

## COMPARATIVE STUDY OF NEUROLOGICAL DISORDER IN INDIA AND INDIAN COMMUNITY IN USA

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### INTRODUCTION

Awareness about neurological disorder and quality of life has increased in developing country like India. By analyzing data and reanalysing previous data, we could shed more light on current neurological disorder. India has shown significant improvement in economic indicator like GDP, reserve of foreign exchange etc. According to UN report India falls at the near bottom of the countries (is Ranked 135 among total 187 countries. Healthcare quality (% satisfied) 48% below even to Bangladesh, Shrilanka and Nepal.

According to UN, 75% of healthcare facilities are concentrated in urban areas in India where only 27% of population lives. The country is 81% short of doctors at rural community. The awareness on various issues of health among rural community is very low. Malnutrition, hygienicity, sanitation fresh and quality drinking water, iodine and other elements deficiency, non-availability of the services and the medicine are major issues in rural India.

This study was the first of its kind done in India to analyze for various neurological disorders in general public. Multi sector and interdisciplinary collaborations that support community neurological health is suggested and should be a part of long term policy. A community health assessment plan gives institutes of neurological health, comprehensive information about health status, needs and issues.

For neurosurgery, care and neurosurgery Indian 4A model is almost collapse. Accessibility, affordability, availability and acceptability for the Indian neurological healthcare are not able to keep pace with the demands of growing population.

The average estimated prevalence rate of common neurological disorders in India is 2394 and ranged from 967 to 4070 per lac population. "Community health centre model" "satellite clinic model" and "district model" are successful in rural and district in tribal part of India. But for neurological disorder, there is no facility even in non tribal part of the country.

Around one third of new neurological outpatients have symptoms regarded by neurologists as "not at all" or only "somewhat" explained by disease sometimes, for general public. There is no difference between symptoms and disease. It is up to health care worker to explain things in common man language.

### DISCUSSION

This survey is conducted on general public. The present study is conducted specifically to assess disorders and the level of awareness about symptoms. Two different groups (A) Indian group (B) Indian community in USA having four age groups. All these groups have sub group of Male and Female.

Statistical analysis has been done, using reference percentage. The survey is conducted by distributing questionnaires as shown in table on goggle forms. After confirming their willingness to take part in the questionnaire, persons were explained they can reply without any hesitation.

Multiple choice type questions needs no further interpretation Excel sheet has been used for calculation. We try to circulate form to all over India to get best results.

| No. | Questions  | Options  |
|-----|--|--|
| 1   | Have you ever tested for vitamin B1? What is result?                 | 1A. Yes / No<br>1B. Result   |
| 2   | Do you experience any impaired co ordination in your movements?      | 2A. Yes<br>2B. No<br>2C. May be  |
| 3   | Do you feel dizzy most of the time?                                  | 3A. Yes<br>3B. No.   |
| 4   | Do you take any un prescribed drug or Opioid?                        | 4A. Yes but only few times<br>4B. No<br>4C. Frequently   |
| 5   | Have you ever experienced any confusion?                             | 5A. Yes<br>5B. No.   |
| 6   | Have you experienced a temporary loss of vision OR change in Vision? | 6A. Yes<br>6B. No.   |
| 7   | Do you suffer with any lever disorders?                              | 7A. Yes<br>7B. No<br>7C. Once only   |
| 8   | Are you suffering from Hyperthyroidism?                              | 8A. Yes<br>8B. No.<br>8C. May be   |
| 9   | Have you ever experience a temporary loss of skin sensisation?       | 9A. Yes<br>9B. No.<br>9C. May be   |
| 10  | Do you experience frequent memory loss?                              | 10A. Yes<br>10B. No.<br>10C. May be  |
| 11  | Any difficulty with breathing?                                       | 11A. Breathing difficulty on exertion, no function attested.<br>11B. Breathing difficulty with walking 100 m.<br>11C. Breathing difficulty with on minimal exertion walking few steles.<br>11D. Even at rest<br>11E. No. |

**MALE (USA)**

| Age group    | Question's Option Number |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |
|--------------|--------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|              | 1A                       | 1B | 2A | 2B | 2C | 3A | 3B | 4A | 4B | 4C | 5A | 5B | 5A | 5B | 6A | 6b | 7A | 7B | 8A | 8B | 8C | 9A | 9B | 9C | 10A | 10B | 10C | 11A | 11B | 11C | 11D | 11E |
| 15-30        | 1                        | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1  | -   | -   | -   | -   | 1   | -   | 1   | -   |
| 31-45        | 2                        | 2  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -   | -   | -   | -   | 2   | 1   | -   |     |
| 46-60        | 1                        | 2  | -  | -  | -  | -  | -  | -  | -  | -  | 1  | -  | -  | -  | -  | -  | -  | 1  | -  | -  | -  | -  | -  | -  | -   | -   | 1   | 1   | 2   | 1   | 1   | -   |
| 61 and above | 1                        | 1  | -  | -  | 1  | -  | -  | 2  | -  | -  | 1  | -  | -  | -  | -  | -  | 1  | 1  | 1  | -  | -  | -  | -  | 1  | -   | -   | 2   | 3   | -   | -   | -   | -   |

**MALE (INDIA)**

| Age group    | Question's Option Number |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |
|--------------|--------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
|              | 1A                       | 1B | 2A | 2B | 2C | 3A | 3B | 4A | 4B | 4C | 5A | 5B | 5A | 5B | 6A | 6b | 7A | 7B | 8A | 8B | 8C | 9A | 9B | 9C | 10A | 10B | 10C | 11A | 11B | 11C | 11D |
| 15-30        | -                        | -  | 1  | -  | -  | 4  | -  | 4  | -  | -  | 10 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1  | 2  | -   | 1   | 1   | 2   | 1   | -   | -   |
| 31-45        | -                        | -  | 1  | -  | 2  | 7  | -  | 8  | -  | 2  | 4  | -  | -  | -  | -  | 1  | -  | -  | -  | -  | -  | -  | 1  | 3  | -   | 1   | 1   | 5   | 2   | 1   | -   |
| 46-60        | 1                        | -  | 5  | -  | 7  | 8  | -  | 11 | -  | 2  | 11 | -  | 4  | -  | -  | 1  | -  | 1  | -  | -  | 2  | -  | 2  | 3  | -   | 3   | 1   | 2   | 3   | 1   | -   |
| 61 and above | 1                        | -  | 3  | -  | 8  | 7  | -  | 7  | -  | 1  | 0  | -  | 3  | -  | -  | -  | -  | 1  | -  | -  | 3  | -  | 3  | 4  | -   | 4   | 4   | 2   | 3   | 3   | -   |

**FEMALE (USA)**

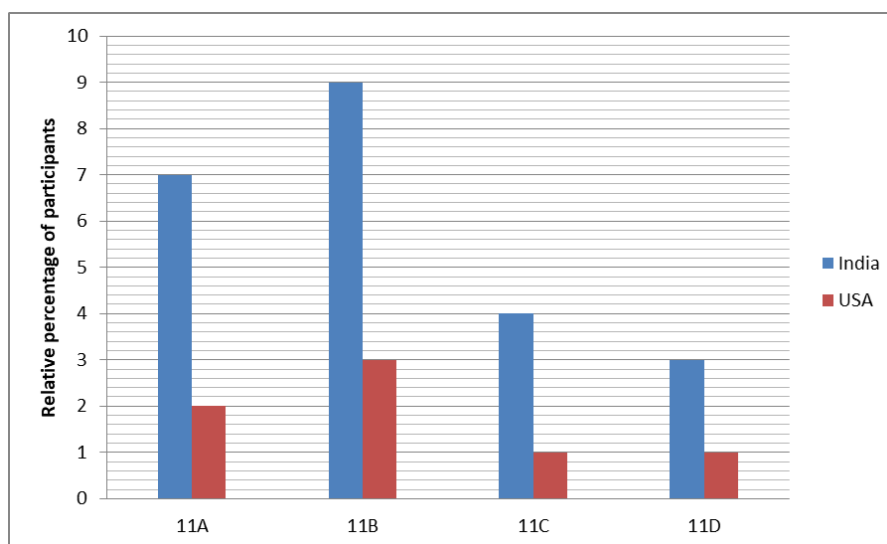
| Age group    | Question's Option Number |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |
|--------------|--------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|              | 1A                       | 1B | 2A | 2B | 2C | 3A | 3B | 4A | 4B | 4C | 5A | 5B | 5A | 5B | 6A | 6b | 7A | 7B | 8A | 8B | 8C | 9A | 9B | 9C | 10A | 10B | 10C | 11A | 11B | 11C | 11D | 11E |
| 15-30        | 1                        | 1  | -  | -  | 1  | -  | -  | -  | -  | -  | -  | -  | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 2  | -   | -   | -   | 1   | -   | -   | -   | -   |
| 31-45        | 2                        | 2  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -   | -   | -   | -   | -   | -   | -   | -   |
| 46-60        | 2                        | 2  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1  | -  | -  | -  | -  | -  | -  | -   | -   | -   | -   | -   | -   | -   | -   |
| 61 and above | 1                        | 0  | 1  | -  | 1  | -  | -  | 2  | -  | -  | -  | -  | 2  | -  | 2  | -  | 1  | 1  | 1  | -  | 1  | 1  | -  | -  | -   | -   | 2   | 1   | -   | -   | -   | -   |

**FEMALE (INDIA)**

| Age group    | Question's Option Number |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |
|--------------|--------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|              | 1A                       | 1B | 2A | 2B | 2C | 3A | 3B | 4A | 4B | 4C | 5A | 5B | 5A | 5B | 6A | 6b | 7A | 7B | 8A | 8B | 8C | 9A | 9B | 9C | 10A | 10B | 10C | 11A | 11B | 11C | 11D | 11E |
| 15-30        | -                        | -  | -  | -  | -  | 13 | -  | 3  | -  | -  | -  | -  | 8  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1  | -   | 1   | 2   | 2   | 1   | -   | -   | -   |
| 31-45        | 2                        | -  | 2  | -  | 2  | 2  | -  | 7  | -  | 3  | -  | -  | 4  | -  | 3  | -  | -  | -  | -  | -  | -  | -  | -  | 1  | 2   | -   | 2   | 1   | 2   | 1   | -   | -   |
| 46-60        | 2                        | -  | 2  | -  | 4  | 10 | -  | 7  | -  | 7  | -  | -  | 10 | -  | 3  | -  | -  | -  | -  | -  | -  | 2  | -  | 1  | 3   | -   | 5   | 4   | 4   | 2   | 1   | -   |
| 61 and above | 4                        | -  | 4  | -  | 4  | 8  | -  | 3  | -  | 1  | -  | -  | 4  | -  | 4  | -  | -  | -  | 1  | -  | -  | 4  | -  | 3  | 5   | -   | 6   | 3   | 3   | 1   | 2   | -   |

## RESULTS

- Total number of Participants in survey is 328( Female 153+ Male 175)
- Total number of participants from Indian community (USA) is 106 (Female 41 + Male 65)
- Total number of participants from Urban 108, semi Urban 68, Rural 46 Region of India. Total 222 Male 110 + Female 112 to 30 Y
- Total number of participants from Urban 76, semi Urban 22, Rural 8 Region of USA.
- Majority of USA participant are student of age group 15.
- Majority of Indian participant are working class.
- The neurological disorders were more common in rural compared to the urban population.
- The prevalence rate is higher in females than males.
- Headache is most common disorder in Indian culture. Most of them don't consider as a neurological disorder.
- Vitamin B1 awareness is in Indian group 5.8%. In sdedictign American group. 1.4%.
- impaired co-ordination of movements in Indian group 8.5% and in American group 0.9%
- Dizziness is most common in Indian participant but not in an American participant.
- "Confusion" symptoms are 24.7% in Indian participant and 3.7% in an American participants.
- Temporary loss of vision or change in vision are in 8.1 Indian participant and in 1.7 an American participant.
- Hyperthyroidism is negligible in both the groups.
- Lever disorders' are in 1.3% and Indian participants and 1.8% an American participants groups.
- Temporary loss of skin sensisation" is also negligible in bath groups.
- "Frequent memory loss" is in 10.3% Indian participant and 0.44% an USA participant.
- Breathing problem is as shown in figure in both the community USA.
- Use of unprescribe drug or opioids is common practice in India. It is around of 43% Indian participant.
- Because of restrictions and organized implementation of restrictions, USA participant does not use it. It is around 13% of USA participant.



Question 11: Any difficulty with breathing?.

## INTERPRETATION AND CONCLUSION

- Importance and level required of vitamin B1 is not known to participants.
- There is confusion between vitamin B1 and vitamin B12.
- Women are more conscious than men about vitamin's deficiency.
- Comparing western part of India (Gujarat) and Eastern part of India (Bengal) Neurological problem in eastern part is high.
- Due to lack of awareness and understanding of neurological disorders, results in various taboos, impact on life, hindering the treatment and in some cases even aggravating the problem.
- Until now, In India, only selected respiratory disorders with reference to neurological disorder have scarcely been studied. All most all reports or survey are in reference to seasonal variations.
- Integration of neurological services into the primary care systems in bath country (especially in India) needs to be a significant investment, in training of primary health care professional to get more survey and to detect and treat more neurological disorders.
- When neurological disorders are around 20% to 22% can be diagnosis at first stage, training in neurology does not refer only to postgraduate specialization but also to under graduates, general physicians and primary healthcare workers.
- Continuous medical education is important, even for general public to take care of themselves or their beloved.

**Important Points**

1. No optimal Insurance Indian per capiota expenditure on mediclaim is the lowest in the world where in USA it is highest.
2. Less Emphasis on preventive care. The lifestyle, pollution, un healthy food stress and non awerness. Do not allow people to watch their health preventive care helps tackle big problems at initial stage.
3. Less support for medical research especially in neurology. Overburdening and lack of resources and funding are main reason for the lack of research in USA the main focus is on research and innovation gives great advantages.
4. Lack of fund in health care system, Compare to India, USA spends 100 times more.
5. Recently, report published in the Lancet by Global Burden of disease project claimed that neurological diseases comprised 16.8 percent of Global death.
6. According to above said report the number of deaths due to neurological disorders increased by 36.7 percent word wide between 1990 and 2015.
7. Most of the survey for neurology is done in south India especially Bangaluru.
8. There are very less research from India or other developing countries regarding public perception of neurological stroke warning, there are so many in USA.
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**LIMITATION OF THE STUDY**

This study was restricted to limited contacts are available at USA. The results of the study may not be similar; it is conducted all over the Indian community in USA. Sample size is also limitation. All that are staying in USA, we have treated as an American.

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