



HEALTH STATUS AND INDIGENOUS KNOWLEDGE BASED TREATMENT SYSTEM OF MIGRANT ORAONS: A STUDY FROM DOOARS, WEST BENGAL

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Abstract:

West Bengal is one of the Indian states with the highest tribal density. Among these tribal groups, the Oraons are one of the most migratory tribal groups in northern West Bengal. In Dooars, they mainly live in the forests or near forests. Therefore, it is common for them to collect various materials from the jungle areas to make their daily life comfortable. In this way, they rely much more on the plants and herbs of the jungle to treat their various diseases, ill-health conditions and other abnormalities. They have their traditional healers who treat them first-hand. They (the healers) prescribe them various medicines made from different plants and herbs. Traditional medicine men or folk doctors treat patients who are considered experts in medicinal plants and folk medicine. In the present work, an attempt has been made to study the indigenous knowledge-based practises and treatment systems of the migrant Oraons in the Dooars region.

Study area and methodology: The health status of the Oraons of Sursuti Banobasti village in the Lataguri areas of Dooars was studied to understand the community perspective and to record the different types of diseases observed among the Oraons during fieldwork using different traditional field methods.

Results and discussions: The villagers suffer from both communicable and non-communicable diseases. They consume traditional foods, including handia (a traditionally prepared rice beer). Both couples are accustomed to these drinking habits. The sanitation facilities are of very poor quality, leading to some widespread diseases in the area. The villagers suffer from various seasonal health problems. Various communicable diseases are prevalent throughout the year. They still rely on herbal medicine and the magico-religious methods of their traditional systems. The health facilities in the region are rudimentary.

There is a close connection between health and illness and their traditional culture. The climatic conditions in the forests also have a great influence on health and illness. Preventive and curative measures are the main concern in the treatment of health and disease, mostly based on their traditional socio-cultural and indigenous knowledge system.

Summary and conclusion: The traditional medicine of this forest-dependent tribal community in the Dooars areas is a complex system. It is closely linked to the various prevalent cultural traits and beliefs of the Oraons. Knowledge of the neighbouring forest areas and the local flora and fauna is

extremely helpful. Their survival is explained by their integration into the social fabric of the tribal culture.

The indigenous treatment systems of the Oraon tribal community deal with various forms of therapy, especially ethnomedicine, which includes magico-religious, mechanical and various biochemical procedures. This study addresses the popularity of ethnomedicine as traditionally used by the migrant Oraons and in particular the need to utilise ethnomedicine as an alternative treatment method alongside modern medicine in these areas.

Keywords: Health, Disease, Treatment, Indigenous knowledge, Ethnomedicine, Jungle areas, Migratory Oraon tribe, Dooars

Introduction:

Health is a general physiological state of human well-being and has always been interested in the control of diseases and ailments. All human groups have known a culture of health. The oldest definition still in use states that health is the 'absence of disease' [1]. The ancient Indian and Greek literature shared this concept and attributed illness to disturbances in bodily balance, which they called harmony. In Dooars, the Oraon usually live in or near a forest. Therefore, it is common for them to collect various materials or things from the jungle areas to make their daily life comfortable [2]. In this way, they are much more dependent on the plants of the neighbouring jungle to treat their various diseases, poor health conditions and various abnormalities. The WHO gives a widely accepted definition of health: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" [1].

A large number of Oraons, along with some other tribal communities, also live in northern West Bengal (Dooars region) and in Assam, where they are mainly employed as labourers in the tea gardens. The Chhotnagpur plateau is the motherland of these Oraons [3]. In the 18th and 19th centuries, a large number of Oraons along with other tribal communities migrated to the Dooars region of West Bengal and the tea garden areas of Assam [2]. Most of these migrations were the result of the forceful activities of the British at that time. A small number of Oraon have also settled in the tea garden areas of the Dooars region of North Bengal [4]. They are closely associated with other tribal groups in North Bengal, especially the Lepcha, Toto, Garo, Rabha, Munda, Paharia, Kora, etc. [5].

In recent years, this statement has been expanded to include the ability to lead a "socially and economically productive life", especially in the case of indigenous communities [6]. The health status of the Oraons of the Sursuti Banobasti in the Lataguri areas of Dooars was studied to understand the community's perspective and to record the different types of diseases observed among the Oraons during fieldwork. They are sedentary and subsist on agriculture but have a good connection with forestry [7]. They have migrated to the northern part of the sub-Himalayan tea garden region as migrant labourers, mainly from the Chotanagpur plateau areas [2]. It was first planted by the British in 1874 and is often referred to as 'Modesia' by the locals. The Oraons and other tribals have successfully adapted to working in the tea plantations. Their traditional socio-economic activities have changed to some extent in this Dooars area [8, 11]. The economic activities of Oraons are related to rice and vegetable cultivation, livestock and poultry rearing, day labourers, temporary jobs in Forest Department, tourist guides and hotel dancers, etc [3]. Their eating habits and addictions are related to their occupation and lifestyle. The health status of Oraon villagers was analysed in a very brief study.

Objrctives:

1. To understand the community's opinion on the different types of diseases observed among the Oraons.
2. To understand community perception of indigenous treatments for common diseases.

3. To examine the dependence on local ecological resources, such as local forest resources, in the traditional treatment system.

Methodological Considerations:

Study area and tribes:

West Bengal is one of the Indian states with the highest tribal density [9]. The study was conducted mainly in the Lataguri region and the neighbouring areas of the Dooars in Jalpaiguri district. A large number of tribal groups live there. The Dooars plain is the northern part of West Bengal, which lies south of Darjeeling and west of Bhutan [10]. Dooars is a jungle area known for its diverse ecological features [11]. The average annual rainfall is 3900 mm. In summer, it is quite hot with an average maximum temperature of 33-35 °C, and in winter the average minimum temperature is 7-10 °C [12]. These special climatic conditions are very favourable for the growth of the specific lush vegetation in this area. The forest area of the Dooars region is mainly covered by forests of various tree species, with Sal trees (*Soura robusta*) predominating, but other deciduous forests and various types of green trees can also be found here [13].

The fieldwork was conducted in the Oraon tribal community dominated Sursuti Banobasti village in the Lataguri area of Gorumara National Park in the Dooars region of Jalpaiguri district in West Bengal [14] to understand the community's view of health and disease and dependence on their traditional indigenous treatment methods. The village is mostly surrounded by forest and on one side there is a row of tea gardens. These tribal people have migrated here mainly from the areas around the Chhotanagpur plateau [3]. These migrant tribal groups have been intensively utilising the local forests and other resources for a long time to meet their daily needs. Generally, they use various plants, medicinal herbs and other folk medicines for the treatment and prevention of various diseases [4]. The Oraons of this village generally depend on the local ecological resources such as the local forest resources of the Garumara National Park [14].

Methods of data collection:

The study refers to the data collected on the indigenous knowledge-based treatment systems mainly based on ethnomedicinal practises of the migrant Oraons to cure various diseases. The present work is the result of in-depth ethnographic fieldwork in the above-mentioned areas. The field data was collected mainly using purely anthropological techniques. The data was collected in two phases. In the first phase of the field study, the focus was on collecting general information, while in the second phase, various health and disease-specific data as well as indigenous treatment methods were collected. In the said study, both house-to-house information and individual-level data were collected and given equal importance. The data was mainly collected from elderly and knowledgeable family members as well as elderly people from the neighbourhood.

The study is based on in-depth interviews, observations and case studies. The in-depth interviews were conducted with elderly villagers, traditional medicine men and local herbalists to know more about the general health scenario, diseases and treatment system of the region that usually play the role of primary health care providers in the said areas. Data was collected on the general health status, living conditions, diseases and treatment through folk medicine, especially the use of different medicinal plants and herbs to cure various diseases. After the data collection, the treatment patterns for various diseases were reviewed and most importantly confirmed from different sources. Various other information was also obtained from the traditional healers such as the high prevalence of diseases in the study area, trends and types of treatments accepted by the locals, availability of various medical facilities in the areas, cost-effectiveness of treatment, availability of various medicinal plants and herbs and their medicinal properties, any changes in these treatment dependencies and the success of such treatment.

Results and Discussions:

Local influences on health and disease

Domestic environment:

The Oraons generally live in their traditionally built houses, which are typically of the sub-Himalayan type. Most of these houses are made of wooden walls and have a tin or asbestos roof and most of the houses are two-storeyed. They keep their livestock (cows, buffaloes, rams, pigs, goats and poultry birds, especially hens and ducks) on the ground floor and sleep and rest on the first floor. They have a separate kitchen area in their house. They grow various vegetables and crops in the gardens or on the house plots. The settlement pattern of these houses is almost like a cluster. Most of the houses have a toilet and a bathroom, which are mostly unused and where most of the families keep their firewood, cow dung cakes and some other materials.

Water sources:

There are several wells in the Oraon households in Sursuti Banobasti. The villagers use the well water for drinking, cooking, bathing and washing household utensils. There are only two ponds in this village. The villagers use the water from the ponds mainly for bathing, washing clothes, cleaning pets and for some other domestic purposes. So most of the time the villagers use contaminated water. As a result, various skin infections, skin eruptions and rashes are very common, especially among children.

Dietary habits:

Rice is eaten twice a day as a staple food. Some vegetables are eaten with cooked rice and wet rice. Tiffin is only eaten in very few households. Eggs and meat are used as special foods on special occasions. Fish is very rarely on the daily menu. Pork is often eaten in households or at social ceremonies.

Lifestyle:

They regularly eat the traditional handia (a traditionally prepared rice beer with some local ingredients such as bakhar, boiled rice, water, etc.). Both couples are used to drinking on many occasions. Sometimes they also drink alcohol and other country liquor which they buy from the market. Most of them have the habit of smoking beedi in their daily life. They also have the habit of consuming betel leaves with different types of tobacco like dokta and jardha. The younger generations are highly addicted to pan-parag and khaini in different flavours and from different brands.

Clothing patterns:

They wore different types of clothes like shirt-gangi, sarees and petticoats. In the winter season, children also wear cotton and woolen shirts. They suffered from the lack of clothes for every season, especially in winter.

Sanitation and drainage:

Each household has a well, a urinal and a toilet, all constructed by the Forest Department of the Government of West Bengal. In the study areas mentioned above, most of the urinals or toilets are in an unused condition. There is no centralised sewerage system. The forest department has constructed a drainage system on the outskirts of the village mainly to drain the stagnant water of the village to prevent the breeding of various mosquitoes and worms. However, it is still incomplete and uncleaned (at the time of fieldwork), so there is a patch of stagnant water at the end of the drainage, causing a strange odour and pollution that favours the proliferation of mosquitoes, worms, insects, etc.

Seasonal diseases:

The villagers of Surusti Banabosti suffer from various types of communicable diseases throughout the year. In the spring, summer and winter seasons, the incidence of acute and chronic diseases are much higher in all age groups. The children of this Oraon community suffer from chicken pox, measles, diarrhea and other acute diseases.

Table – 1: Seasonal diseases prevalent in the study area

Season	Acute diseases	Chronic diseases
Summer	Fever, measles, chickenpox	Rheumatism, kidney trouble, leprosy
Rainy	Fever, cough	Malaria, Kalajar or unknown fever,
Autumn	Malaria, dengue, diarrhea	Rheumatism, renal trouble
Late Autumn	Malaria, dengue	
Winter	Cough and cold respiratory trouble, skin diseases	Asthma, rheumatism, T.B.
Spring	Pox, measles, skin diseases	Rheumatism, diarrhea, skin diseases

Source: Data collected from village Health Centre and field data.

It is also noted that most of the children suffer from skin diseases and only a few from chronic asthma. Adult men suffer from acute diseases such as malaria, unknown fever, diarrhoea and skin problems. They also suffer from chronic diseases such as rheumatism, kidney diseases, asthma and leprosy. A large proportion of the villagers suffer from tuberculosis (TB), persistent fever and asthma. This also affects the villagers' earning potential, which is based on day labour.

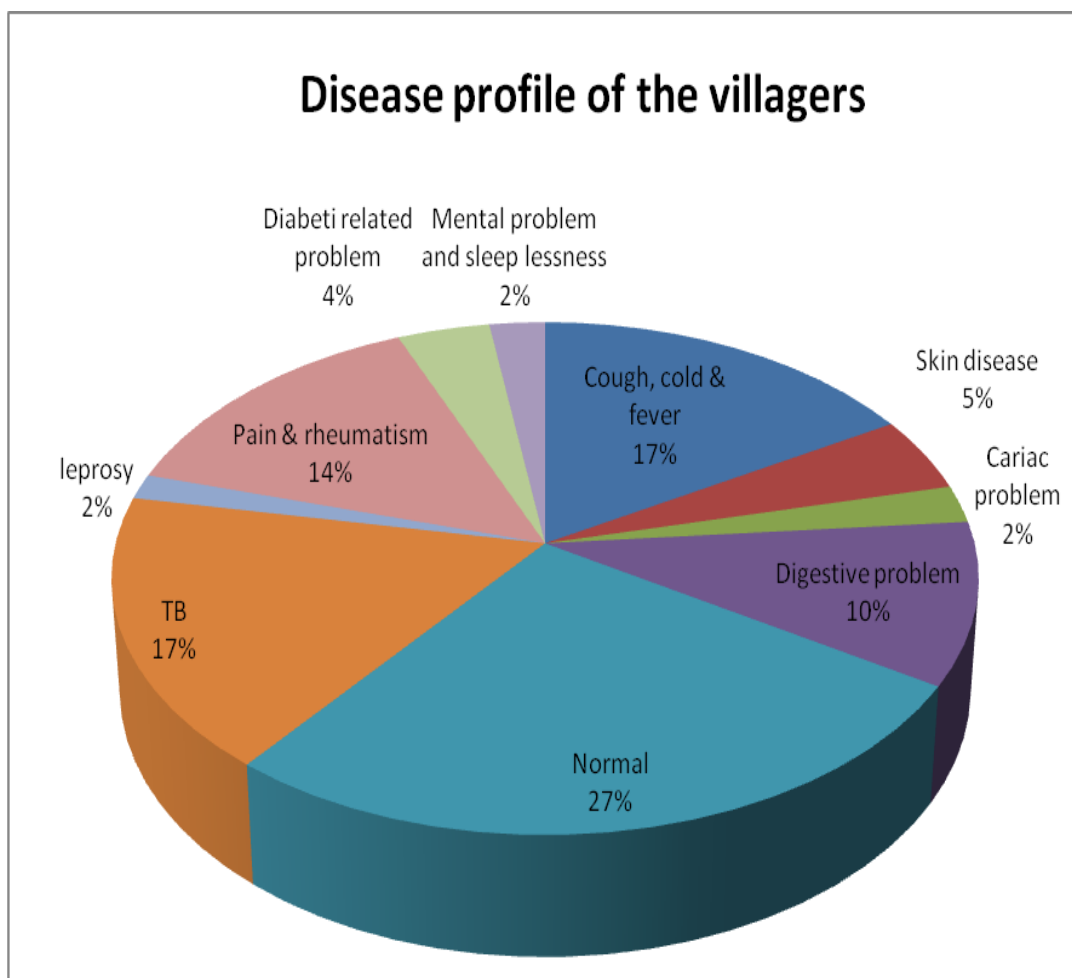


Fig. 1: Common disease profile of the villagers

Health service providers:

The villagers of Sursuti Banobasti usually prefer to go first to quacks, traditional medicine men or herbal healers to treat their health problems. There are several quacks in the neighbouring areas. There are also several traditional folk doctors in the village or neighbouring areas. According to them, the villagers mainly suffer from various acute diseases like fever, cough and cold, malaria, malignant malaria, diarrhoea, chicken pox, typhoid, measles etc. They have an idea of the acute diseases and their severity and therefore the villagers usually first go to quacks, traditional medicine men or folk medicine specialists to treat their acute diseases.

Availability of health facilities for the villagers:

The village is located near the Lataguri areas of Garumara National Park and is one kilometre away from New Mal Junction and Moynaguri Road. It is part of the Chalsa block. The primary health centre of the block is located at Chalsa in Bicha-bhanga, 6 km away. There are several healthcare providers in this village. During the field study, the authors met with traditional folk medicine specialists and conducted in-depth interviews with dhai-maa (midwife), local traditional medicine men and quacks.

The Oraons of Sursuti Banobasti suffer from various diseases. They often believe in herbal and magical-religious cures for these diseases. When diseases break out, they get infected or suffer from an illness, they first think of consulting the traditional medicine man to cure their physical problems either through ethnomedicinal treatment or other possible folk medicine treatments. They have a strong belief in supernatural powers at the conservative level. The villagers always preferred the herbal and magico-religious method of treatment and if this was unsuccessful, they turned to the quacks of the village or the surrounding areas. If these were also unsuccessful, the villagers tried to consult private doctors (medical practitioners). During the field observations, it was found that they have quite little faith in government systems like government hospitals, doctors, medical staffs, medicines and other services. They visit government hospitals and seek the help of government health personnel if they are unsuccessful after visiting their preferred sources of treatment.

The role of ICDS centres:

In the village of Sursuti Banobasti, there is an ICDS centre next to the primary school. A total of 30 children are cared for there and receive additional meals for their children. For the Oraon children, there is a hotchpotch lunch consisting mainly of rice, pulses, vegetables and eggs. Sometimes pregnant and nourishing mothers also receive this meal as supplementary food to improve their nutritional status. The pre-school children learn to write the alphabet in Bengali and English. The Anganwari workers usually register the names of the pregnant and lactating mothers (until the child is 6 months old) and help them to get government support (money and other things) after a normal delivery.

Data collected by various healthcare providers:

Immunisation process:

The village health centre is located in Banpicha Bosti, about 1 km away. Two nurses and two ASHAs work there as a part of the health programme. The Oraon villagers are used to the vaccination programme for their children. They come regularly to have their children immunised against BCG, DPT, polio, DOTS, hepatitis and other diseases. The ANMS nurse helps pregnant mothers in various ways.

Awareness Camp:

The forest development authorities play an important role in educating people about various health programmes. The village health centre and the forest department have jointly organised an awareness camp. They have organised thalassemia tests, eye surgeries, and eradication of leprosy and malnutrition in children before the fieldwork. They advise on the prevention of anaemia in

pregnant mothers and the need of purity of drinking water. The health centre offers bleaching powder and halogen tablets to purify drinking water.

Dependence on treatment systems based on indigenous knowledge:

Most indigenous peoples live in very remote areas and are therefore much more dependent on the various local cultures. About 85% of India's rural population relies on wild plants to treat various diseases [15, 16]. During the fieldwork, villagers were asked about their primary methods of treating diseases. After collecting information about the people involved in local healing practises, the authors tried to contact these healers to share their knowledge about established systems of various folk and herbal medicines such as Ayurveda and local herbs used in other neighbouring communities.

The belief in supernatural powers is reinforced by their illiteracy and severe poverty [17]. This is probably one of the main reasons for the unhygienic conditions and the tendency to rely on the traditional practices prevalent among them [2]. Their habits are inevitably influenced by their unhealthy practices. The belief system regarding health and illness varies from person to person [18, 19]. They believe that some physical diseases such as measles, cholera, dysentery, diarrhea, hysteria, fever, cholera, etc. can be removed or cured by different extra-somatic activities of sorcery and witchcraft [20]. Various other health problems such as wounds, burns, insect bites, dog bites, tiger bites, elephant attacks, etc. can be cured by the physical application of medicines, although the majority of villagers believe that these diseases are caused by the unpleasant looks of local deities or supernatural forces [20, 21].

According to tribal elders and traditional medicine men, invoking the appropriate natures, deities and ancestral generations is the most popular technique for curing illness [22]. This is often prescribed by traditional medicine men or folk medicine specialists to cure various diseases or health problems such as epidemics, snake bites and also evil effects of various evil spirits through various urgent remedies [23, 24].

Products from nature and some associated by-products have always fascinated human behaviour and cultures. Over a very long period, various plants and herbs have been used by different tribal and rural communities [25]. India is a treasure trove of medicinal and aromatic plants, most of which have been traditionally used as favourite remedies by tribal healers for generations [26]. Numerous plants and herbs are used by various tribal groups and communities, especially in eastern and northeastern India. These medicinal plants and herbs symbolise different healing scenarios for the health and disease problems of the indigenous and rural populations [27, 28].

Therefore, these medicinal plants and herbs form the majority of active ingredients in the traditional preparation of medicines today [29-31]. The term ethnomedicine refers to "those beliefs and practises related to disease that are the product of indigenous cultural developments and are not explicitly derived from the conceptual framework of modern medicine" [32-34].

Anthropologists and specialists in some other branches of social, biological and medical sciences are keen to study the traditional systems of medicine as they have long been prevalent among various tribal and indigenous groups in different parts of the world [35]. In this context, it is worth mentioning that the renowned British anthropologist W.H.R. Rivers first developed the idea in 1924 that indigenous systems of medicine are social institutions that should be studied in the same way as social institutions [36].

Research, especially anthropological research, which also deals with various forms of therapy, especially in ethnomedicine, includes herbal, magico-religious and mechanical methods as well as various biochemical methods [37]. Traditional systems of medicine have an impressive range of practices characterised by empirical therapeutic knowledge on various topics such as trepanation, obstetrics including caesarean section, laparotomy, uvulectomy, comparative anatomy, autopsy, galloping, vaccination, baths, laxatives, ointments and cupping [38-43].

Treatment of diseases with the help of ethnomedicine:

This study addresses the popularity of ethnomedicine as used by the immigrant Oraon [44-48] and in particular the need to utilise ethnomedicine [18, 49] as an alternative method of treatment alongside modern medicine in these areas. However, it is generally observed that the Oraons in Dooars offer indigenous treatments. In the following figure and table, an attempt is made to describe the probable use of various plants and medicinal herbs according to their ethnomedicinal value.

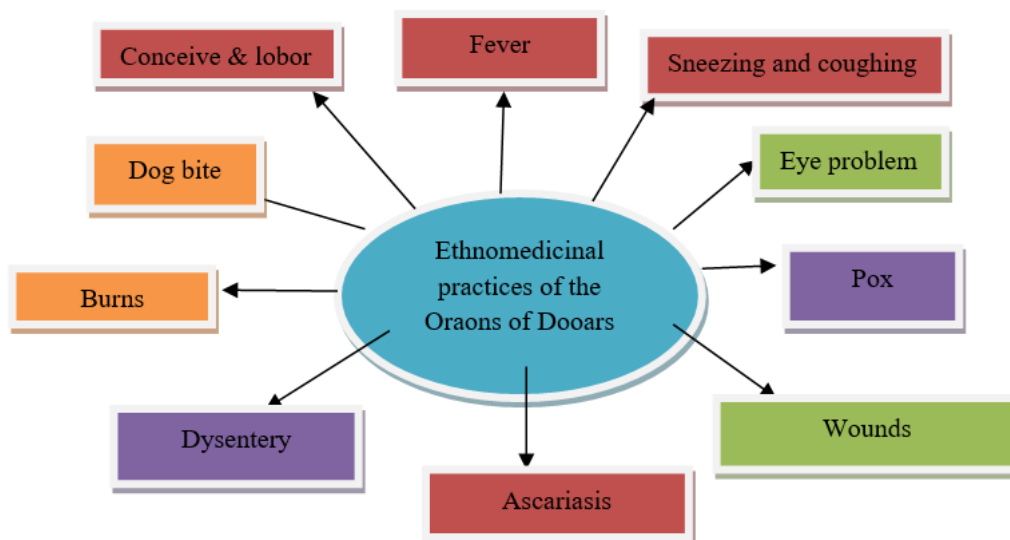


Fig. 2: Treatment of diseases through ethnomedicinal treatment

Table 2: Health problems and medicinal practises

Sl.No.	Name of the Disease	Method of application
1	Headache	a) Application of mustard paste on the forehead of the patient who feels severe or mild headache on both sides of the front of the head. b) Villagers also use some ointments like Amrutanjan, Lakshmi malam etc. to get quick relief. c) Cold water is also applied to the forehead with the help of a wet cloth. d) Sometimes aloe vera juice or sap is also applied to the forehead. e) Sandal paste is sometimes applied to the forehead as a possible remedy.
2	Fiver	a) Take a decoction of garlic, dried ginger and pepper in equal quantity or amount and use this mixture twice a day to relieve any kind of fever with cough and cold symptoms in the initial stages. b) Sometimes tulsi leaves, locally called tulki [Ocimum sanctum (Lamiaceae)], with a teaspoon of honey are also used two to three times a day when the sun's rays are in full bloom. c) In critical cases, they usually prefer allopathic treatment from the quacks, primary health centre or private doctors. d) Homoeopathic treatments are also carried out by local doctors.
3	Dog bite	a) It is best to wash the affected area with drinking water first. Hold a red-hot iron sickle over the affected part of the body and pour water into it. This immediately destroys all germs and prevents further infection with the rabies pathogen in the future. b) They also use Datura metel L. (Solanaceae), locally known as kalo dhutura, to treat pain, and dog bites and as a nerve tonic [50]. c) Magical treatment is also done by the local sorcerers or witch doctors. d) Consult the local quacks and get first-hand treatment. Finally, go to the local hospital (in Chalsa) for a few decades to get vaccinated against rabies.

4	Piles/ Hemorrhoids	<p>a) Crush chilli leaves with raw rice water and apply to the ring muscles.</p> <p>b) They also use <i>Curculigo orchoides</i> Gaertn. (Hypoxidaceae), locally known as kali mushli, for the treatment of haemorrhoids and asthma [50].</p> <p>c) In most cases, the traditional doctors must be consulted and carry out the pre-treatment.</p>
5	Eye inflammation	<p>a) Make an extract of jasmine flowers and put two or three drops in the eyes.</p> <p>b) Apply two or three drops of the milk of a nourishing mother to the iris or sclera two or three times a day.</p> <p>c) Nowadays, villagers prefer to consult modern medical specialists in such cases, especially in the government hospital in Chalsa or Malbazar (sub-divisional hospital) or in private practises.</p>
6	Wounds	<p>a) Apply a paste of tobacco mixed with lime.</p> <p>b) Apply a paste of durba grass with mild heat only on the sore areas.</p> <p>c) Sometimes use <i>Barleria lupulina</i> Lindl. (Acanthaceae), locally known as kanta bishwalyakarani, for the treatment of wounds of various degrees. This medicine also helps in the prevention of dysentery [50].</p> <p>d) Use a paste of lime and sugar on the wounds and neighbouring swellings.</p> <p>e) The most common and widely used ethnomedicinal measure is the application of a paste of a small amount of lime and turmeric.</p> <p>f) Sometimes many villagers use mild, hot aloe vera gel made from aloe vera leaves for quick healing.</p>
7	Chickenpox or monkeypox	<p>a) Worship of ancestors and goddesses of the neighboring dominant Hindu community like 'Sitala'</p> <p>b) Herbal medicines like neem [<i>Azadirachta indica</i> A. (Meliaceae)] are generally used to protect against the infection. A paste of neem leaves, locally called neem tika (a circle is drawn around two eyes to choke out the water from the body of the person infected with chicken pox or monkeypox), is used in post-pox treatment, which also serves as a poison protection [51].</p> <p>c) Sometimes villagers believe in magical treatments as practiced by traditional medicine men in the study areas.</p>
8	Labor pains/ contractions or cramps in the abdomen	<p>a) They mix turmeric [<i>Curcuma longa</i> L. (Zingiberaceae)] with mustard oil and massage it onto the abdomen.</p> <p>b) Sometimes other herbal medicines such as coconut oil and a paste of young tea leaves are also used just before labour begins [52].</p> <p>c) Most of the time, the dhai maa applies mild hot water to the abdomen to make labour gentle and relatively painless and also to ease the birth of the baby.</p> <p>d) Wash the man's 'left toe' and drink the washing water of the holy persons. This was an early custom. Nowadays this custom is no longer so widespread, especially among the young generations.</p> <p>e) Some magical folk medicine treatments are also received. In this case, the local folk medicine practitioners help them by giving them the necessary advice, such as wearing sacred amulets, and rings, taking holy water, etc.</p> <p>f) 'Dhai Maa' must be consulted and must always be present during a normal birth.</p>
9	Dysentery	<p>a) Mix the juice of tamarind leaves [<i>Tamarindus indica</i> L. (Caesalpiniaceae)] with turmeric [<i>Curcuma longa</i> L. (Zingiberaceae)] and salt and drink the mixture twice a day.</p> <p>b) Consult a doctor, preferably a quack doctor, for the initial treatment.</p> <p>c) Sometimes <i>Piper longum</i> L. (Piperaceae), also called pipul, is also used to treat dysentery [50]. This is a very popular practice observed in North Bengal.</p>

10	Burns	<p>a) Apply coconut oil to the slightly affected areas.</p> <p>b) Apply chicken eggs, especially the yolk part of the egg, to the affected areas.</p> <p>c) For mild burns, e.g. from boiled rice water, boiled curry, or any light contact with fire or a hot substance, especially in the kitchen, first apply table salt (NaCl₂) and keep the affected area covered with table salt for half an hour. They believe that this prevents swelling and pain.</p> <p>d) Sometimes breast milk is also used as an initial treatment.</p> <p>e) Old tamarind [<i>Tamarindus indica</i> L. (Caesalpiniaceae)] is best mixed with water and applied to the slightly burnt area, then the slightly affected area heals as quickly as possible.</p> <p>f) Sometimes the villagers use aloe vera (L) Burm. f. from the Xanthorrhoeaceae family, known to the locals by the popular name ghrita kumari, mainly for burns and skin diseases [50].</p> <p>g) Sometimes the magical practices of traditional medicine men are also used as one of the treatment methods.</p> <p>h) Villagers also said that after a sudden event, if they do not have any protective materials for the burnt area, they apply toothpaste of any brand but preferably gel paste on the slightly affected area to get a first-hand remedy.</p> <p>i) Consult a doctor. If the problem is severe, try to take the patient to a hospital in neighbouring Malbazar or Jalpaiguri immediately.</p>
11	Malaria	<p>a) For fever, use a herbal medicine like the leaf paste of kalmegh or chirata [<i>Andrographis paniculata</i> Nees (Acanthaceae) / <i>Swertia chirayita</i>] mixed with the paste of turmeric and administered once a week in the morning for stomach ache, jaundice, liver problems and malarial fever [51].</p> <p>b) They often use the paste or juice with honey of <i>Nyctanthes arbor-tristis</i> L. (Oleaceae), locally called sheuli, to treat malaria, various types of mild or prolonged fever, urinary tract infections and antibacterial infections [50].</p> <p>c) If the symptoms cannot be brought under control with herbal medicines, they should consult a doctor, especially a private practitioner.</p> <p>d) They also rely on folk medicine treatment for a while.</p>
12	Mechanical injuries and trauma	<p>a) In case of inflammation, apply aloe vera gel to the wound.</p> <p>b) In some cases, very lightly boiled rabon lata, [<i>Mikania cordata</i> Roxb (Asteraceae)] paste with a small amount of common salt is applied to the wound [51].</p> <p>c) Usually 90% turmeric, [<i>Curcuma longa</i> L. (Zingiberaceae)] mixed with 10% lime [Ca(OH)₂] and a poultice applied to the affected area</p> <p>d) To cure pain caused by mechanical injuries at different levels of the body, they use amulets or rings given to them by the sorcerers or witch doctors of the local areas.</p> <p>e) Sometimes they also take homoeopathic and allopathic medicines.</p>
13	Sneezing and coughing	<p>a) They use mustard oil for their feet, legs and nasal septum.</p> <p>b) They eat the juice of tulsi leaves, after mixing it with a teaspoon of honey, two or three times a day. They use it when the sun is in full bloom.</p>
14	Cramps, pain or flatulence in the abdominal cavity	<p>If the patient feels pain, cramps or bloating in the abdominal region, use some skin soap with coconut oil to apply this mixture to the abdomen and then add a few drops of water as needed. Then move the mixture clockwise and anti-clockwise very frequently with the opposite side (flat surface) of a kansha (bell metal) bowl or dish. This helps to remove the air from the abdomen.</p>
15	Ascariasis (Roundworm)	<p>a) They drink the juice of kalmaghe [<i>Andrographis paniculata</i> Nees (Acanthaceae)] or chiratata [<i>Swertia chirayita</i>] or leaves mixed with water after being wet for 12 hours. It is taken once a month or for two or three months early in the morning on an empty stomach.</p>

		<p>b) Sometimes they add freshly made cow dung ash to their drinking water in the evening and drink it the next morning on an empty stomach.</p> <p>c) They try to eat uchhe bhaja (bitter juniper) regularly, which they grow in their agricultural fields or house plots next to the jungle.</p> <p>d) They also visit homoeopathic and allopathic doctors from time to time.</p> <p>e) They are given albendazole and mebendazole tablets at the village health centre or at the schools where the village children are studied. They get these tablets from the Health Department of the Government of West Bengal. Although most of the caregivers said that they would not take these tablets and prefer to rely on their traditional medicine. However, the risk of ascaris infection from domestic pigs is very high in this area. Most families raise black and white pigs in their homes and regularly consume pork that is cooked in a pan using hearth heat.</p>
16	Loss of appetite with mild flatulence and indigestion	<p>a) The traditional medicine man prescribes regular consumption of tamarind; master's seed and chilly for villagers struggling with loss of appetite, low interest in food and the like.</p> <p>b) They also recommend drinking a glass of slightly hot water in the morning on an empty stomach. This helps to remove the intestinal air from the body.</p> <p>c) Villagers also favour the consumption of Musa acuminata or green banana, locally also called kancha kola, as a first-choice remedy. Sometimes they also consume the sap of the stem of the small banana tree or green banana slices, which they keep in drinking water for 12 hours and then consume to regain their strength.</p>
17	Tuberculosis	<p>a) They go to private allopathic doctors and sometimes to the Block Primary Health Centre</p> <p>b) Sometimes they also rely on the use of amulets or rings provided by the traditional medicine man or witch doctor</p>
18	Leprosy	<p>a) They receive allopathic medicine from the Block Primary Health Centre and the Village Health Centre</p> <p>b) Sometimes they also rely on the use of amulets or rings given to them by traditional medicine men or witch doctors. In this case, they also strongly believe in the blessings of the neighbouring jungle gods. Therefore, in such cases, the villagers perform a puja for possible cures.</p>

(Source: Field data)

Conclusion

Due to the rapid population growth in the Dooars region, which is mainly due to the high birth and migration rate, the forest area is decreasing rapidly, so most of the medicinal and aromatic plants growing in the jungle are threatened with extinction. Moreover, the gradual expansion of tea gardens and agricultural land is increasing the destruction of forests day by day, creating an unstable situation for the ethnomedicinal system. In this context, it is also worth mentioning that traditional medical knowledge is disappearing mainly due to the disinterest of modern medical practitioners. The youth of today's generation is more interested in the modern medical system than in the traditional medical system. In this way, the traditional knowledge system in the region is disappearing more and more. Therefore, there is an urgent need to inventory and record all ethnomedical information in the different ethnic communities and groups. The same tradition can be observed in the study area.

Acknowledgements

The author would like to thank the migrant Oraon communities in the Dooars areas of Jalpaiguri district, for their extraordinary cooperation and help during the study. The authors are also greatly indebted to the renowned botanist late Prof. G. H. Giri, retired Head of the Department of Botany and Anthropology, P.K. College, Contai, for his valuable suggestions and inspiration and his generous guidance and sharing of his knowledge.

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