

Review Article

## Scientific attitudes towards bipolar disorders

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### Abstract

**Introduction:** Bipolar disorder is a psychiatric condition that is also called manic-depressive disease. It causes unusual changes in mood, energy, activity levels, and the ability to carry out day-to-day tasks. In the present study, 3 sets of data were considered and analyzed: first, all papers categorized under Bipolar Disorders in Science Citation Index Expanded (SCI-E) database through 2001-2011; second, papers published by the international journal of Bipolar Disorders indexed in SCI-E during a period of 11 years; and third, all papers distributed by the international journal of Bipolar Disorders indexed in MEDLINE during the period of study.

**Methods:** The SCI-E database was used to extract all papers indexed with the topic of Bipolar Disorders as well as all papers published by The International Journal of Bipolar Disorders. Extraction of data from MEDLINE was restricted to the journals name from setting menu. The Science of Science Tool was used to map the co-authorship network of papers published by The International Journal of Bipolar Disorders through 2009-2011.

**Results:** Analysis of data showed that the majority of publications in the subject area of bipolar disorders indexed in SCI-E were published by The International Journal of Bipolar Disorders. Although journal articles consisted of 59% of the total publication type in SCI-E, 65% of publications distributed by The Journal of Bipolar Disorders were in the form of meeting-abstracts. Journal articles consisted of only 23% of the total publications. USA was the leading country regarding sharing data in the field of bipolar disorders followed by England, Canada, and Germany.

**Conclusion:** The editorial policy of The International Journal of Bipolar Disorders has been focused on new themes and new ways of researching in the subject area of bipolar disorder. Regarding the selection of papers for indexing, the SCI-E database selects data more comprehensively than MEDLINE. The number of papers published by The Journal of Bipolar Disorders, which has been indexed in SCI-E was 2 times greater than the number published in the same journal indexed in MEDLINE during the same period.

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### Introduction

Bipolar disorder is a psychiatric disorder that is also called manic-depressive disease. It causes unusual changes in mood, energy, activity levels, and the ability to carry out day-to-day tasks.<sup>1</sup> Bipolar disorder strikes early and can cause permanent disability. Reports confirm that it is chronically undertreated in many low-income countries.<sup>2</sup> Its incidence seems to

be higher than official reported rates. The Office of Minority Health and Health Disparity (OMHD) announced that one out of every two Americans has a diagnosable mental disorder each year, including 44 million adults and 13.7 million children.<sup>3</sup> There are no evidences about the exact cause of bipolar disorders. Steve Bressert, in his paper, has stressed that scientists have found some important clues

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about the cause of bipolar disorders as follow:

1- Bipolar disorder tends to be familial, meaning that it "runs in families." About half the people with bipolar disorder have a family member with a mood disorder, such as depression.

2- A person who has one parent with bipolar disorder has a 15 to 25 percent chance of having the condition.

3- A person who has a non-identical twin with the illness has a 25 percent chance of illness, the same risk as if both parents have bipolar disorder.

4- A person who has an identical twin (having exactly the same genetic material) with bipolar disorder has an even greater risk of developing the illness about an eightfold greater risk than a non-identical twin.

5- Study of adopted twins (where a child whose biological parent had the illness is raised in an adoptive family untouched by the illness) has helped researchers learn more about the genetic causes vs. environmental and life events causes.<sup>4</sup>

The treatment of bipolar disorders requires money and energy; therefore, the health-care providers should assess and study the trend of research activities about the treatment of this illness. On the other hand, we are aware that many reports have showed the high rate of bipolar disorders in the world, but there is no evidence to show the researchers attitudes towards this field. Regarding the National Institute of Mental Health report, about 5.7 million American adults (about 2.6% of the population) aged 18 and older in any given year have bipolar disorder.<sup>5</sup> Based on the report of the Center for Disease Control and Prevention (CDC), "The economic burden of mental illness in the United States was substantial about \$300 billion in 2002. Mental illness is also associated with chronic medical diseases such as cardiovascular disease, diabetes, and obesity. Mental illness surveillance is a critically important part of disease prevention and control."<sup>6</sup> Research activities in the subject area of bipolar disorders could be evaluated and assessed by analyzing

published documents in different formats, such as journal papers, conference proceeding papers, conference abstracts, and other formats of literature of science. Hence, this study aims to analyze the scientific literature in the field of bipolar disorders and to visualize the impact of leading countries on the field during a period of 11 years (2001-2011) in the Science Citation Index Expanded (SCI-E) database.

### Methods

In the present study, 3 sets of data were considered and analyzed. First, all papers categorized under bipolar disorders in the SCI-E database through 2001-2011. The main subject areas of publication were limited to bipolar disorders. For this purpose, topic classifications used by the SCI-E database were utilized to extract all papers categorized under the subject area of bipolar disorders. The topic tag (TS) which limits the search strategy to retrieve documents in the desired subject area was selected from the tags menu in SCI-E. Second, all papers published by The International Journal of Bipolar Disorders which were indexed in SCI-E during a period of 11 years (2001-2011). Third, all papers distributed by The International Journal of Bipolar Disorders that were indexed in MEDLINE through 2009-2011.

The Science of Science Tool was used to map the authored network of papers published by The Journal of Bipolar Disorders during 2009-2011. "The Science of Science (Sci<sup>2</sup>) Tool is a modular toolset specifically designed for the study of science. It supports the temporal, geospatial, topical, and network analysis, and visualization of scholarly datasets at the micro- (individual), meso- (local), and macro- (global) levels.<sup>7</sup>

### Results

All papers indexed with a topic related to bipolar disorders based on the category classification of Science Citation Index Expanded through 2001-2011 were extracted and analyzed. Figure 1 shows the trend of publication in the field of bipolar disorders. It

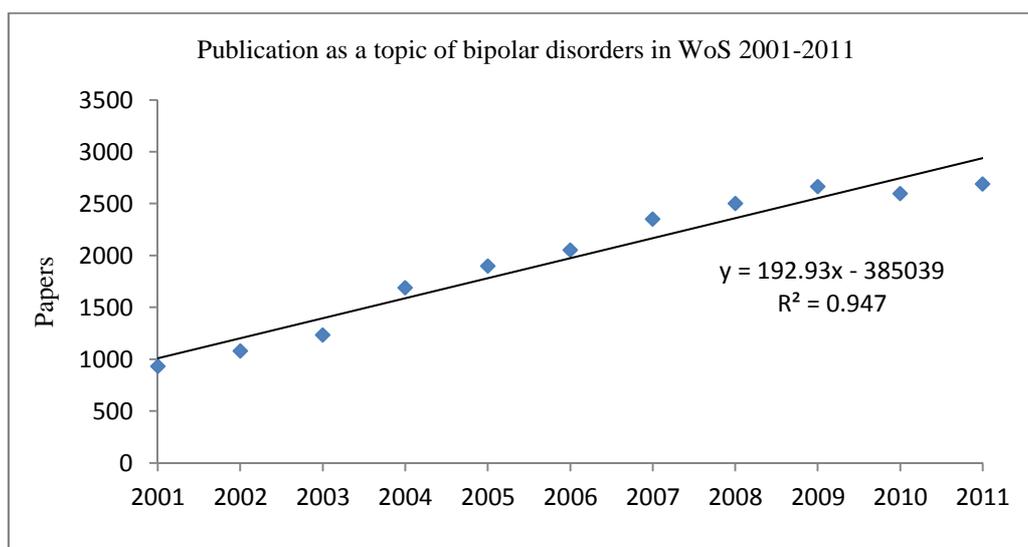


Figure 1. The number of publications in the field of Bipolar Disorders in SCI-E (Science Citation Index Expanded) during 2001-2011

Table 1. The ten most productive journals publishing papers in the field of bipolar disorders in SCI-E (Science Citation Index Expanded) in 2001-2011

Source titles	Records	Percentage
Bipolar Disorders	2259	11
Journal of Affective Disorders	1156	6
Biological Psychiatry	1107	6
Journal of Clinical Psychiatry	703	4
American Journal of Medical Genetics Part B Neuropsychiatric Genetics	514	3
European Neuropsychopharmacology	471	2
Schizophrenia Research	454	2
International Journal of Neuropsychopharmacology	381	2
American Journal of Psychiatry	373	2
Molecular Psychiatry	360	2

indicates that the number of publications in the field of bipolar disorders in SCI-E increased power-law through the period of study. It reached from 932 papers in 2001 to 2690 papers in 2011. The list of 10 prolific journals that published papers in the field of bipolar disorders through 2001-2011 is shown in table 1. Papers which were categorized under bipolar disorder were distributed in 500 journals; all these journals were indexed in SCI-E. Table 1 was restricted to the 10 most productive journals. As table 1 indicates, The International Journal of Bipolar Disorders, distributing a total number of 2259 papers in the field of bipolar disorders indexed in SCI-E during the period of study, was the most productive one.

Table 2 shows that all papers categorized as bipolar disorders in SCI-E through the

period of study were published in 12 different formats. Papers in the form of journal articles, 59% of the total, were the main form of publication type in the field

Table 2. The document type of papers indexed in SCI-E (Science Citation Index Expanded) as a topic of bipolar disorders during 2001-2011

Document types	Records	Percentage
Article	13383	59
Meeting-abstract	4226	19
Review	2568	11
Proceedings paper	896	4
Editorial material	614	3
Letter	579	3
Book review	170	1
Correction	88	0
News item	70	0
Book chapter	41	0
Reprint	5	0
Biographical item	2	0
Total	22642	100

followed by meeting-abstract and review. These 3 types of publication comprise 89% of total publications. English was the dominant language of the papers in the field of bipolar disorders, 96% of papers was published in English, whereas only 4% of publications was in other languages (Table 3). As shown in table 4, Harvard University was evidently the world's leading university in contributing papers in the field of bipolar disorders in

**Table 3. The language of papers indexed with the topic of bipolar disorders in SCI-E (Science Citation Index Expanded) during 2001-2011**

Languages	Records	Percentage
English	20807	96
French	306	1
German	253	1
Spanish	122	1
Turkish	71	0
Portuguese	54	0
Russian	27	0
Polish	25	0
Italian	21	0
Czech	5	0
Hungarian	3	0
Croatian	2	0
Korean	2	0
Serbian	2	0
Welsh	2	0
Danish	1	0
Estonian	1	0
Japanese	1	0
Norwegian	1	0
Persian	1	0
Total	21707	100

**Table 4. The ten most productive organizations in the field of bipolar disorders in SCI-E during 2001-2011**

Rank	Organizations	Records	Percentage
1	Harvard University	1186	3
2	University Pittsburgh	814	2
3	NIMH (National Institute of Mental Health)	725	2
4	University of California, San Diego	574	2
5	Massachusetts General Hospital	551	2
6	The University of Texas	525	1
7	University of Toronto	522	1
8	University California, Los Angeles	508	1
9	Case Western Reserve University	464	1
10	University of Cincinnati	458	1

SCI-E. The following were the University of Pittsburgh, the NIMH, and the University California, San Diego. All 4 productive institutes are located in the USA.

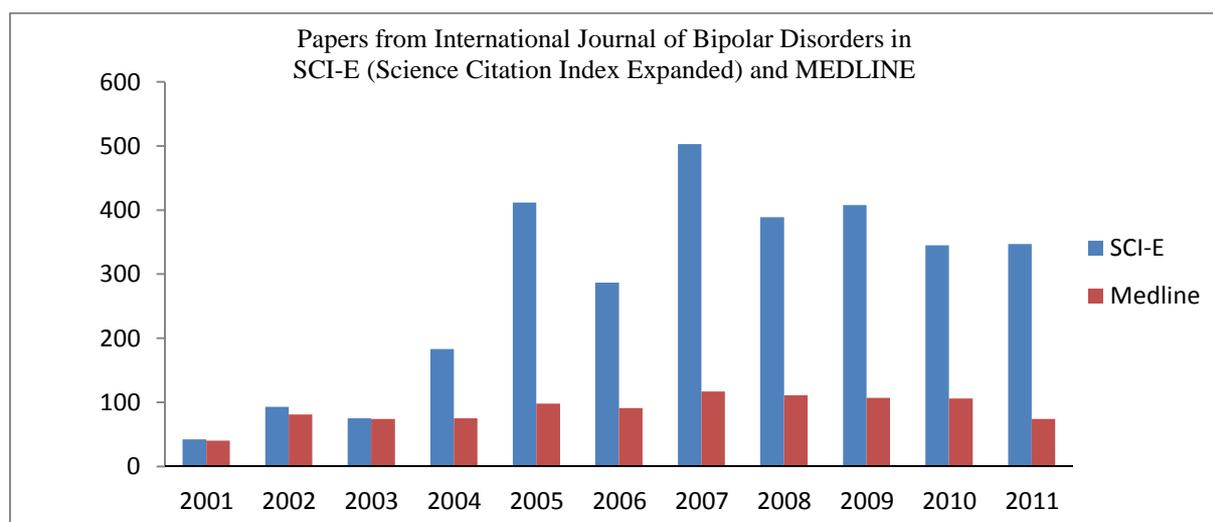
The country of origin of the authors sharing papers in the field of bipolar disorders in SCI-E through 2001-2011 is shown in table 5. The USA, sharing 37% of global publication in the subject area of bipolar disorders in SCI-E, was the leading country in the field followed by England, Canada, and Germany.

**Table 5. The 20 most productive countries in the field of bipolar disorders in SCI-E (Science Citation Index Expanded) during 2001-2011**

Rank	Countries	Records	Percentage
1	USA	10245	37
2	England	2115	8
3	Canada	1563	6
4	Germany	1558	6
5	Italy	1338	5
6	Australia	997	4
7	Spain	957	3
8	Brazil	806	3
9	France	727	3
10	Japan	619	2
11	Netherlands	507	2
12	Switzerland	430	2
13	Turkey	426	2
14	South Korea	357	1
15	Scotland	340	1
16	Sweden	338	1
17	Peoples Republic of China	334	1
19	Wales	316	1
20	Denmark	306	1

Figure 2 shows the number of papers published by The International Journal of Bipolar Disorders indexed in SCI-E and MEDLINE during the period of study. A total number of 3084 papers from The Journal of Bipolar Disorders were indexed in SCI-E, whereas only 974 papers were indexed in MEDLINE during the same period. The SCI-E database seems to select data more comprehensively than MEDLINE.

A total number of 6033 authors contributed 3084 papers through the period of study. Eduard Vieta from the University of Barcelona in Spain authored 81 papers in The International Journal of Bipolar



**Figure 2. The number of papers published in the International Journal of Bipolar Disorders indexed in SCI-E (Science Citation Index Expanded) and MEDLINE**

Disorders and was the most prolific author, followed by Michael Berk from the Deakin University of Australia (79 papers), and Flavio Kapczinski (75 papers) from the Federal University of Rio Grande do Sul (UFRGS) of Brazil. Table 6 is restricted to the 10 most productive authors. Table 7 reveals the fact that the majority of papers have been contributed by authors from USA. American authors have shared 36% of total papers distributed by The International Journal of Bipolar Disorders. The followings are from Canada, England, and Australia.

**Table 6. The ten most productive authors in The International Journal of bipolar disorders during 2001-2011**

Rank	Authors	Papers
1	Vieta, E.	81
2	Berk, M.	79
3	Kapczinski, F.	75
4	Calabrese, Jr.	71
5	Grunze, H.	58
6	Yatham, Ln.	56
7	Malhi, Gs.	54
8	Kupfer, Dj.	52
9	Tohen, M.	51
10	Suppes, T.	50

The majority of publications in The International Journal of Bipolar Disorders were in the form of meeting-abstract (65%), followed by journal articles (23%). These 2

publication types comprise 88% of total publications distributed by The Journal of Bipolar Disorders indexed in SCI-E through the period of study. It is remarkable that all publication was in English language, excepting 2 papers which were in Welsh and Estonian (Table 8).

The top 20 prolific organizations contributing papers to the Journal of Bipolar Disorders through 2001-2011 are shown in table 9. It indicates that the majority of papers distributed by The International Journal of Bipolar Disorders came from the University of Pittsburgh and Harvard University. All papers from The International Journal of Bipolar Disorders indexed in SCI-E were categorized under 3 subject areas (psychiatry, neuroscience and clinical neurology).

**Table 7. The country of origin of authors in The International Journal of bipolar disorders during 2001-2011**

Rank	Countries	Papers	Percentage
1	USA	1385	36
2	Canada	294	8
3	England	274	7
4	Australia	246	6
5	Brazil	235	6
6	Germany	162	4
7	Spain	135	3
8	Italy	114	3
9	Turkey	94	2
10	Netherlands	86	2

**Table 8. Document type of papers published by The International Journal of Bipolar Disorders indexed in SCI-E (Science Citation Index Expanded) during 2001-2011**

Document types	Papers	Percentage
Meeting-abstract	2048	65
Article	725	23
Review	155	5
Letter	71	2
Editorial Material	67	2
Proceedings Paper	53	2
Correction	17	1
Biographical item	1	0
Total	3137	100

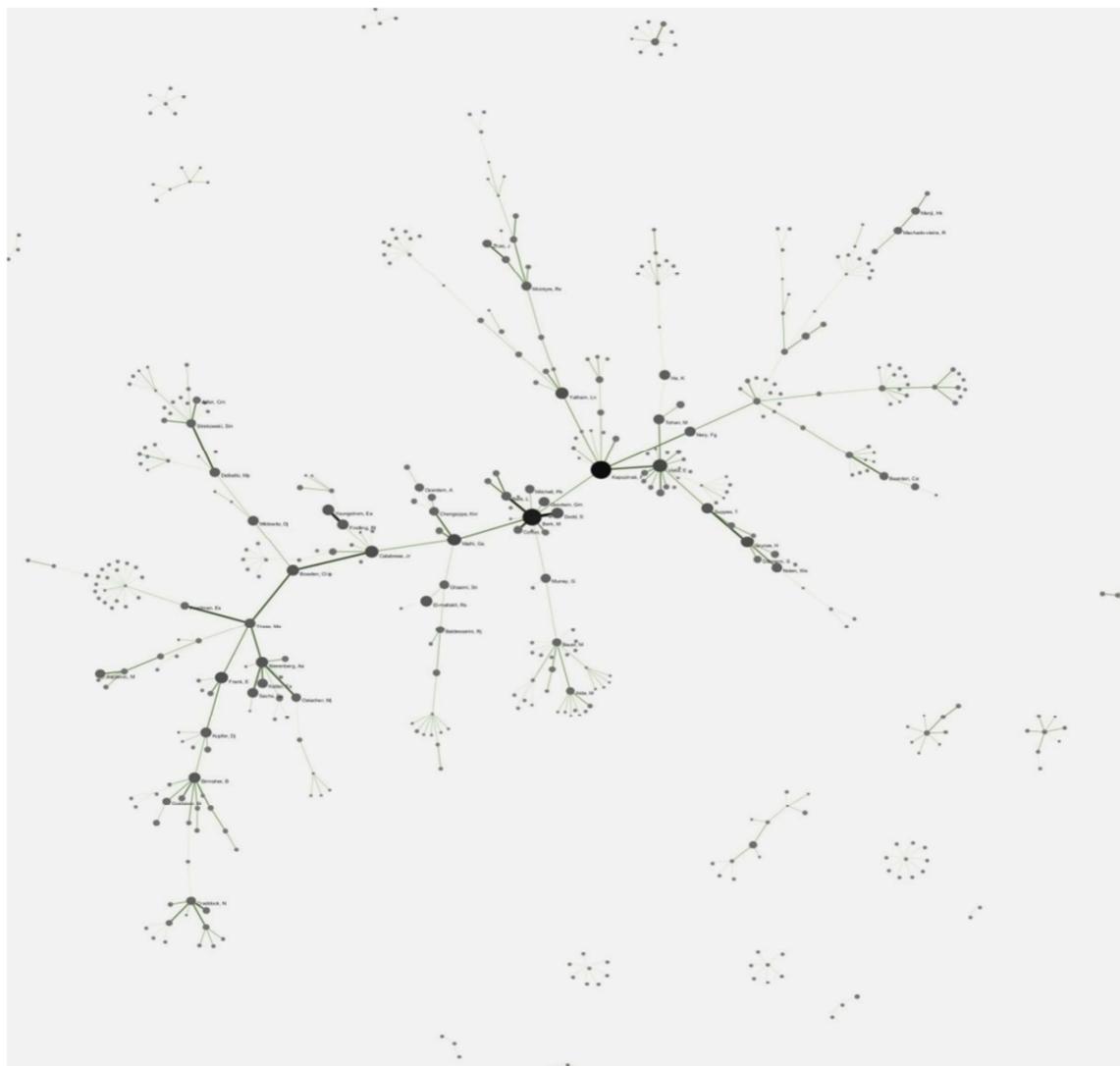
Figure 3 shows the co-authorship network of papers distributed by The International Journal of Bipolar Disorders through 2009-2011. Components shown in figure 3 were characterized for a period of 3 years (2009-2011). There were 15 sub-networks (a giant component in the center of co-authorship networks with 14 small components). The map was restricted to the authors whose works have been cited more than 10 times in the Web of Science through 2009-2011. Each circle (node) represents 1 author and every line connecting 2 authors shows the presence of at least 1 publication they have co-authored. Each portion of the

network is called a component. The giant component consists of 366 nodes.

Figure 4 shows the giant component of the co-authorship network (all small sub-networks have been removed). The network illustrates the strategic positions of 3 authors from 3 different countries (Brazil, Spain, and Australia). Without the works of these authors the co-authorship network would be divided into 3 sub-networks. The strategic authors in the co-authorship network are called cut-points and the link between them is called bridge. In the case of the absence these links, the network would embrace another isolated sub-network; in other words, the network would be experienced a structural hole. These authors are shown with the numbers 1, 2, and 3 in the map. In order of importance, the strategic authors in the network are: Kapczinski, Vieta, and Berk. Kapczinski from the Federal UFRGS in Brazil, who has been involved in producing 45 papers which have been cited 315 times in WoS through 2009-2011. He has 8 co-authored works with Vieta, the second cut-point author from the University of Barcelona in Spain, who authored 23 papers that have been cited 353 times in WoS. Kapczinski also had 4

**Table 9. The twenty most prolific organizations contributing papers to the Journal of Bipolar Disorders during 2001-2011**

Rank	Organizations	Papers	Percentage
1	University of Pittsburgh	214	4
2	Harvard University	166	3
3	Case Western Reserve University	115	2
4	University of Sao Paulo	106	2
5	University of Melbourne	103	2
6	University of British Columbia	97	2
7	University of California, Los Angeles	95	2
8	University of Toronto	92	2
9	Stanford University	89	2
10	University of Cincinnati	87	2
11	Massachusetts General Hospital	81	1
12	NIMH (National Institute of Mental Health)	81	1
13	University of Barcelona	72	1
14	University of Sydney	63	1
15	University of Texas	61	1
16	University of Texas Health Science Center at San Antonio	57	1
17	University of Pennsylvania	56	1
18	Federal University of Rio Grande do Sul	55	1
19	The Institute of Psychiatry	54	1
20	Hospital de Clinicas de Porto Alegre	51	1



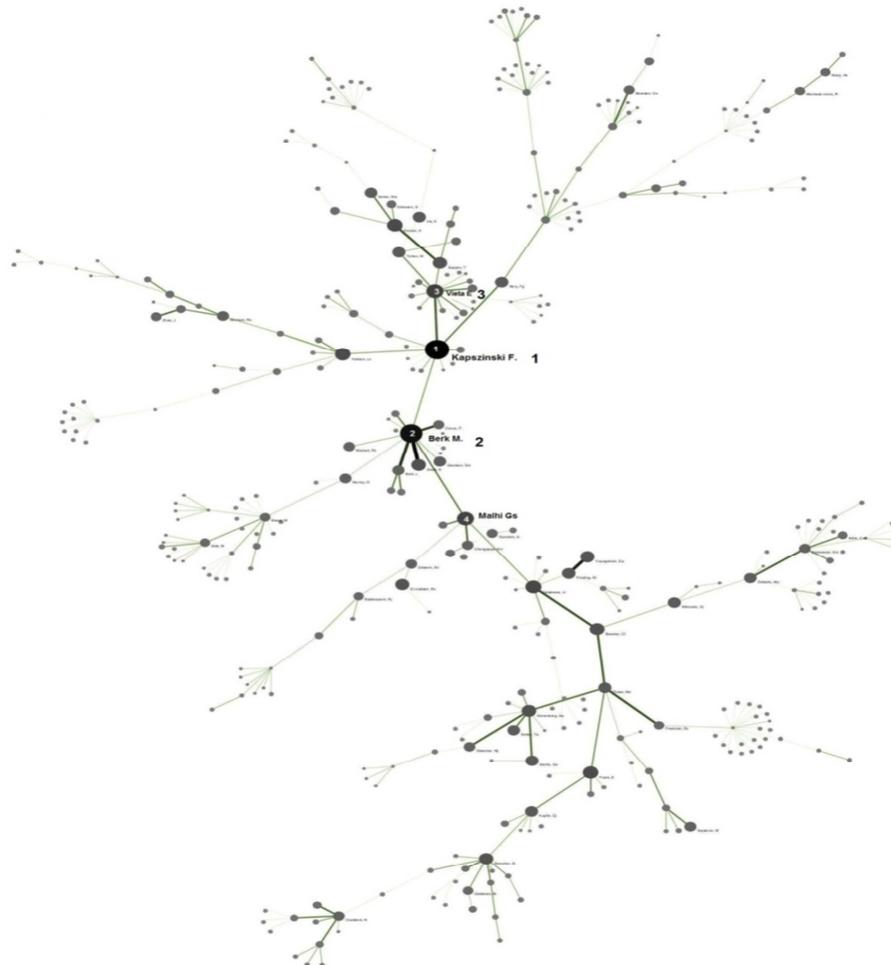
**Figure 3. The components of the co-authorship network of papers published by The International Journal of Bipolar Disorders during 2009-2011**

co-authored works with Berk, the third cut-point author from the Deakin University in Australia. Berk had 39 co-authored works, which have been cited 313 times in WoS through 2009-2011. In the network, the functions of 3 universities from 3 different continents are cut-points, the Federal UFRGS in Brazil (South America), the University of Barcelona in Spain (West Europe), and the Deakin University in Australia (Oceania). However, we are aware that the co-authored papers were mostly generated between the USA and other countries in the world. The rivals of USA in the field of neuroscience and behavior were UK and Germany (Figure 5). Figure 5 shows the co-authorship network

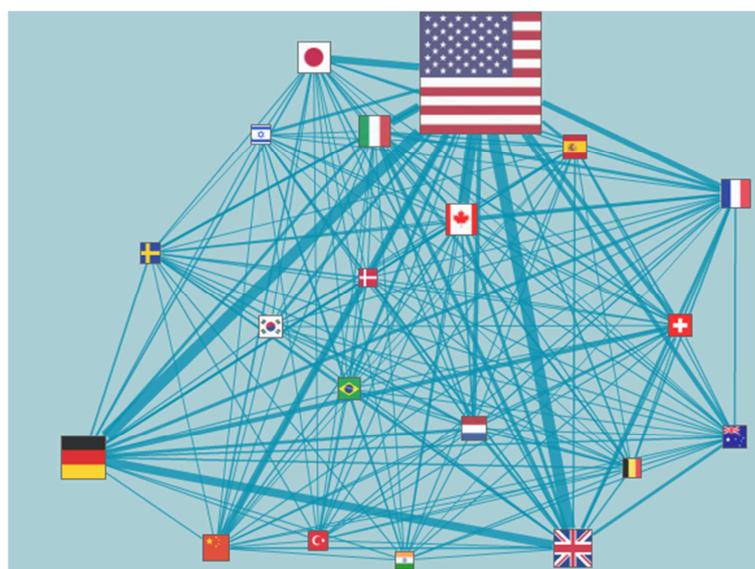
among countries in the subject areas of neuroscience and behavior based on the Web of Science database in 2009.<sup>8</sup> The figure is restricted to the top 20 international co-authored papers. It clearly specifies that the USA was the focal point of co-authorships among countries. It is remarkable that there was a great co-authorships relation between USA, UK, and Germany. These 3 countries were also the main scientific profile producers.

#### **Discussion**

Analysis of data indicated that the number of publications in the field of bipolar disorders in SCI-E increased steady through the period



**Figure 4. The co-authorship network of papers published in the International Journal of Bipolar Disorders during 2009-2011**



**Figure 5. The co-authorship network of countries in the field of neuroscience and behavior in WoS in 2009**

of study. The number of papers published by The Journal of Bipolar Disorders showed a progressive trend in SCI-E through the span of the study. A total number of 500 journals contributed to publishing papers categorized as bipolar disorders in SCI-E. The majority of publications in this subject area belonged to the International Journal of Bipolar Disorders. Although the majority of publications in the subject area of bipolar disorders in SCI-E database was in the form of journal articles, the foremost papers distributed by The Journal of Bipolar Disorders was in the form of meeting-abstracts. One may interpret this phenomenon as the result of the focus of the editorial policy of The International Journal of Bipolar Disorders on new themes and new ways, because it is an accepted idea that new themes are presented first in conferences and accordingly appear in meeting-abstracts. English was the dominant language of papers in the field of bipolar disorders in SCI-E. This should not come as a surprise; since the editorial policy of this database has been focused on selecting papers in English since long ago.<sup>9</sup> All papers published by The Journal of Bipolar Disorders were in English. Harvard University was the leading university in contributing papers in the field of bipolar disorders in SCI-E; whereas, the majority of papers published by The Journal of Bipolar Disorders came from the University of Pittsburgh and Harvard University, respectively.

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North America and Western Europe were identified as the most productive regions regarding publication of papers, in the subject area of bipolar disorders, indexed in SCI-E and papers published by The Journal of Bipolar Disorders. This study is not the first to show the dominance of these two regions in science; another study has also confirmed the productivity of these regions.<sup>10</sup> Most published papers by The Journal of Bipolar Disorders were contributed by highly prestigious authors. Flavio Kapczinski, from the Federal UFRGS in Brazil, contributed a total number of 45 papers which were cited 315 times, his H-Index based on WoS was 32. Eduard Vieta authored 23 papers which were cited 353 times. His H-Index in WoS was 51. Michael Berk, whose H-Index was 38 in WoS, contributed 39 papers that have been cited 38 time through the period of study.

Regarding the selection of papers for indexing, the SCI-E database select more comprehensively than MEDLINE. The number of papers distributed by The International Journal of Bipolar Disorders indexed in SCI-E is much greater than the number of papers indexed in MEDLINE. A total number of 3084 papers from The Journal of Bipolar Disorders were indexed in SCI-E; whereas, only 974 papers from this journal were indexed in MEDLINE through 2001-2011.

## Conflict of Interests

Authors have no conflict of interest.

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