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Prevalence of dementia in ethnic Dogra population of Jammu district, North India: A comparison survey

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Abstract

Background: The study was conducted in the villages of Chattah zone of Purmandal health block of Jammu district, the winter capital of Jammu & Kashmir state of India on ethnic Dogra population. In earlier studies we reported on the prevalence and incidence of dementia amongst a Kashmiri migrant population now settled in Jammu district after their migration from Kashmir valley in 1990. Those studies were conducted in the migrant camp at Mishriwala, 12 km west of Jammu city. We have developed standardized study methods and instruments for use in the Dogri-speaking population, technically similar to the one previously used for screening for dementia in Mishriwala. *Objective:* To ascertain the prevalence of dementia in the population aged 60 years and above, and to compare prevalence of dementia in the different populations of Jammu district. *Methods:* A Two stage cross-sectional epidemiological study of 1,856 subjects aged 60 years and above, using cognitive and functional ability screening and clinical evaluation. *Results:* The overall prevalence of dementia in ethnic Dogras 60 years and over was 1.83%, with a small gender difference.
Conclusion: The prevalence of dementia in ethnic Dogra population of Jammu district, North India was lower (1.83%) in comparison to the migrant Kashmiri Pandit population residing in the same district.

INTRODUCTION

In the 1990s, with demographic ageing proceeding rapidly in all regions worldwide, interest began to focus on the previously neglected topic of dementia in low-income and middle-income countries.[1] Two-thirds of all people aged 65years and older, and a similar proportion of people with dementia, were living in the low and middle income countries, with rapid increase predicted.[2] However, two studies funded by the National Institute of Ageing from that period-the US-Nigeria study[3] and the Indo-US study[4], suggested an age-specific prevalence of dementia that was only between a quarter and a fifth of that typically recorded in developed countries.

In 2007 & 2008, we conducted a study on ethnic Kashmiris (hereafter Kashmiri Pandits) settled in Jammu district of Jammu and Kashmir state (J&K), after their migration from Kashmir in 1990 in the wake of militancy related conflict in Kashmir region of J&K.[5,6] Dementia appeared to be very rare in the native Kashmiri population as per an earlier study by one of the contributors conducted in 1986 in Kashmir valley.[7] However our study revealed dementia in a substantial number of the migrant Kashmiri Pandits, with overall prevalence of 6.55% for those above 60 years of age.[5] Several community-based urban and rural studies on dementia from different parts of India have documented lower rates varying from 1.02% to 3.36% above 60-65 years of age.[8-14]

The present study estimates prevalence of dementia in local ethnic population (Dogra) of Jammu region of J&K and compares it with migrant ethnic population (Kashmiri Pandits). This is the first comparative paper on dementia from our part of world. As this work evolves, we hope to give a clearer understanding of the distribution, determinants and public health effect of the disorder, particularly from a region wherein a large scale conflict is going on for last 20 years.

METHODS

Background

Strategically located J&K constitutes the northern most extremity of India. Situated between 32.17 degree and 36.58 degree north latitude and 37.26 degree and 80.30 degree east longitude, the total

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area of the State is 22,22,236 sq. kms including 78114 sq kms under the administration of Pakistan and 42,685 sq kms under that of China. The State is bounded by Pakistan, Afghanistan and China from the West to the East. The State is well connected with rest of the country by air, rail and road. (Figure 1)

The State has 4 *geographical zones* of: (1) Sub-mountain and semi-mountain plain known as kandi or dry belt including Jammu district; (2) The Shivalak ranges; (3) The high mountain zone constituting the Kashmir Valley, Pir Panchal range and its off-shoots including Doda, Poonch and Rajouri districts and part of Kathua and Udhampur districts; and (4) The middle runs of the Indus River comprising Leh and Kargil. The State is the northern most state of India comprising *three distinct Climatic regions* viz. Arctic cold desert areas of Ladakh, temperate Kashmir valley and sub-tropical region of Jammu. There is a sharp rise of altitude from 1000 feet to 28,250 feet above the sea level within State's four degree of latitude. The *population* (2001 census) of the State is 10,143,700. The State with its summer and a winter capital at Srinagar and Jammu, respectively, is divided into 20 districts. One fifth of the population in J&K resides in urban areas; 23.83 % population has been recorded as urban in the state against the National Average of 25.72%. Jammu city has recorded very rapid growth and presently ranks as the 48th biggest city in the country.

The State has been witnessing militancy related conflict since 1990 which forced migration of Kashmiri Hindus (Pandits) from Muslim majority Kashmir region of J&K to various parts of India, including Hindu majority Jammu district of J&K.

The study was conducted in the villages of Chattah zone of Purmandal health block of Jammu district, the winter capital of J&K. Chattah zone is field practice area for the Department of Community Medicine of our college. Chattah in addition to being a health facility serves as training centre for our internship programme. Each student intern is posted for 45 days to Chattah out of 365 days of compulsory rotatory internship after completing MBBS.

Chattah zone has a total population of 30,975. The zone is spread over 36 villages with majority Hindu population. The health services are provided by 3 primary health centers in addition to our health facility. Chattah zone has also army units scattered in between the original population. Sixty percent of population is directly or indirectly involved with transport business.

Earlier we reported on the prevalence of dementia among Kashmiri migrants settled in Jammu after their migration from Kashmir in the wake of militancy related conflict. A large scale migration of Kashmiri Pandits from Muslim majority Kashmir was witnessed in 1990 as an early effect of militancy. The then government of J&K established temporary shelters for these Kashmiri Pandits in Places like Jammu. Five such temporary shelters around Jammu city were converted into quasi-permanent settlements over a period of time. Once established, these settlements

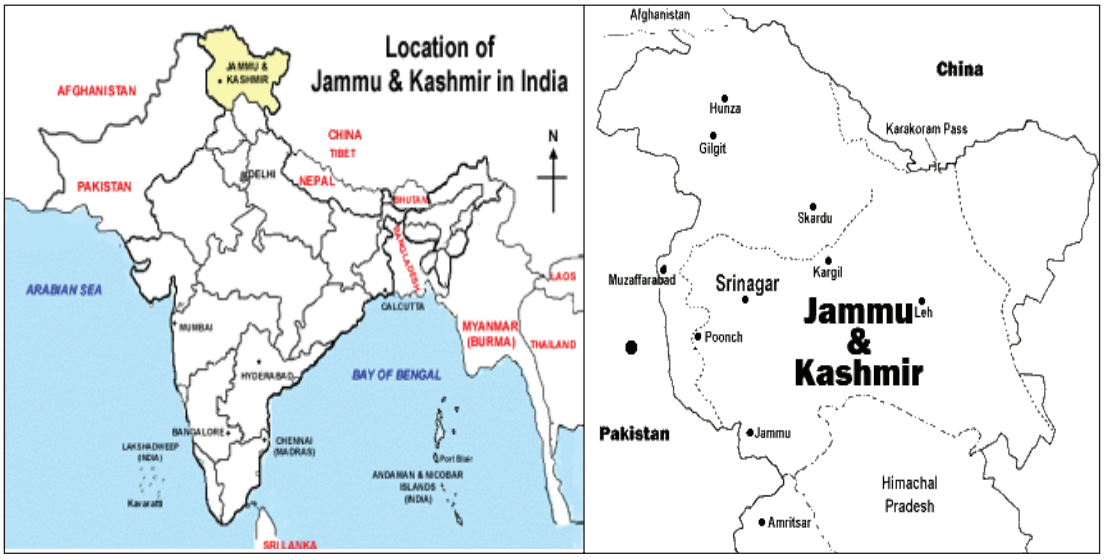

Figure 1: Map showing Jammu and Kashmir state in India, and its relationship with neighboring countries

have seen least of in migration and out migration. The study was conducted in the framework of a population based, single centre, cross-sectional study at Mishriwala (one of the 5 settlements) 12 kms west of Jammu city.[5]

We now report on the prevalence of dementia in elderly population of Chattah zone of district Jammu. The study subjects are the original residents (Dogra) of Jammu region of J&K.

Methods

The population sample was from register for geriatric population of Chattah zone. The Department of Community Medicine maintains a register for geriatric population (60 yrs and above) of Chattah zone. This population (1,856 individuals on the date of survey) is routinely visited by internship students as part of their training programme at chattah, and any updates, if, required are entered in the register.

Assessment tools

The prevalent cases were identified in two stages. The entire study sample underwent a screening interview to pick up potential cases, and those potential cases then had a more detailed assessment. The first step of the study was devoted to development of a screening tool for assessment of dementia in Dogri speaking population of Chattah zone of Jammu district. The following measures were used.

Mini-Mental State Examination

The Mini-Mental State Examination (MMSE) was used as a screening test for cognitive impairment.[8] Three primary translators (Epidemiologist, Neurologist and a Physician) assisted by Medical Officers from Chattah, well versed in English and Dogri, translated the original version into Dogri independently. They then met to compare the versions item by item and agree upon a final version. This version was used to test a sample of 50 people selected randomly from different villages of Chattah zone. Two bilingual experts independent of, survey team, then back-translated the vernacular version into English to establish linguistic equivalence.

The primary translators and the back translators met and discussed the questionnaire item by item to ensure the translations approximated as closely as possible. The correlations between English and vernacular scores were found to be high. The interrater reliability coefficient was found to be 0.8. A cut-off score of 23 was selected with a sensitivity of 88% and specificity of 82%.[9] MMSE has been used as a screening tool in past for assessment of dementia.[11,12]

Everyday Abilities Scale for India (EASI)

Using process similar to development of Dogri version of MMSE, a functional ability scale, in questionnaire form for administration to the subject's family member, was developed de novo for this population. It included items related to the older adult's routine activities in this rural setting. Thus it was possible to obtain functional ability data from a reliable informant, when subjects were cognitively untestable.

Clinical evaluation and diagnosis

The clinical evaluation established the presence or absence of a dementia syndrome, its stage of severity, likely cause, and estimated date of onset. Clinical evaluation was conducted on all selected subjects, using a standardized diagnostic protocol, by Neurologist assisted by a Physician and Epidemiologist. A focused history and general physical examination, neurological and mental status examination of the subject was conducted during the clinical evaluation conducted in the home setting. An interview was simultaneously conducted with a reliable informant of the family of the subject.

Study design

The study was conducted in two phases. During phase I, all identified people aged 60 years and above were screened with the vernacular (Dogri) adaptation of MMSE and EASI wherever necessary. The screening was done by Epidemiologist assisted by Medical Officer Chattah and internship students posted at Chattah at the time of survey. In phase II, those who scored 23 or below on the MMSE had a detailed neurological evaluation. The Neurologist was assisted by a Physician and Epidemiologist. Ten per cent of the negatively screened population were randomly selected and evaluated at each stage. Evaluation in phase II included a detailed medical history, physical and neurological examination. Necessary investigations were done to rule out conditions such as hypothyroidism. Age- and gender-specific prevalence rates of dementia were calculated.

RESULTS

The population sample was from register for geriatric population (60 yrs and above) of Chattah zone consisting of 1,860 individuals. Table 1 shows the age group and sex distribution of the study population. As shown, the age distribution for men and women was almost identical. Table 2 lists the prevalence of dementia by age and sex. As shown, the prevalence of dementia increased with advancing age. Individuals with age 85 and above showed the highest prevalence with females recording slight increase. Significant prevalence of dementia was reported only after age 75 years and above. The overall prevalence of dementia in the 60 years and over population was 1.83%, with a small gender difference. Table 3 compares the prevalence rate of the present study with that of Kashmiri Pandit migrants. As shown, the prevalence was much lower than that of the Kashmiri Pandit migrants.

DISCUSSION

The catchments area sampling strategy, as we have been adopting enabled us to foster close links with local community, improving the response to the study. We have shown that the prevalence of dementia in the ethnic Dogra non-migrant population of Jammu district, for those above 60 years was 1.83%. This was almost similar to that previously recorded in Kashmir[7] and other parts of India.[8-14] Longitudinal data from India and Nigeria suggest that findings of low prevalence in developing low-income and middle income countries were because of a decreased incidence of disease, rather than reduced survival alone.[3,4] The results of the present study are also consistent with previous studies conducted on its prevalence in Asian and Western countries, where the rate of dementia has been found to increase with the advancing age.[1]

Table 1: Demographic profile of Chattah zone of Jammu district

Age-group	Male	Female
60-64	336	322
65-69	234	218
70-74	169	155
75-79	99	101
80-84	89	87
85+	25	21

Table 2: Prevalence of dementia by age and sex in Chattah zone of Jammu district

Age-group	Male n(%)	Female n(%)
60-64	1 (0.3)	1 (0.3)
65-69	2 (0.85)	1 (0.45)
70-74	1 (0.59)	2 (1.20)
75-79	3 (3.03)	3 (2.9)
80-84	4 (4.4)	4 (4.5)
85+	5 (20)	7 (28.5)

Table 3: Prevalence of dementia in Chattah zone of Jammu district in a population above 60 years in comparison to prevalence in Mishriwala.[5]

	Chattah	Mishriwala
Men	1.6%	8.4%
Women	1.99%	4.7%
Total population	1.83%	6.55%

Our results is particularly interesting, as the prevalence is very low, only a quarter or so of that seen among the Kashmiri Pandits migrant population, also living in the same Jammu district (6.55%).[5]

What exactly accounts for higher prevalence of dementia in migrant population is difficult and challenging to interpret. Adverse social outcomes such as social disengagement, stress associated with migration from native homes and hearths, differences in lifestyle, longer life expectancy, health awareness and healthcare delivery systems may be the factors contributing to this difference. Future research in this migrant population on determinants of dementia may provide us with further insight to risk factors of dementia.

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