

# Brain Disorders – Indian and Global Trends

---

**Sai Venkatesh Balasubramanian and Gomathi Balasubramanian**

Sree Sai VidhyaMandhir, Mallasandra, Bengaluru-560109, Karnataka, India.

[saivenkateshbalasubramanian@gmail.com](mailto:saivenkateshbalasubramanian@gmail.com)

## Abstract

In light of the information explosion and prominence of search engines in current scenario, the present article investigates and reports on the search trends of five brain disorders, namely meningitis, schizophrenia, epilepsy, autism and coma, using the Google Trends tool. Setting the time duration between the mid-2000's and the present (July, 2016), the analyses of trends are performed both chronologically and location-wise on global and Indian geographies.

Overall, it is interesting to see certain regional patterns in global and Indian trends and forms the impetus for studying correlations and impacts of a lot of factors such as workaholism, HDI, percentage of white and Caucasian races and climatic conditions in Europe and America. Also, as seen from the Indian trends, south Indian states and cities dominate trends of all the analyzed brain disorders, and it is imperative to investigate into the correlations of such disorders with tropical and coastal climates as well as socio-economic and academic performances.

## 1. Introduction

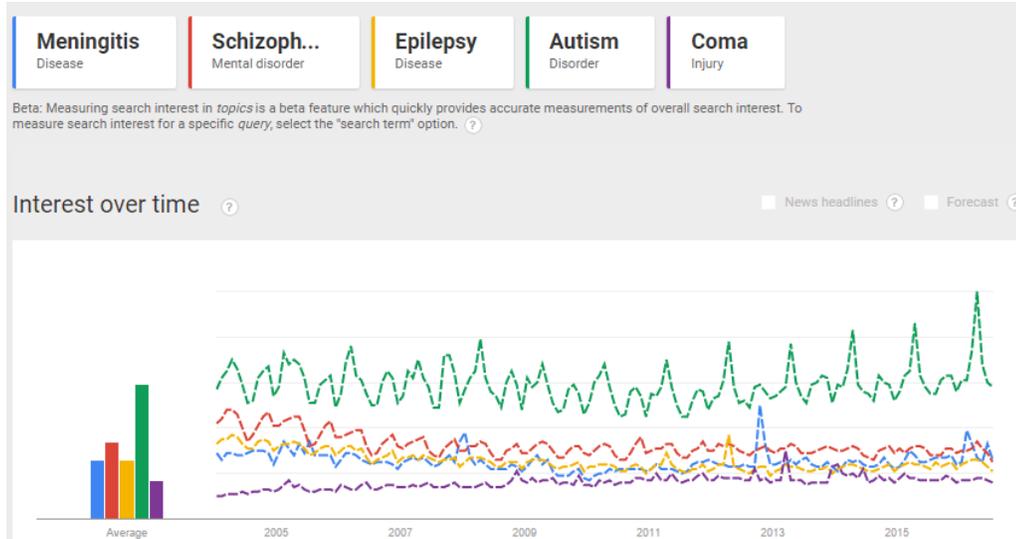
It is an undisputable fact that we currently live in an era of information explosion – gone are those days of spending long hours in reference libraries surrounded by hard-bound encyclopedias. Information has engulfed us so much that one can get a lot of vital understanding just by studying the search keywords people of different geographies are interested in. A very useful tool in this regard is the Google Trends, which show both location-wise and chronological variations in the popularity of a given search term.

In this article, we report on the Google Trend analysis of certain brain disorders. In particular, five disorders are considered: Meningitis, Schizophrenia, Epilepsy, Autism and Coma. Trends are studied with respect to both global and Indian geographies for a time period ranging from the mid-2000's to the present (July, 2016). While it can be argued that such trends of brain disorders can be reflective of both the extent of affected populations as well as extent of research into such disorders, the related searches column of the trend searches conclusively assert the exclusive influence of the former on the trend analyses.

It is interesting to see certain patterns emerging out of the trend analyses, and forms a platform as well as an impetus for further enquiry on a rigorous scale into various correlations of brain disorders with for instance, socio-economic status, lifestyle behaviors and work-life balance.

## 2. Global Trends

We start with examining worldwide search trends for the five brain disorders mentioned earlier, setting a time period of January,2004-July,2016. The chronology of global interest thus observed is shown below:



One can observe that autism trends clearly above all other disorders, and also exhibits a periodic interest, with the highest points of each year observed in April, coinciding with the World Autism Awareness Day on April 2. Except for certain sporadic bursts in Meningitis and Coma trends, most of the other disorders show very close interest levels, with schizophrenia trends exhibiting a gradual decline.

Location-wise trend analyses for the disorders are then studied, both country-wise and city-wise. The geographical analyses for meningitis are as shown.



It is seen that interest in meningitis peaks in Kenya, Paraguay and Chile, with the Chilean capital Santiago leading among cities. The country trends show interests mainly in South America and in pockets in Africa.

The analyses for schizophrenia are shown below:



Minato	100	<div style="width: 100%;"></div>
Shibuya	100	<div style="width: 100%;"></div>
Osaka	97	<div style="width: 97%;"></div>
Santiago	77	<div style="width: 77%;"></div>
Warsaw	77	<div style="width: 77%;"></div>
Toronto	75	<div style="width: 75%;"></div>
Los Angeles	70	<div style="width: 70%;"></div>

Japan peaks the global trends, with two Tokyo wards of Minato and Shibuya leading in cities, followed by another Japanese city, Osaka. Apart from this, schizophrenia trends are popular in affluent countries such as the USA, Canada and Denmark, all four nations within the world’s top 20 Human Development Indices (HDI), and three of the four (except Poland) within the world’s top 10 countries by research output. This suggests a detailed inquiry into the correlation between schizophrenia and intellectual advancement, as well as impacts of research on work-life balance and HDI.

The trends of epilepsy follow:



Osaka	100	<div style="width: 100%;"></div>
Santiago	99	<div style="width: 99%;"></div>
Minato	97	<div style="width: 97%;"></div>
Shibuya	94	<div style="width: 94%;"></div>
Warsaw	85	<div style="width: 85%;"></div>
Amsterdam	84	<div style="width: 84%;"></div>
Ankara	76	<div style="width: 76%;"></div>

Japan and Chile top the trends, followed by Norway, Finland and the Netherlands. Among cities too one finds the three Japanese cities seen earlier and Santiago peaking. Also, compared to the earlier trends, one finds a slightly higher level of interest among Asian and European countries.

The analyses for autism are shown below:

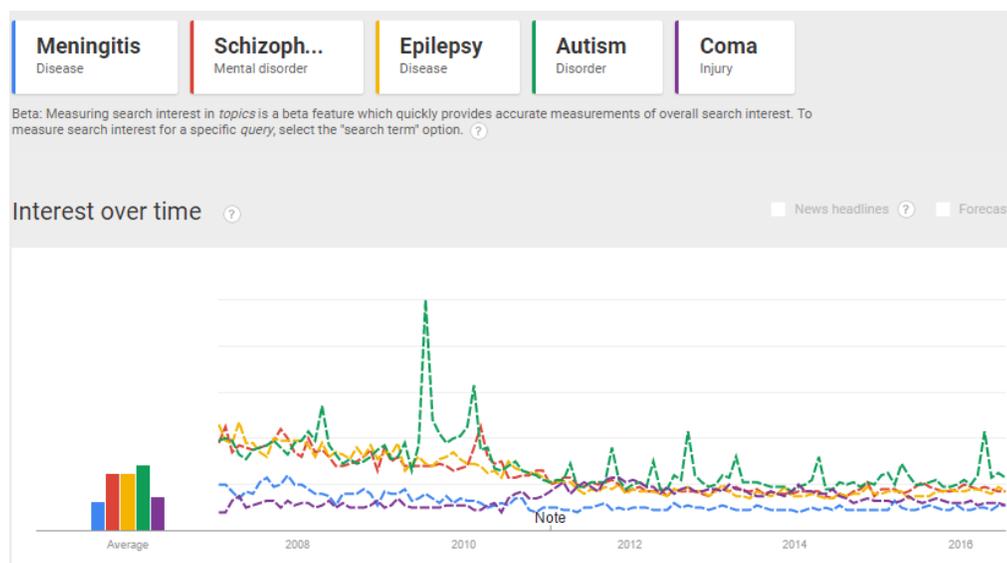


Dublin	100	<div style="width: 100%;"></div>
New York	98	<div style="width: 98%;"></div>
Amsterdam	97	<div style="width: 97%;"></div>
Melbourne	96	<div style="width: 96%;"></div>
Rome	96	<div style="width: 96%;"></div>
Toronto	93	<div style="width: 93%;"></div>
Los Angeles	93	<div style="width: 93%;"></div>

It is interesting to observe that among the top five countries in autism trends, three are European (Netherlands, Ireland, Italy) and two are North American (Canada, USA). This trend reflects in top trending cities seen almost exclusively from these countries.

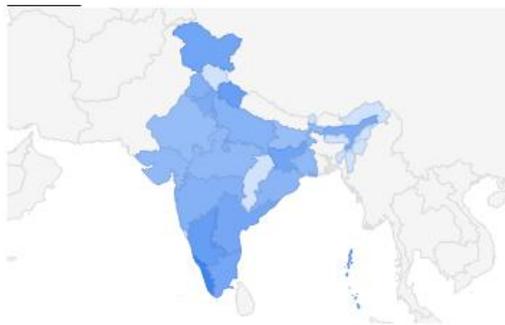
### 3. Indian Trends

Trends of the five brain disorders are also analyzed on Indian geography between January, 2007 and July, 2016. The chronological variations are as shown:



Unlike global trends, almost all the five disorders follow similar search trends, with autism being slightly more popular and meningitis and coma trends trailing behind. A gradual decrease in trends of autism, epilepsy as well as schizophrenia is also noteworthy.

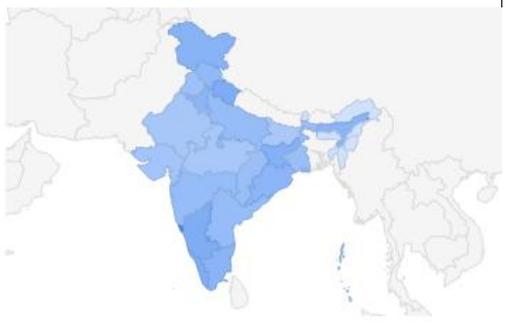
Regional trends of meningitis follow:



Thiruvananthapuram	100	<div style="width: 100%; background-color: #c00000;"></div>
Kochi	90	<div style="width: 90%; background-color: #c00000;"></div>
Coimbatore	63	<div style="width: 63%; background-color: #c00000;"></div>
Bengaluru	60	<div style="width: 60%; background-color: #c00000;"></div>
Gurgaon	56	<div style="width: 56%; background-color: #c00000;"></div>
Chennai	55	<div style="width: 55%; background-color: #c00000;"></div>
Hyderabad	52	<div style="width: 52%; background-color: #c00000;"></div>

South Indian states of Kerala, Telangana and Karnataka lead the trends, with four out of the top five cities being south Indian. The influence of tropical climate on the spread of the disorder might be a useful investigation in this regard.

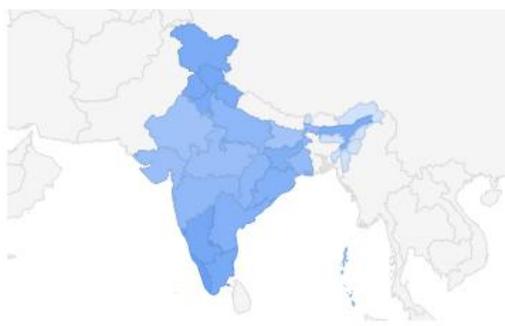
The corresponding trends for schizophrenia are as follows:



Mangaluru	100	<div style="width: 100%; background-color: #c00000;"></div>
Thiruvananthapuram	83	<div style="width: 83%; background-color: #c00000;"></div>
Noida	61	<div style="width: 61%; background-color: #c00000;"></div>
Pimpri-Chinchwad	59	<div style="width: 59%; background-color: #c00000;"></div>
Bhubaneswar	59	<div style="width: 59%; background-color: #c00000;"></div>
Bengaluru	58	<div style="width: 58%; background-color: #c00000;"></div>
Gurgaon	56	<div style="width: 56%; background-color: #c00000;"></div>

Coastal states Goa and Puducherry top the charts, followed by Uttarakhand, Kerala and Karnataka. Among cities, coastal Mangaluru and Thiruvananthapuram clearly dominate trends.

The trends of epilepsy, which are very similar to schizophrenia are shown as follows:

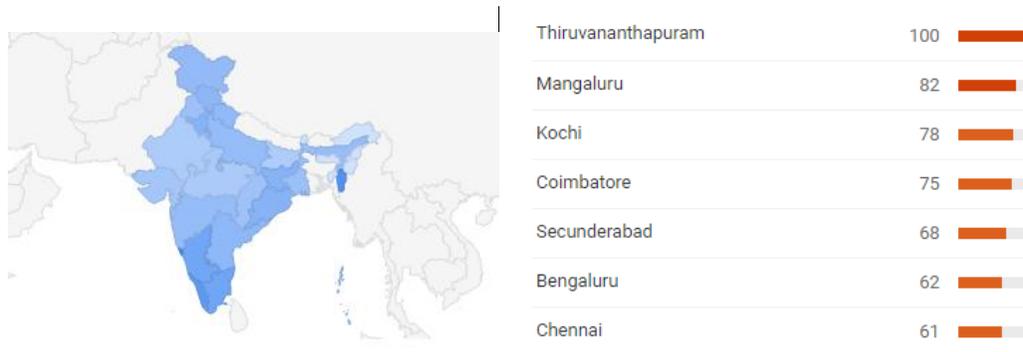


Thiruvananthapuram	100	<div style="width: 100%; background-color: #c00000;"></div>
Mangaluru	86	<div style="width: 86%; background-color: #c00000;"></div>
Coimbatore	62	<div style="width: 62%; background-color: #c00000;"></div>
Kochi	54	<div style="width: 54%; background-color: #c00000;"></div>
Bengaluru	53	<div style="width: 53%; background-color: #c00000;"></div>
Gurgaon	52	<div style="width: 52%; background-color: #c00000;"></div>
Chennai	50	<div style="width: 50%; background-color: #c00000;"></div>

Four of the top five states, Puducherry, Goa, Kerala and Karnataka are coastal, with six of the top seven cities from south India, a region that has consistently performed better in socio-economic and academic contexts. An investigation into these correlations along with impact of coastal and tropical

environments would be very helpful.

Finally, trends of Autism are as follows:



Among top six state trends, one finds Mizoram and Tamilnadu added to the mix of Goa, Kerala, Puducherry and Karnataka, all of them except Mizoram being coastal. However, city trends remain similar to the ones seen earlier, with all the seven top cities exclusively from south India.

#### 4. Conclusion

In light of the information explosion and prominence of search engines in current scenario, the present article investigates and reports on the search trends of five brain disorders, namely meningitis, schizophrenia, epilepsy, autism and coma, using the Google Trends tool. Setting the time duration between the mid-2000's and the present (July, 2016), the analyses of trends are performed both chronologically and location-wise on global and Indian geographies.

Overall, it is interesting to see certain regional patterns in global and Indian trends and forms the impetus for studying correlations and impacts of a lot of factors such as workaholism, HDI, percentage of white and Caucasian races and climatic conditions in Europe and America. Also, as seen from the Indian trends, south Indian states and cities dominate trends of all the analyzed brain disorders, and it is imperative to investigate into the correlations of such disorders with tropical and coastal climates as well as socio-economic and academic performances.

#### References

- [1] Google Trends: <https://www.google.co.in/trends/>
- [2] Anand, Sudhir. Human Development Index: methodology and measurement. No. HDOCPA-1994-02. Human Development Report Office (HDRO), United Nations Development Programme (UNDP), 1994.
- [3] HDI: [https://en.wikipedia.org/wiki/Human\\_Development\\_Index](https://en.wikipedia.org/wiki/Human_Development_Index)
- [4] Research Output by Country: <https://www.researchtrends.com/issue8-november-2008/geographical-trends-of-research-output/>
- [5] South India: <http://www.thenewsminute.com/article/united-states-south-india-can-southern-collective-get-us-better-deal-delhi-46501>