kilometres (618 sq mi), and had a population of 18,868 as per 2011 census. Bharmour block is situated at an altitude of 7000 feet in the Budhil valley, forty miles to the south-east of Chamba. The survey was conducted between June 2017 and November 2018. Individuals above seven years age and consenting to be a part of the study were included in the study and above.

Sample size

A sample size of 10,000 individuals spread over three districts (Two tribal and one with two tribal blocks) was calculated with the assumption that this sample size will provide us with the prevalence on Major Neurological disorders in tribal areas of Himachal Pradesh. Importantly the sample size was spread over socio-economically different tribal blocks with two blocks of relatively poor socio economic status [2].

Sampling

A Cluster randomized sampling technique was used for the purpose of the study. All the revenue villages falling under these selected tribal areas were identified and labeled as the primary sampling unit for selecting the study population. Thereafter the villages were spread into clusters and clusters were listed. A total of 40 clusters (10 each from four selected geographical locations) were identified and sample size of 10,000 was collected from these 40 clusters. Therefore, 250 (10000/40=250) individuals of more than 7 year of age were recruited from each selected cluster. Randomly a household was selected from each village and thereafter a house-to-house survey was carried out to complete the sample size of 250 individuals above 7 years of age. If sample could not be achieved from a revenue village of the selected cluster then the adjoining village was selected and house-to-house survey was carried out accordingly to complete the desired sample. The study was completed in two phases.

Phase I: (Screening phase)

The screening phase was carried out by the field staff trained in the screening of neurological disorders administering the study questionnaire to the consenting individuals above 7 years of age. The study questionnaire was administered by the field workers in the household settings through a house to house survey. All eligible individuals, fulfilling inclusion criteria, were contacted. Individuals absent from their homes at the time of visit were requested to report at the local/ nearby Anganwadi Centre on the subsequent day. Interviews were conducted in local languages from the head of the household or surrogate respondent, who was able to provide information for each family member of the selected household. The screening instruments consisted of parameters for information on socio demographic characteristics of the households and a modified version of National institute of mental health and neurosciences (NIMHANS) protocol for assessing presence of neurological disorders.

Phase II (clinical phase)

In stage II, all individuals who responded positive to screening protocol in stage I were invited to undergo examination by a clinical team under standard conditions. To maintain the operational definitions of various neurological disorders and to have a uniform case definition and classification, a symptom based classification was used for analysis.

Clinical team comprised of neurologists, pediatrician, physician and public health experts at a time. Neurologists' diagnosis was considered as gold standard for defining a suspected and confirmed case.

Data and Statistical analysis

The data collected was entered in Microsoft excel software and double checked for duplicate and missing information. Analysis was conducted using Epi Info version 7 (CDC, USA). The descriptive data

Illiterate	324 (25.7)	932 (74.3)	1256[15.2]
Total	4200	4055	8255

Table 2: Distribution by educational status.

In 8255 participants, 1602 positive responses were recorded and more than one positive response was given by some participants in stage one. The crude prevalence of neurological disorders was 3.04% in the study population after clinical assessment in stage 2. It was more in males (3.8%) as compared to females (2.2%) and was statistically significant (p< 0.000). Migraine was major disorder (1.9%). (Table 3)

Diagnosis	Male (N %)	Female (N %)	Total (N %)	P value
Migraine	98(2.3)	60(1.4)	158 (1.9)	0.016
Epilepsy	18(0.42)	11(0.27)	29(0.35)	0.227
Stroke	30(0.71)	9(0.22)	39(0.47)	0.001
Cerebral Palsy	4(0.09)	3(0.07)	7(0.08)	0.962
Parkinsonism	3(0.07)	2(0.04)	5(0.06)	0.968
Dementia	3(0.07)	2(0.04)	5(0.06)	0.968
Others	5(0.11)	3(0.07)	8(0.09)	0.092
All disorders taken together	161(3.8)	90(2.2)	251(3.04)	<0.0001

Table 3: Prevalence of neurological disorders in study population (n=8255)

Discussion

Community based studies for a spectrum of neurological disorders have been initiated mostly in rural Bangalore, Bombay, Delhi, Guajarat and Kashmir.8 The current study revealed a crude prevalence of Neurological disorders of 3.04% in tribal population. The crude prevalence rate from six studies conducted between 1982 and 1995 varied from 0.967–4.070% with an average of 2.394%. The prevalence rate of neurological disorders among tribal population of Gujarat was 2.592%.4 Neurological disorders constitute 16.8% of the total deaths in lower middle income countries as per the global burden of disease study, 2005.1,9 The absolute number of deaths from all neurological disorders combined increased by 39% and DALYs by 15% in 2015 GBD study [4]. The prevalence of Neurological disorders in this study was from six sxM¶nsxMincome countries as per the global burden 2ap̈reval

5. Kalkonde YV, Sahane V, Deshmukh MD, Nila S, Mandava P, et al. (2016) High prevalence of stroke in rural Gadchiroli, India: A