, 1989, 1988 had 3 (4.84%) publications each. There were 2 (3.23%) publications each in the years 2018, 2006, 2002, 2000, 1997, 1995, 1993, 1987, 1986, 1973 and 1 (n=1;61%) publication each in 2016, 2012, 2009, 2008, 2004, 1996, 1992, 1984, 1982, 1977, 1976. Out of the publications, the highest citation per publication (CPP) was in 1992 with one article getting 36 citations (Table 1).

The publications came in 43 journals. Among the journals, the British Journal of Psychiatry had the highest number of publications on koro syndrome. There were 6 (9.7%) publications with a total citation of 140, CPP being 23.33 and comprising of 9.68% of the total publications. The Culture Medicine and Psychiatry, Journal of Urology and Medicine Clinica had 3(4.8%) publications each. The three journals in the Culture Medicine and Psychiatry had 86 citations, with CPP being 28.67%. The American Journal of Psychiatry (AJP), Behavioural Neurology, Klinik Psikofarmakoloji Bülteni, Der Nervenartz, Psychopathology, and Transcultural Psychiatry had two publications each.

Table 1: Yearly distribution of articles published on koro syndrome

Year	TP	TC	CPP	%TP
2018	2	0	0	3.23
2016	1	9	9	1.61
2012	1	16	16	1.61
2010	3	47	15.67	4.84
2009	1	0	0	1.61
2008	1	9	9	1.61
2007	4	8	2	6.45
2006	2	10	5	3.23
2005	5	72	14.4	8.06
2004	1	2	2	1.61
2002	2	21	10.5	3.23
2000	2	12	6	3.23
1998	4	21	5.25	6.45
1997	2	18	9	3.23
1996	1	3	3	1.61
1995	2	13	6.5	3.23
1993	2	7	3.5	3.23
1992	1	36	36	1.61
1991	3	15	5	4.84
1990	6	94	15.67	9.68
1989	3	36	12	4.84
1988	3	72	24	4.84
1987	2	38	19	3.23
1986	2	40	20	3.23
1984	1	40	40	1.61
1982	1	9	9	1.61
1977	1	15	15	1.61
1976	1	9	9	1.61
1973	2	25	12.5	3.23

TP=Total publication; TC= Total citation; CPP= citation per publication

Out of them, the two publications in AJP had 93 citations, with CPP being 46.50 (Table 2).

A total of 131 authors from 67 institutes participated in the publications of koro Syndrome; one of them had four publications (6.45%), and one had 3 (4.84%) publications. All others had 2 (3.23%) publications, each in their name. There were five institutes that had two publications each (Table 3).

There were publications from 24 countries.

The US had the highest output (n=10;16.1%) in regard to publications of koro syndrome. The ten articles had 307 total citations with CPP of 30.70. It is followed by Israel with 7 (11.3%) publications. There were 5 (8%) publications from Canada, 4 (6,45%) publications from the UK and 3 (4.84%) publications from Germany (Table 4).

Table 5 mentions the top five institutes with publications related to koro.

Table 2: Top 10 journals publishing articles on koro.

Journal	TP	TC	CPP	%TP
British Journal of Psychiatry	6	140	23.33	9.68
Culture Medicine and Psychiatry	3	86	28.67	4.84
Journal of Urology	3	8	2.67	4.84
Medicina Clinica	3	4	1.33	4.84
American Journal of Psychiatry	2	93	46.5	3.23
Behavioural Neurology	2	10	5	3.23
KlinikPsikofarmakoloji Bülteni	2	2	1	3.23
Der Nervenarzt	2	11	5.5	3.23
Psychopathology	2	14	7	3.23
Transcultural Psychiatry	2	2	1	3.23

TP=Total publication; TC= Total citation; CPP= citation per publication

Table 3: Top 10 authors publishing articles on koro syndrome

Author	TP	TC	CPP	%TP
Durst, R.	4	51	12.75	6.45
Rosca-Rebaudengo, P.	3	39	13	4.84
Atalay, H.	2	2	1	3.23
Chowdhury, A.N.	2	15	7.5	3.23
Cohen, S.	2	16	8	3.23
Freudenmann, R.W.	2	11	5.5	3.23
Guo-Qian, C.	2	80	40	3.23
Kan-Ming, M.	2	80	40	3.23
Kovács, A.	2	3	1.5	3.23
Li-Shuen, L.	2	80	40	3.23

TP=Total publication; TC= Total citation; CPP= citation per publication

Table 4: Top five countries publishing research on koro syndrome

Country/Territory	TP	TC	CPP	%TP
US	10	307	30.70	16.13
Israel	7	86	12.29	11.29
Canada	5	47	9.40	8.06
UK	4	88	22.00	6.45
Germany	3	20	6.67	4.84

TP=Total publication; TC= Total citation; CPP= citation per publication

Table 5: Top five institutes publishing on koro syndrome

Affiliation	TP	TC	CPP	%TP
Tel Aviv University	2	32	16	3.23
John A. Burns School of Medicine	2	--		3.23
Universitätsklinikum Ulm	2	11	5.5	3.23
Institut Universitaire de Santé Mentale de Montréal	2	--		3.23
Aristotle University of Thessaloniki	2	9	4.5	3.23

TP=Total publication; TC= Total citation; CPP= citation per publication

DISCUSSION

The present study reviewed 62 publications on koro available in the Scopus database from inception till September 2021. These articles yielded a combined total of 697 citations averaging 11.24 citations per paper. The maximum number of publications were found in the decade 2001-2010 (n=19;30.6%) followed by 1981-1990 (n=18;29.0%), suggesting an incredible research focus on koro during this period. The average citation per paper was 11.52, while the highest number of citations per paper was 40. Together with the diversity of fields that contributed to research in the field of koro, these findings seem to suggest the inter-disciplinary nature of the phenomenon. It also points to the need for an integrated, multi-disciplinary approach to the management of the condition.

The global research output on koro emerged from 24 nations, with the top 5 countries contributing to nearly half of this research output (n=29;46.8%). Four of these five countries were European nations, while one was from Israel; this is surprising because koro is traditionally understood as a culture-bound syndrome prevalent in Southeast Asia and China though it has also been reported from the West. This skewed research output raises critical questions about the global representativeness of data on koro. It was interesting that papers from Israel, the only non-European nation among the top 5 countries in terms of research output on koro, had the second-highest citation per paper metric; this suggests that important work has emerged from this country.

The majority of the publications were original articles (74.2%), followed by reviews and correspondences (9.7%). The preponderance of original work in this area is encouraging and underscores the systematic efforts to better understand the phenomenon. The maximum number of papers were published in the British Journal of Psychiatry (n=6;9.7%), followed by the Culture, Medicine, and Psychiatry, Journal of Urology, and Medicine Clinica (n=3 each;4.8%). This may indicate journal focus and policies for article selection.

Only four collaborative papers on Koro were identified in our search.

Cross-cultural studies can give valuable insights into culture-specific expressions of psychopathology; this, in turn, may be used to define subgroups of patients with koro. Such cluster analysis approaches may help predict clinical outcomes and delineate tailored intervention strategies; similar examples are already present in psychiatric literature.

Koro has been known by different names in different cultures. This has been from multiple Asian locations from the 1960s to the 1980s (Chowdhury, 1998). There are higher chances that the studies might not have been conducted at that period. Also, the DSM-IIIR and ICD-10 provisions to include culture-bound syndromes like koro open to various diagnostic options might have led to publication interests after the 1990s (Chowdhury, 1996). Koro has been categorised as a culture-bound syndrome and as anxiety or panic-related disorder, somatoform disorder, body image distortion disorder, and depersonalisation disorder (Davis et al., 2012). This could also be one of the reasons for the insufficient publication numbers in our analysis.

The present study is one of the few studies that has attempted to do a bibliometric analysis of koro in the Scopus database. The Scopus database, developed by Elsevier, has combined the characteristics of both PubMed and Web of Science, allowing for enhanced utility, both for medical literature research and academic needs like citation analysis (Falagas et al., 2008). The current study has a few limitations. Firstly, we have used the Scopus database to retrieve literature on koro. This could create a certain bias toward countries with a large number of journals indexed in this database. Secondly, like all other bibliometric studies, our study has not included grey literature (such as conference proceedings). Thirdly, the search strategy used in this study might have led to some false-negative or false-positive results. Therefore, we advise that the interpretation of the results take into consideration these limitations.

CONCLUSION

Koro has been known in modern psychiatry over the past six decades. Even though "koro" is a well-known name, the number of koro publications is limited and intermittent. In addition, the study is limited to specific countries and institutions. Vulnerable cultures require further research on the koro phenomenology.

DECLARATIONS

Conception & Design: SK Kar. **Acquisition of data**: SMY Arafat. **Data analysis**: SMY Arafat.

Drafting of the manuscript: all authors.

Critical revision of the manuscript: all authors.

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