

Review Article

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Tribes in Karnataka: Status of health research

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The south Indian State of Karnataka, once part of several kingdoms and princely states of repute in the Deccan peninsula, is rich in its historic, cultural and anthropological heritage. The State is the home to 42,48,987 tribal people, of whom 50,870 belong to the primitive group. Although these people represent only 6.95 per cent of the population of the State, there are as many as 50 different tribes notified by the Government of India, living in Karnataka, of which 14 tribes including two primitive ones, are primarily natives of this State. Extreme poverty and neglect over generations have left them in poor state of health and nutrition. Unfortunately, despite efforts from the Government and non-Governmental organizations alike, literature that is available to assess the state of health of these tribes of the region remains scanty. It is however, interesting to note that most of these tribes who had been original natives of the forests of the Western Ghats have been privy to an enormous amount of knowledge about various medicinal plants and their use in traditional/folklore medicine and these practices have been the subject matter of various scientific studies. This article is an attempt to list and map the various tribes of the State of Karnataka and review the studies carried out on the health of these ethnic groups, and the information obtained about the traditional health practices from these people.

Key words Ethnic people - health - Karnataka - scheduled tribe - traditional/herbal medicine - tribe

Introduction

The State of Karnataka was created on November 1, 1956, with the passage of the States Reorganisation Act. Originally known as the State of Mysore, it was renamed as Karnataka in 1973¹ with Bangalore (now Bengaluru), the largest city in the State as its capital. Karnataka is bordered by the Arabian Sea and the Lakshadweep Sea to the West, Goa to the North-West, Maharashtra to the North, Telangana to the North-East, Andhra Pradesh to the East, Tamil Nadu to the South-East, and Kerala to the South-West. With an area of 1,91,976 square kilometres (74,122 sq miles), or 5.83 per cent of the total geographical area of India, it is the

seventh largest State by size. It ranks eighth in terms of the number of inhabitants which stands at 61,130,704 according to the 2011 census². The State comprises 30 districts (Fig.1).

Kannada is the most widely spoken and official language of the State. Apart from Kannadigas, Karnataka is the home to Tuluvas, Kodavas and Konkanis along with minor populations of Tibetan Buddhists. Although there are other ethnic tribes, the Scheduled Tribe population comprises some of the better known tribes like the *Soligas*, *Yeravas*, *Todas* and *Siddhis* and constitute 6.95 per cent of the total population of Karnataka².



Fig. 1. Map of Karnataka showing tribal population as percentage of total population in each of its 30 districts. *Source:* Ref. 2.

Currently there are 50 Scheduled Tribes (ST) in Karnataka notified according to the Constitution (Scheduled Tribes) Order (Amendment) Act 2003². The names of these tribes, along with their population in the State and districts mostly inhabited by them are listed in the Table. As many as 14 of these tribes are either exclusively found in Karnataka or are predominant inhabitants of the State.

The tribes of Karnataka

Members of the *Adiyan* tribe live mostly in Mysore and districts bordering Kerala and speak Kannada. They are only 758 in number and are mostly agricultural

labourers. They remain poor and have a low literacy rate. Marriages among cousins are common. There are a few members (266) of the *Barda* tribe of Gujarat and Maharashtra found in the State, mostly in the northern districts. They speak Barda language which is similar to Marathi and Gujarati. They are agricultural labourers, and are mostly endogamous. The *Bavacha/Bamcha* are Hindu tribes who speak the Bavchi dialect³. They are 960 in number and are mostly inhabitants of Ramanagar district.

Bhils are adivasis of Central Indian origin. The *Bhil* tribes are divided into a number of endogamous territorial divisions, which in turn have a number of

Table. List of Scheduled Tribes of Karnataka along with their population and most inhabited districts

Sl	Tribe name	State population	Major districts inhabited
1	<i>Adiyan</i>	758	Bengaluru Urban, Mysore
2	<i>Barda</i>	266	Bengaluru Urban, Belgaum
3	<i>Bavacha, Bamcha</i>	960	Ramanagara
4	<i>Bhil, Bhil Garasia, Dholi Bhil, Dungri Bhil, Dungri Garasia, Mewasi Bhil, Rawal Bhil, Tadvi Bhil, Bhagalia, Bhilala, Pawra, Vasava, Vasave</i>	6204	Uttara Kannada, Belgaum, Dharwad, Mysore, Scattered in most remaining districts
5	<i>Chenchu, Chenchwar[#]</i>	954	Yadgir, Kolar
6	<i>Chodhara</i>	117	Bengaluru Urban, Bellari, Uttara Kannada, Scattered in many other districts
7	<i>Dubla, Talavia, Halpati</i>	264	Davangere, Koppal, Belgaum
8	<i>Gamit, Gamta, Gavit, Mavchi, Padvi, Valvi</i>	516	Koppal, Scattered in other districts
9	<i>Gond, Naikpod, Rajgond</i>	158243	Bidar, Gulbarga, Uttar Kannada, Scattered in most remaining districts
10	<i>Gowdalu[@]</i>	8617	Chikmangalur, Bengaluru Urban, Scattered in most other districts
11	<i>Hakki Pikki, Harnshikari[@]</i>	11892	Mysore, Shimoga, Ramanagara, Chikkballapura, Scattered in many other districts
12	<i>Hasalaru[@]</i>	24466	Chikmangalur, Shimoga, Hassan, Davangere
13	<i>Irular[#]</i>	703	Shimoga, Ramanagara, Bengaluru Urban
14	<i>Iruliga[@]</i>	10259	Ramanagara, Bengaluru Urban
15	<i>Jenu Kuruba^{@#}</i>	36076	Mysore, Kodagu, Chamarajanagar, Scattered in all other districts
16	<i>Kadu Kuruba[@]</i>	11953	Yadgir, Mysore, Bengaluru Urban
17	<i>Kammara</i>	949	Chamarajanagar, Dakshina Kannada
18	<i>Kaniyan, Kanyan</i>	413	Chamarajanagar
19	<i>Kathodi, Katkari, Dhor Kathodi, Dhor, Katkari, Son Kathodi, Son Katkari</i>	274	Belgaum, Yadgir
20	<i>Kattunayakan[#]</i>	168	Davangere, Bengaluru Urban
21	<i>Kokna, Kokni, Kukna</i>	32	Kodagu
22	<i>Koli Dhor, Tokre Koli, Kolcha, Kolgha</i>	112190	Bidar, Yadgir, Gulbarga, Bijapur
23	<i>Konda Kapus</i>	7438	Bengaluru Urban, Bellari, Hassan, Chikmangalur
24	<i>Koraga^{@#}</i>	14794	Udupi, Dakshina Kannada, Haveri
25	<i>Kota[#]</i>	121	Kodagu, Bengaluru Urban
26	<i>Koya, Bhine Koya, Rajkoya</i>	365	Bidar
27	<i>Kudiya, Melakudi[@]</i>	2169	Kodagu
28	<i>Kuruba[@]</i>	3111	Kodagu
29	<i>Kurumans</i>	347	Bengaluru Urban, Ramanagar
30	<i>Maha Malasar</i>	36	Bidar
31	<i>Malaikudi[@]</i>	9236	Dakshina Kannada, Udupi, Chikmangalur
32	<i>Malasar</i>	82	Bengaluru Urban, Chikmangalur
33	<i>Maleyakandi</i>	116	Dakshina Kannada, Udupi
34	<i>Maleru</i>	440	Bengaluru Urban, Chikmangalur, Kodagu

Contd...

Sl	Tribe name	State population	Major districts inhabited
35	<i>Maratha</i>	3396	Kodagu
36	<i>Marati</i>	82447	Dakshina Kannada, Udupi
37	<i>Meda, Medari, Gauriga, Burud</i>	44160	Mysore, Belgaum, Shimoga, Dharwad, Scattered in most other districts
38	<i>Naikda, Nayaka, Cholivala Nayaka, Kapadia Nayaka, Mota Nayaka, Nana Nayaka, Naik, Nayak, Beda, Bedar and Valmiki</i> [@]	3296354	Bellari, Raichur, Chitradurga, Scattered in most other districts
39	<i>Palliyan</i>	226	Kodagu, Bengaluru Urban
40	<i>Paniyan</i> [#]	495	Kodagu, Dakshin Kannada, Mysore
41	<i>Pardhi, Advichincher, Phanse Pardhi</i>	10746	Dharwad, Bagalkot, Gadag, Bijapur, Gulbarga
42	<i>Patelia</i>	57	Bengaluru Urban, Gulbarga
43	<i>Rathawa</i>	45	Bidar, Bengaluru Urban
44	<i>Sholaga</i>	52	Bengaluru Urban, Mandya, Ramanagara
45	<i>Sholigaru</i> [@]	33819	Chamarajanagar, Mysore, Mandya
46	<i>Toda</i> [#]	147	Udupi
47	<i>Varli</i>	58	Kodagu, Bengaluru Urban, Koppal
48	<i>Vitolia, Kotwalia, Barodia</i> [#]	23	Koppal, Belgaum, Bengaluru Urban
49	<i>Yerava</i> [@]	30359	Kodagu, Mysore
50	<i>Siddi</i> [#]	10477	Uttara Kannada

[@]Tribes exclusive to or primarily inhabitants of Karnataka
[#]Tribes classified as "Primitive Tribal Group" by the Government of India
Source: Ref. 2

clans and lineages. Most *Bhils* now speak the language of the region they reside in. Originally hunters and soldiers, they are mostly agricultural workers with hunting and gathering remaining a significant subsidiary occupation^{3,4}. The *Bhil* population in Karnataka is 6,204 and are scattered in most districts of the State, more so in Uttara Kannada and Belgaum districts⁴.

The *Chenchus* are an aboriginal tribe who speak the Chenchu or Chenchwar language, a branch of Telugu, and live mostly in the forests of Andhra Pradesh. About 954 of them inhabit bordering districts of Karnataka like Yadgir and Kolar. The *Chenchus* are one of the original primitive tribal groups that are still dependent on forests and do not cultivate land but hunt for a living. Some however, live symbiotically with non-tribal communities and many collect forest products for sale to non-tribal people. The *Chodharas* are a group of about 117 people living in Karnataka among the 20,000 odd members most of whom inhabit Gujarat and Maharashtra. They are related to the Rajputs and speak Chodri. Most of the Chodhari people work as small farmers growing cotton, vegetables, and rice.

The *Dublas*, some of whom are also called *Talavia* or *Halpati*, are Hindu tribes originating from the Rajputs in Gujarat and Maharashtra. Dubla society consists of several endogamous sub-divisions with agriculture as primary occupation⁴. They are also very few in number (264) and are mostly scattered in distribution over the State. The *Gamit* tribe (also known as *Gamit*, *Gavit*, *Mavchi* and *Pandvi*) people speak in Gamit. They are about 516 of them who are now inhabitants of Karnataka, mostly found in Koppal and scattered over several other districts. The *Gond* tribe is the largest of Dravidian people of central India, spread over various States including the North-Western districts of Karnataka (Fig. 2). They are the second largest tribal group found in the State. Gondi language is related to Telugu and other Dravidian languages. *Gowdalu* are 8,617 in number according to the 2011 Census data², and speak Gowdalu language. They are mostly found in Chikmangalur and Bengaluru Urban districts in the State. The *Hakki-Pikki* clan is a semi-nomadic group and they live near Bidadi in Karnataka. Their population in the State is 11,892 as per 2011 Census².

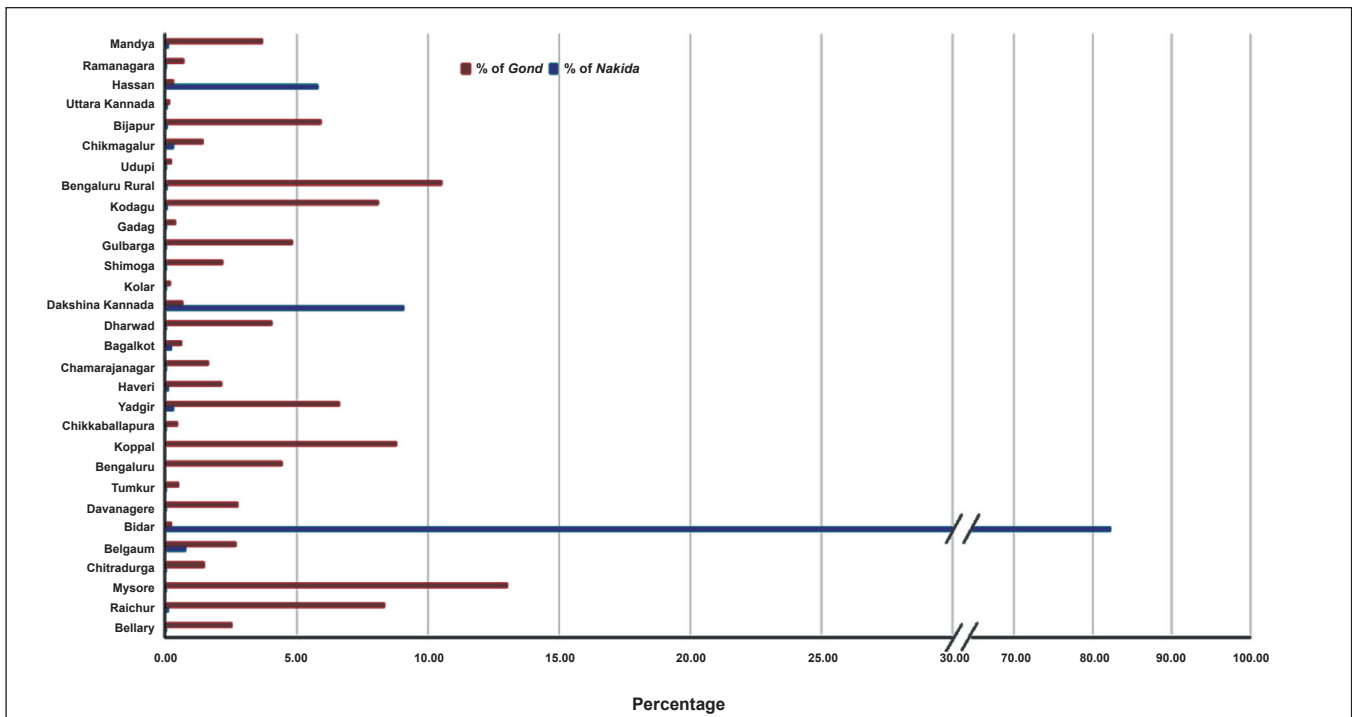


Fig. 2. Bar diagram showing distribution of the largest two tribes in Karnataka, the *Gond* and *Naikda* or *Nayaka* in the 30 districts of the State (Generated from Census data, 2011). *Source:* Ref. 2.

The tribe has taken up hunting as their occupation but many are now showing more interest in agriculture and floral decoration. The *Hasalaru* are Hindu tribes of Karnataka. They are 24,466 in number and speak Tulu and concentrated in several districts including Chikkamangaluru, Shimoga, Udupi, and Davangere. In Karnataka, people belonging to *Irular* tribe are about 700 in number. They are more conspicuous in the Nilgiri Hills of neighbouring Tamil Nadu and Kerala and are listed under the Primitive Tribe Group. They are Hindus and speak Irula which is related to the Dravidian languages Tamil and Kannada. These people are descendants of gypsies living in caves with hunting and gathering as their ancestral occupation. They subsequently learnt the art of cultivation. People from the same clan within the *Irular* tribe do not intermarry. Their literacy rate is very low at 36.27 per cent⁵. The *Iruliga* are also primarily tribes of Karnataka with a total population of about 10,259, mostly living in Ramanagar and Bengaluru Urban districts. They are Hindus and while Kannada is their principal language, a few other languages are also spoken.

The population of *Jenu Kurubas* is 36,076 in Karnataka² mostly living in the districts of Mysore, Kodagu, and Chamarajanagar. A few are also found

outside the State mostly in the border forests of Tamil Nadu and Andhra Pradesh. Also known by the names ‘*Then Kurumba*’ or ‘*Kattu Naikar*’, they are members of the primitive tribal group and are now mostly occupied as daily labourers for landlords in plantations in the region. They have a close-knit community and rarely mingle with other neighbouring tribal communities. The literacy rate is 47.66 per cent⁵. The *Kadu Kurubas* are the original inhabitants of the forests of Nagarahole and Kakanakote in the Western Ghats of Karnataka. *Kadu Kurubas* are about 11,953 in number, mostly living in Mysore, Kodagu, Chamarajanagar, and other districts of Karnataka and the remaining in the forests of Tamil Nadu. They are primarily Hindus, speaking Kannada language. The *Kammara* live in Dakshina Kannada district and Kollegal *taluk* of Chamarajnagar district of Karnataka. They speak local language and are 949 in number and the majority of these tribe are scattered in Andhra Pradesh, Odisha, and Chattisgarh. They are blacksmiths, carpenters and also involved in cultivation. The *Kaniyan* is a tribe from Kerala found mostly in Kollegal *taluk* of Chamarajanagar district of the State. Only 413 in number reside in the district. These people speak local language although the majority of these tribes speak Malayalam. The members of this tribe are mostly Hindus. Among the approximate

3,00,000 members of the Katkari and Marathi-Konkani speaking *Kathodi* or *Katkari* tribe, only a few (275) live scattered in the State of Karnataka. The *Kathodi* are recognized as the primitive tribal group by the Government of India in the State of Gujarat.

About 168 members of *Kattunayakan* tribe which total around 70,000 mostly inhabiting Tamil Nadu, Kerala and Pondicherry, are scattered in various districts of Karnataka. This tribe is regarded as a primitive tribe in Kerala. An extremely small number (32) of the *Kokna* tribe are scattered over several districts of Karnataka. They are mostly Hindu by religion. Their primary language is Kukna perhaps derived from Konkani. Karnataka State has the third largest share (1,12,190) of the *Koli Dhor* tribe. They are scattered in the North and North-West parts of the State including Bidar, Yadgir, Gulbarga and Bijapur. About 7,438 members of the *Konda Kapu* tribe live in the districts of Karnataka, mostly adjoining Andhra Pradesh. The *Koraga* tribe is among the two primitive and most backward tribes declared by the Government of India⁵. This is not only one of the most notable tribes of Karnataka, but also one of the primitive tribal group. This tribe is scattered over many districts of the State, particularly in Udipi and Dakshina Kannada. They are also found in Haveri and in small numbers in Shimoga, Uttara Kannada and Kodagu districts. Their number is 14,794 as per the 2011 Census².

Koragas spend most of their income on alcohol, which is consumed by all ages, and also indulge in smoking *beedi* and chewing betel. They subsist mainly on rice and meats such as pork and beef, although they are increasingly also using produce such as pulses and vegetables. Diet is poor and malnutrition is common in children⁶. Education level is low. The *Kota* tribe is a small group of ethnic people indigenous to the Nilgiri Hills of Tamil Nadu and are recognized as primitive tribal group. They are about 1500 in number⁷, of which about 121 are in Karnataka State². They have been subject to good amount of anthropological, linguistic and genetic analysis. In Karnataka State, particularly in the Bidar district, there are only about 365 members of the *Koya* tribe which is a very large tribe in neighbouring Andhra Pradesh. The *Kudiya* tribe mainly belonging to the State of Karnataka, and 2,169 of individuals of this tribe live in the State, mostly in Kodagu district. The *Kuruba* inhabit the thickly forested slopes and foothills of the Nilgiri plateau in Kodagu district of Karnataka and Tamil Nadu States. Their population in Karnataka is 3,111². The *Kuruman* tribe of Karnataka is represented

by only 347 individuals of this ethnic group who are mostly located in Tamil Nadu and Kerala. They speak southern Kannada language. *Maha Malasar* is a very small group of ethnic tribe living in Annamalai Hills in south India. Karnataka has about 36 of these people while Tamil Nadu and Kerala house most of them. *Malaikudi* is also a Karnataka ethnic group with about 9,236 people belonging to this tribe inhabiting the Sahyadri hill ranges of Dakshin Kannada, Udipi and Chikmagalur districts of Karnataka. The *Malaikudi* tribe speak a dialect of the Dravidian language, Tulu. Tulu and Kannada are spoken by them for inter-group communication. The *Malasar* tribe has about 9100 ethnic people in the States of Tamil Nadu and Kerala, of whom about 84 inhabit Chikmagalur district of Karnataka. They speak a mixture of the Malayam and Tamil languages. The *Malayekandi* tribe has also been listed separately as *Malaikudi* and *Maleru*. There are 116 of the approximate 2,000 people⁷ of these tribes in Karnataka. Apart from Chikmagalur district, these tribes are scattered over Koppal, Raichur and Gulbarga districts. The *Maleru* tribe is about 440 in number and is almost exclusive to Karnataka State. They mostly inhabit Chikmagalur, Shimoga, Davangere, Dakshin Kanada, Udipi, Hassan, and Kodagu districts. The *Maratha* of Kodagu and *Marati* of Dakshina Kannada are groups that have received tribal status only in these districts of Karnataka. According to the 2011 census², there are 3,396 Maratha people in Kodagu district while there are 82,447 Marathi people in Dakshin Kannada. These communities speak Marathi among themselves and in Tulu and Kannada with others. They are normally vegetarians.

In Karnataka, there are two communities with the name *Meda*; one of these is restricted to the district of Kodagu. They speak Kodagu, a Dravidian language. In other parts of Karnataka, there is another community of basket-makers known as *Meadar* of *Meda*. The *Meda* community is almost exclusively present in Karnataka with a population of about 44,160 scattered throughout all the districts. *Nayaka*, tribe as the name implies 'a leader' is mostly non-vegetarian. *Nayaka*, popularly known by *Palegar*, *Beda*, *Valmiki*, and *Ramoshi Parivara* are found all over the State but they are concentrated in the Chitradurga, Shimoga, Bellary and Tumkur districts. Their population is 32,96,354. The *Paliyan*, or *Palaiyar* or *Pazhaiyarare* are a group of more than 10,000 *Adivasi* Dravidian people living in the south Western Ghats mountaneous rain forests in south India, especially in Tamil Nadu and Kerala⁷.

They belong to the primitive tribal group. About 226 of them inhabit the southern tip of the State of Karnataka especially in Kodagu district. Most people of this tribe are traders of forest products, food cultivators and beekeepers. About 495 people of the *Paniyan* tribe reside in Karnataka mainly in the southern districts Kodagu, Dakshin Kannada and Mysore. The *Pardhis* are migrant people, scattered over a wide area of central India in the States of Andhra Pradesh, Madhya Pradesh, Gujarat, Maharashtra and Karnataka. In Karnataka, their population is about 10,746 and are mostly found in the districts of Dharwad, Bagalkot, Gadag, Bijapur and Gulbarga. Their language, Pardhi, is one of the *Bhil* languages. Among the western Indian *Patelia* tribe, only 57 inhabit Karnataka, most of them in Bidar district alone. The *Rathwas* derived their name from the word 'rathbistar', which means inhabitant of a forest or hilly region. They are a moderately large tribe but very few (45 individuals) inhabit Karnataka State. Only a few are located in Bengaluru Urban and Bidar districts. They are endogamous, and consist of a number of exogamous clans. They are at present mostly small and medium sized farmers. The *Soliga/Sholiga* and *Sholigaru/Soligaru* tribes inhabit the Biligirirangan (BR) Hills and associated ranges in southern Karnataka, mostly in the Chamarajanagar and Erode districts of Tamil Nadu. Many are also concentrated in and around the BR Hills in Yelandur and Kollegal *taluks* of Chamarajanagar District. They use the title *Gowda*, which means a headman. In Karnataka, they are mainly distributed in the hilly parts of Mysore district, Ramanagar, and Mandya. This area is covered with forests, and experiences low humidity and heavy rainfall. They are normally vegetarians, and eat mainly tubers. *Toda* tribe is one of the most ancient and peculiar tribes of Nilgiri Hills of Tamil Nadu. There are only a few (157) of them in Karnataka in the district of Udupi. The *Todas* have their own language and own secretive customs and regulations. The *Varlis/Warlis* are *Adivasis*, living in mountainous as well as coastal areas of Maharashtra-Gujarat border and surrounding areas. There are only 58 of them in Karnataka, mostly in Kodagu and Koppal districts. *Vitolia* is an extremely small group of 23 people living scattered over many districts including Koppal, Belgaum, and Bengaluru. They are believed to be the descendants from the *Gambit* tribe and were regarded as untouchables. *Vitolia* is included the primitive tribal group by the Government of Gujarat where they are found most. A few might have migrated to Karnataka from south Gujarat and

Maharashtra earlier. Their literacy rate is 43.8 per cent. A few centuries ago the *Yerava/Ravula* was a thriving, agriculture and forest-based tribe, in Wayanad and Kodagu districts of Kerala and Karnataka, respectively. The population as per 2011 census² is 30,359 in Karnataka and found mostly in Kodagu and Mysore districts. The *Siddis* tribe of Karnataka is an ethnic group. There is a 50,000 strong *Siddi* population across India, of which about 10,477 are located around Yellapur, Haliyal, Ankola, Joida, Mundgod and Sirsi *taluks* of Uttara Kannada district and in Khanapur of Belgaum district and Kalghatgi of Dharwad district.

Demography

The total number of tribal people recognized by the Government in Karnataka is about 42,48,978 which is 6.95 per cent of the total population of the State. There has been a 6 per cent increase in the tribal population during the last decade. It was 6.6 per cent of the State population in 2001 with the absolute number of 34,63,986^{2,8}. Bellary has the highest population (10.6%) of Scheduled Tribes (ST) as a percentage of the ST population in the State. Raichur (8.6%) has the second highest percentage of ST population followed by Mysore (7.8%) Chitradurga (7.1%) and Belgaum (6.9%) (Fig. 3). Bellary (4,51,406), Raichur (3,67,071), Mysore (3,34,547) and Chitradurga (3,02,554) are also the districts where the maximum number of tribals reside. Raichur has the highest population of the STs as a percentage of the total population of the district (19.03%), followed by Bellary (18.41%) and Chitradurga (18.23%) districts. The ST population of Karnataka is primarily rural (84.7%). Among major STs, *Koli Dhor* have the highest (92.2%) rural population, followed by *Gond* (91.7%), *Marati* (90.8%) and *Naikda* (85.1%). District-wise distribution of ST population shows that the tribal population is present in all 30 districts of the State. However, most of these ethnic groups are mainly concentrated in the districts of Bellary, Raichur, Mysore, Chitradurga, Belgaum, Davanagere and Tumkur. These seven districts account for 52 per cent of the ST population of the State. The remaining 48 per cent of the ST population are distributed in the other 23 districts^{9,10}.

Sex ratio

The sex ratio for Scheduled Tribes in Karnataka is 990 females per 1000 males which is higher than the all-India average of 964 for STs as well as the State overall average of 973 females per 1000 male

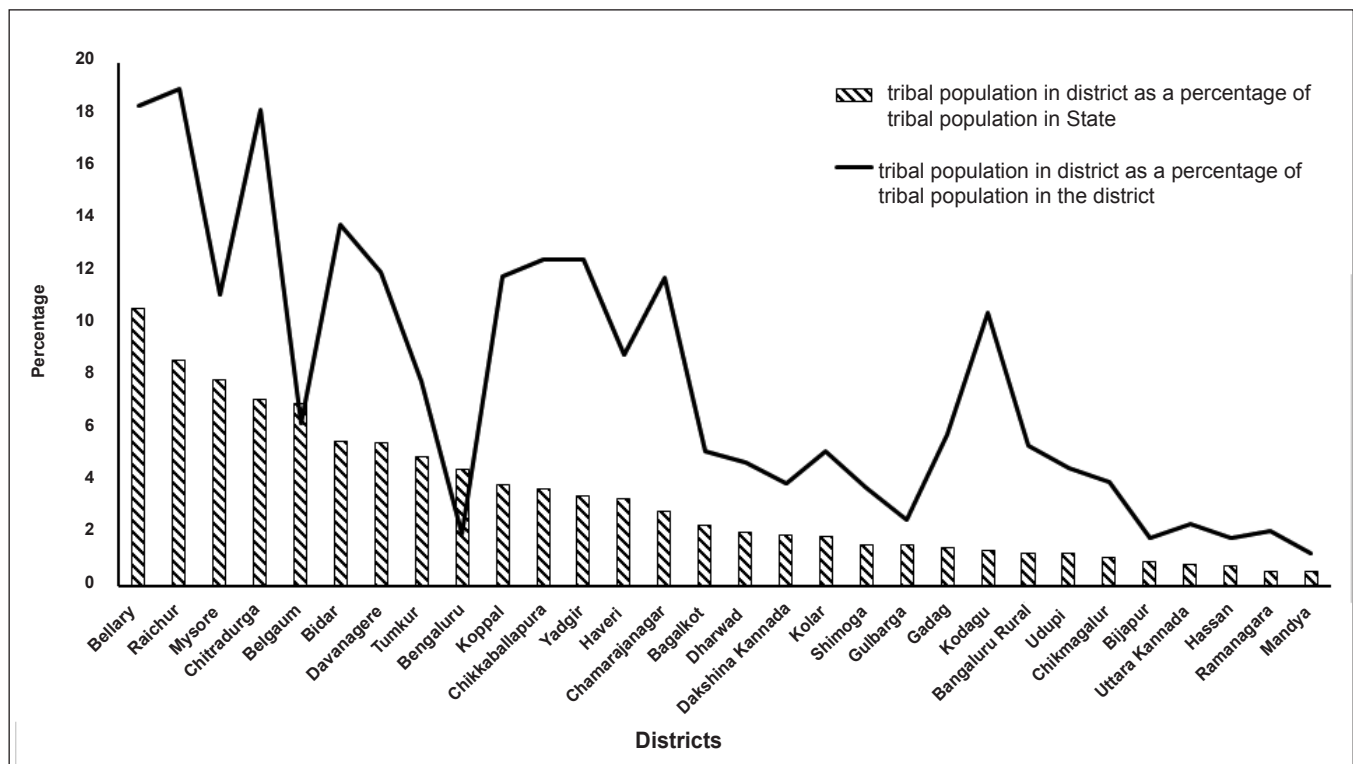


Fig. 3. Diagram showing tribal populations of individual districts as a percentage of the total population of the district and as a percentage of the tribal population of the Karnataka State (Generated from Census data 2011). Source: Ref. 2.

population². The sex ratios of ST population in rural and urban areas of Karnataka are 990 and 993 females per 1000 males, respectively which increased from 975 and 960, respectively in 2001¹¹. There has been a perceptible improvement in the sex ratio of STs since 1991 when it was only 961 females per 1000 males¹¹.

Literacy rate

The literacy rate of STs in Karnataka is a cause for concern, as it has consistently been lower than that of the total population. The literacy rate among the tribes, which was 36.0 per cent in 1991, increased to 48.3 per cent in 2001 and further increased to 53.9 per cent in 2011, while the State average moved up from 66.64 to 75 per cent in last decade^{2,11}. The literacy rate among the tribal population in Karnataka is 51 per cent in urban and 65.7 per cent in rural areas, while the overall figure of the State is 60.4 per cent in rural areas and 76.2 per cent in urban areas. The literacy rate among male population was found to be significantly higher at 57.5 per cent than the female counterparts where it is 42.5 per cent².

Among the major STs, the *Toda* are reported to have the highest (78.9%) literacy rate, followed by

Malayekandi (78.45%), *Maleru* (74.77%), *Maratha* (74.09%), and *Patelia* (73.68%) tribes. The female literacy rate of 42.5 per cent among tribal population according to 2011 census² has shown marginal increase from 41.72 per cent in 2001 but is slightly lower than the general female population in the State (44.62%).

Health status of the tribes

The health needs and problems of any community are influenced by interaction of various socio-economic and political factors. There are a number of studies on the tribes, their culture and the impact of acculturation on the tribal society¹².

With the view to provide the essential primary health care to the tribal population, opening of Primary Health Centres (PHCs) in tribal dominant districts was an integral part of various tribal development programmes implemented in the country since 1947¹³. Unresponsive auxiliary nurse midwives (ANMs), inconvenient opening times and little or no community participation are some of the problems plaguing the PHCs in tribal areas over the years¹⁴. In addition, the lack of accountability has led to absentee doctors, and it has always been a challenge to get quality doctors into

tribal areas. Despite these odds, Karnataka, at present, has functional PHCs that cover a rural population of about 20,000 in the hilly and tribal areas and Subcentres that cover another 3,000¹⁴. Despite efforts from the Government and non-Government organizations to take primary health care to these marginalized people, there has been a very limited number of studies reported on the health status of the tribal communities of the State. Studies had been extremely limited to only a handful of tribes like the *Jenu Kuruba*, *Koraga*, *Iruliga*, *Hakki-Pakki* and *Siddis*. With only a few reports available on the prevalence of various communicable and non-communicable diseases in these tribal communities, it is difficult for the Government to devise strategies to combat these health problems. Existing literature ranges from studies on tracing the genetic origin and relatedness of some of the tribes to the assessment of availability of health care facility and their utilization, and to study of anaemia and hypertension among the tribes, their nutritional status, lifestyle disorders, and oral hygiene. Almost nothing is reported about the status of communicable diseases in these populations. A summary of the existing information on the health status and health research carried out on the tribal people of Karnataka is provided here.

Genetic studies

A genome wide study was carried out using autosomal markers to survey and understand the population history of the *Siddis*¹⁵. This study showed their link with Africans, Indians and Europeans (Portuguese), confirming the belief about their origin. The genetic affinity of the three tribes, *Jenu Kuruba*, *Betta Kuruba* and *Soliga* tribes of southern Karnataka was studied using ten polymorphic genetic markers¹⁶. The authors concluded that the *Jenu Kuruba* and *Soliga* tribe who exhibited less inter-group genetic distance, clustered together, whereas *Betta Kuruba* who possessed comparatively higher genetic distance with the former populations fell out of the cluster. However, these three tribes showed a low genetic distance suggesting a recent divergence or low degree of genetic isolation.

Availability and utilization of health care

A study was carried out among the *Koraga* tribes in Dakshina Kannada district to assess the availability and accessibility of basic facilities and to determine the utilization of health care facilities by them¹⁷. The study showed an overall literacy level among *Koragas* for both the sexes to be 70.5 per cent which was higher

than the State level literacy rate for STs. The study further revealed that poverty among *Koraga* families was a problem. The study stressed on scaling up of efforts to improve their housing, sanitation, literacy and employment conditions which ultimately contribute to improvement of quality of life.

Nutritional status

Practices such as late initiation of breastfeeding, no feeding of colostrum, and faulty weaning practices, are of particular concern, in the tribal areas due to certain adverse conditions like lack of access to health services, illiteracy, unhygienic personal habits, *etc*¹⁸. A study was carried out to understand the breastfeeding practices among the *Hakki-Pikkis*, a tribal population of Mysore district¹⁹. The study revealed that about 76 per cent of the study population breastfed their children immediately after birth while 20 per cent of the mothers initiated breastfeeding on the second day, and 4 per cent on third day of the birth of the child. Those 24 per cent of the mothers who did not feed colostrum at birth considered colostrum as thick, cheesy, indigestible, unhygienic and not good for the infant, in tune with their traditional belief. The study highlighted the need for conduct of various awareness programmes on feeding education to mothers belonging to these tribal communities and to mitigate various myths about breastfeeding. The authors concluded that the poor infant and child feeding practices might be linked to high rate of illiteracy and poor socio-economic condition. This study highlighted the importance of intense literacy campaign, income generating activities and health education by health personnel among these tribes¹⁹.

Keeping in view that malnutrition is one of the major public health problems in many countries affecting more than 30 per cent of children under 5 yr of age, and more so in tribal communities¹⁹⁻²¹, a community based study on nutritional status of the *Jenu Kuruba* tribes of Mysore district was carried out among 220 children aged between 1-5 yr²². The overall prevalence rates of underweight, stunting and wasting were found to be 38.6, 36.8 and 18.6 per cent, respectively. The study showed that prevalence of underweight increased with increase in age of the child in this community. It also linked malnutrition with unfavourable socio-demographic factors. Overall prevalence rates of underweight, stunting and wasting have been reported to be 54.5, 54 and 27.6 per cent, respectively among the ST population of the entire country as per the National

Family Health Survey (NFHS) 3²³. In comparison, the total prevalence rates of underweight, stunting and wasting in Karnataka were 33.3, 42.4 and 18.9 per cent, respectively²³.

A community based cross-sectional study was conducted among tribal women aged 14-49 yr in Udupi *taluk* of Udupi district²⁴. The study revealed that the prevalence of anaemia in these women was 55.9 per cent. Previous studies conducted among *Jenu Kuruba* tribes reported prevalence of anaemia in children to be 77.1 per cent²⁵. According to WHO, if the prevalence of anaemia in a population is detected to be 40 per cent or higher, that population is to be considered severely anaemic²⁶. All these studies conducted in tribal population clearly showed that they were anaemic and needed urgent nutritional attention.

In 2011, a study was carried out to assess the dietary status of the *Jenu Kuruba* and *Yerava* tribal children of Mysore district, Karnataka²⁷. In the study 176 *Jenu Kuruba* children (80 boys and 96 girls) and 161 *Yerava* children (77 boys and 84 girls) aged 6-10 yr were included. The study revealed that the percentage of adequacy in energy and protein intake among children of both the tribal groups was more or less same, however, it was below the respective recommended dietary allowance. Intake of calcium, iron and beta-carotene was found to vary with age. The intake of beta-carotene was high among the *Yerava* children. Consumption of calcium rich food was more among *Jenu Kurubas* than in *Yerava* children.

Chronic and lifestyle diseases

A cross-sectional study was carried out among the individuals of the *Jenu Kuruba* tribe of the age group 20-60 yr in Hunsur *taluk* of Mysore district to estimate the prevalence of hypertension¹². It is reported that 1,290 (80%) of the tribe in the *taluk* participated in the study, of whom 719 (55.7%) were women and 571 (44.3%) were men. Half of the subjects were in the age group of 20-30 yr. The study estimated prevalence of hypertension among this tribal community to be 21.7 per cent. Prevalence of hypertension among men was 28.2 per cent and among women it was 16.5 per cent which meant that one-third of the men and one-fifth of the women were hypertensive¹². The prevalence of hypertension among *Jenu Kuruba* tribe found in this study was comparable to the composite nationwide data of National Nutrition Monitoring Bureau (NNMB) which estimated prevalence of hypertension among rural adults to be 25 per cent²⁸. This study corroborates

the increasing recognition of burden of hypertension among the tribal population²⁹⁻³¹.

A study was carried out among chronic alcoholics from the *Koraga* tribe to assess the extent of liver damage as compared to healthy controls and other alcoholics³². Serum and urine samples were collected from 28 *Koraga* alcoholics, 30 general alcoholics and 31 healthy controls and were analysed for liver function parameters and antioxidant markers. Results indicated that the extent of alcohol induced liver damage in *Koraga* subjects was comparatively lower than general alcoholics, even though alcohol consumption was found to be higher in them. The authors concluded that there might be some mechanism that rendered the *Koraga* tribe resistant to alcoholic liver damage.

Oral health

A study was carried out on 2605 people belonging to the *Iruligas*, a native Karnataka tribe, residing at 26 villages of Ramanagar district in Karnataka to assess their periodontal health status and oral hygiene practices³³. The study revealed a relatively low prevalence of periodontal disease among these people perhaps because of their practice of using of chew stick which was observed in as many as 80 per cent of the tribal population.

Ethnomedicinal practices

Similar to the ethnic diversity of the State, the traditional health practices in Karnataka is also diversified with the changing cultures, diverse ecological conditions, geography, climate and vegetation. Each district in the State has its own and unique traditional health practices, which depends mainly on the culture of the tribal community and availability of the resources in terms of crude drugs, most of which come from the rich biodiversity of the Western Ghats region. The research works on ethnomedicine in Karnataka has been mostly limited to documentation of medicinal plants from specific geographical/tribal areas, for particular diseases or on specific tribes. Research studies with respect to traditional/tribal/folklore medicinal practices specific to a geographical area, *taluka* or district include reports from both tribal and non-tribal communities. In several such efforts, the ethnomedicinal practices from various districts like Tumkur³⁴, Bengaluru³⁵, Chikmagalur³⁶, Kodagu³⁷, Mysore³⁸, Raichur³⁹, Bidar⁴⁰, Gadag⁴¹ and Belgaum⁴² have been documented. Documentations of traditional medicinal practices have also been

made specific to *talukas* and locations as in coastal Karnataka⁴³, Bhadravati^{44,45}, Sringeri⁴⁶, Sagar^{47,48} and Kukke Subramanya⁴⁹.

The documentation of traditional practices for disease-specific conditions consists of information intermixed with both tribal and non-tribal communities for the region. The major efforts in these lines are for jaundice^{50,51}, snake bites⁵², gynaecological disorders and reproductive care^{53,54}, skin diseases⁵⁵⁻⁵⁸, oral health⁵⁹, bone fractures⁶⁰, wounds⁶¹ and for malaria⁶².

The studies carried out on specific tribes are only a few in number, many of which are not exhaustive. The ethnomedicinal practices from following tribes have been documented:

Jenu Kuruba: The less known ethnomedicinal uses of plants reported by *Jenu Kuruba* tribe of Mysore district was documented by Kshirsagar and Singh⁶³. The report provided the scientific and local names, geographical distribution within the district, plant family, preparation, uses and the methods of administration of 25 medicinal plants traditionally used in Mysore, but less known to other regions. Another study documented the traditional medicinal knowledge of the tribe from Kodagu (Coorg) district⁶⁴. The documentation was done through structured questionnaires in consultations with the tribal practitioners and patients that have resulted in the documentation of 20 medicinal plant species for treatment/cure of 21 diverse forms of ailments. The study underlines the potential of the ethnobotanical knowledge in this tribe and the need for the further documentation and research needs in this direction.

Khare vokkaliga: *Khare-Vokkaliga* is one of the small ethnic communities inhabiting Uttara Kannada district of Karnataka. Achar *et al*⁶⁵ conducted the studies on their ethnomedicinal aspects and documented usage of 57 plant species for the treatment of 39 ailments. Among these, 20 species are being used to treat six infectious diseases and 44 species for 33 non-infectious diseases.

Siddis: Bhandary *et al*⁶⁶ reported 98 preparations used by them for treatment of various ailments. These preparations were made out of 69 species of plants.

Soliga: The documentation of ethnobotanical plants used by the *Soligas* has been made⁶⁷. The authors reported the utility of 57 species of plants by the tribe for treating various ailments. Later, the lifestyle, culture, rituals and traditional health practices of *Soliga* tribe in Chamarajanagar district were outlined⁶⁸. It

was noted that *Soligas* maintained a continuous and intimate interaction with the forest, deriving most of their basic requirements from the forests. Due to their intimacy with the nature, the *Soligas* have a holistic outlook on life and their indigenous knowledge is also holistic in nature.

Kunabi: The ethnomedicobotany of the *Kunabi* tribe was documented by Harsha *et al*⁶⁹. They documented 45 species of plants for the treatment of 24 ailments. Among the reported plants, six species were used for treatment of allergies and skin diseases, five for sores and inflammations and four each for fever, cuts, wounds and urinary tract infections.

Gowlies: Bhandary *et al*⁷⁰ reported the plants used by the traditional practitioners of the *Gowli* tribe of Uttara Kannada district in Karnataka. They documented the use of 41 species of plants in the medicinal practices of the tribe. The details on parts used, method of preparations, dose and duration of treatment along with the botanical details of the plants have been provided in the report.

In Gulbarga, Rajasab and Isaq⁷¹ recorded 51 species of common plants used by *Lambanis* for their healthcare. The utility of 30 plant species for primary healthcare conditions among the ethnic groups like *Halakki*, *Kadu kuruba* and *Lambani* in Bidar district has also been reported⁴⁰. The traditional usage of 25 species of legumes, including their use in health aspects, has been documented among ethnic fishermen groups like *Best*, *Bovi*, *Gangamathasta*, *Mogaveera* and *Karvi* from 12 locations in three sites of western coast of Karnataka⁷². Hiremath and Taranath⁷³ reported 15 plants with 12 preparations as traditional phytotherapy for snake bites among the tribes such as *Lambanis*, *Hakki-pikki*, *Jenu Kurubas* and *Iruligas* from Chitradurga district. During the documentation of the plants for the treatment of herpes, Bhandary and Chandrashekhar⁷⁴, reported 34 formulations for its treatment with 57 species of plants, especially those used by *Koraga*, *Malekudiya* and *Hallakki Vokkaliga* tribes from Uttara Kannada district of the State. Recently, Bhat *et al*⁷⁵ reported 102 species of plants used to treat skin diseases from Uttara Kannada district, documented from various communities including tribes like *Hallakki vokkaliga*, *Siddi*, *Kunbi* and *Gowli*.

In spite of all these studies and reports, there exists a large gap in complete documentation of the ethnomedicinal knowledge and practice of tribes

of Karnataka. The valuable knowledge of the vast ethnic population on the healing herbs of the region is fast eroding and is in immediate need of systematic, scientific, exhaustive and uniform documentation which can be subsequently validated through research and clinical evaluation or through reverse pharmacology approach serving the larger purpose of translating traditional knowledge into practice of health care.

Efforts from Government and non-Government organisations (NGOs)

The Department of Tribal Welfare was formed specifically to address the needs of STs in Karnataka. The concept of the Tribal Sub-Plan (TSP) and its counterpart the Special Component Plan (SCP) emerged in the National Fifth Five-Year Plan¹¹. The objectives of the TSP are poverty alleviation, protection of tribal culture, education, health care and providing basic minimum infrastructure. Poverty alleviation includes programmes in agriculture, animal husbandry, sericulture, horticulture, village and small industries as well as all employment-generating schemes such as *Swarna Jayanthi Swarozgar Yojana* (SJSY). Tribal education is given importance by the State Government. Social Welfare Department of the State is looking after the educational needs of these communities. Various programmes are implemented to provide educational facilities to students belonging to the scheduled tribes. The State Government is opening nursery and women welfare centres, *Asharm* schools (free residential schools) pre-metric hostels, for boys and girls, *etc.* From 1995-1996 onwards Karnataka Government has started scholarship scheme for the ST children. The students from 1st to 10th standard can avail this privilege. Financial assistance is provided by the Social Welfare Department⁷⁵.

Apart from the efforts made by the State Government some of the non-governmental agencies and associations, trusts and individuals have taken interest in tribal educational welfare programmes in Karnataka. Institutions such as Vivekananda Girijana Kalyan Kendra (VGKK) in Mysore district is a well-known centre working for the upliftment of the *Soliga* tribes. The centre has residential tribal school, vocational training and market facilities for tribal products⁷⁵.

The role of NGOs in tribal welfare activities, though small, has been significant for introducing qualitative changes in the lives of the people. Vivekananda Girijana Kalyan Kendra, Swami Vivekananda Youth Movement,

Development Through Education (DEED), Foundation for Educational Innovations in Asia (FEDINA), Coorg Organisation of Rural Development (CORD), Samagra Grameena Ashrama, Janashikshana Trust, Chintana Foundation, Samvridi/Krupa, Vanavasi Kalyana Ashrama are some of the well-known NGOs involved in the tribal development in Karnataka. It is possible to make development work more effective and sustainable through engagement with the local community, which has a better understanding of its own socio-economic needs, traditions and culture than non-tribals. Their participation in programmes, funded by the Government and voluntary organizations helped build confidence in the people to utilize the services thus offered and has provided feedback for modification and re-orientation of programmes¹¹. Under the India Population Project (IPP-9) project, the Health Department and NGOs trained tribal girls as ANMs and they were posted to sub-centres in remote tribal areas. These ANMs are now providing good healthcare services to tribal women and children¹¹. Government-owned PHCs at Gumballi and Thithimathi were handed over to Karuna Trust and Vivekananda Foundation respectively and are being run as model PHCs¹¹.

In B.R. Hills, Mysore, Vivekananda Girijana Kalyan Kendra (VGKK), an NGO, is promoting the traditional knowledge systems of tribals and has integrated traditional healthcare system with modern medicine. Tribal knowledge of herbal medicines is also being promoted by them¹¹. However, the degree of effectiveness of various schemes in terms of programme implementation in these sectors is not evident in the three critical areas of health, education and poverty reduction. The magnitude of the problem is so great that a large percentage of tribal families are poor and lack access to resources that would improve their education and health status. The human development status of the tribes of Karnataka is more than a decade behind the rest of the population of the State and thus they remain poorest and most deprived of all sub-populations in the State¹¹.

The present review attempts to highlight the limited research carried out on the health of the ethnic tribes of Karnataka. It identifies the gaps that need to be filled up to understand the health issues for better health care management of these tribes. It also underscores the potential of integration of the rich traditional practices of the ethnic tribes with present day knowledge and healthcare. Concerted inter-sectorial efforts are needed from policy makers, researchers, care providers, non-

profit and social organization to improve the health status of the tribes of Karnataka.

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