

A SURVEY ON ENDANGERED JHARKHAND TRIBAL LANGUAGES AND LOSS OF INDIGENOUS KNOWLEDGE OF MEDICINAL PLANTS

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Abstract: Local languages are the channels that let us know about culture, knowledge, sentiments, regional attributes and many other facets related to a settlement and community. Unfortunately, it is found in various parts of the world languages are eroding or have completely disappeared. Such destruction of languages is caused because of different reasons that include ecological shift, destruction of a community, cultural conflicts, language vulnerabilities of minority groups and others. The event of language loss results in the extinction of culture and indigenous knowledge of the region that are distinct and worthy in its kind. Based on this threat caused out of language loss, this research is planned as a questionnaire based survey in various regions of Jharkhand where the spoken language is Santali, Mundari and Ho. Purpose of this research is to identify the erosion of indigenous knowledge of medicinal plants due to the growing vulnerabilities of these tribal languages. The survey finds medicinal plants' familiarity index and awareness index of local people on these plants. Based on these two parameters the research concludes that conservation of these tribal languages are important. Unless suitable protective measures are implemented, there is greater risk of damage of indigenous knowledges of medicinal plants that can otherwise be commercially spread and bring economical prospects for the local people of Jharkhand.

Keywords: medicinal plants name, Jharkhand indigenous knowledge, endangered tribal languages of Jharkhand, ethno-medicine plants Jharkhand

1. Introduction

Languages around the world have their distinct legacy and they are the fundamental medium showcasing people's ethnic diversity and behavioural traits. Unfortunately, due to many reasons, such as, ecological changes, destruction of the whole community, cultural conflicts and others, languages, particularly, minority languages get damaged or destroyed.

Languages being said by small, infrequently populated communities are considered minorities. For instance, India is home to various Adivasi (primitive tribal communities), which are uncommon and few in number (Brenzinger, 1993; Mundu, 2006).

Another factor that contributes to the decline of languages in areas with several languages. Specifically, it refers to a civilization in which more than one language is utilised for communication. For instance, there are differences in the way words are used and how sentences are put together in different parts of Europe and the United States (Wurm, 1991; Wurm, 1999).

Language variety is known to lead to cultural tensions and barriers between different ethnic groups. Language loss results from such negative effects. In addition, many indigenous expertises, including regionally specific art forms, ceremonies, and local technology, are vanishing as a result of language attrition.

India is a multicultural nation where many different languages are spoken by many different communities. Raw mother tongue reports from the 2011 Census in India totalled 19569. Here, when we refer to a mother tongue, we mean the language that has been used by a community for many generations. Finally, 121 languages are found when these mother tongues are classified in the proper language classes (Census 2011).

Table 1: Counting Languages in the Indian Census
(Source: Jolad and Agarwal)

Year	Returned mother tongues	Rationalized mother tongues	Legitimized Languages
1951	~	783	~
1961	~3,000	1,652	193
1971	~3,000	~	104
1981	~	~	~
1991	~10,000	1,576	114
2001	6,661	1,635	122
2011	19,569	1,369	121

It is evident that a country with such a vast variation of languages used by communities differing in their number and existence would certainly face difficulties in maintaining and recognizing every language. In fact, this is a practical problem by which many minority languages are currently suffering in India. In this research, region of Jharkhand is focussed. This region is inhabited by people including minority tribal communities. This region is geographically significant because of the dense forest areas with a variety of valuable and rare plants.

The study centres its theme to find out extent of risk associated with tribal language loss in the region of Jharkhand leading to the destruction of indigenous knowledge of medicinal plants of this region. This research is planned and designed in the form of a survey based case study that attempts to find out the severity of the said loss of indigenous knowledge and possible solution areas.

The sections of this research is organized in this way:

First section provides an overview of indigenous knowledge and their importance for a community, how traditions and local knowledges pose risk of destruction because of loss of regional language. Following this section, a discussion on the motivation of the study is explained. Next, a section of related works is presented covering a few significant published scholarly works on language loss and its impact on the risk of local traditions and culture.

Then, research method and materials, study area and data collection details are given. Afterwards, analysis of the study's observation and its findings are presented. Lastly, the study provides its conclusion and enlists suggestive recommendations for the recovery of endangered tribal languages of Jharkhand and conservation of its indigenous knowledges on medicinal plants.

So, here we begin with the background study and then we'll proceed with other sections as mentioned above.

2. Background Study

The oral transmission of indigenous people's knowledge and way of life depends heavily on their languages. Indigenous people's research hasn't always been done using approaches that take into account local languages, knowledges, and cultural norms. The acknowledgement of Indigenous Knowledge Systems (IKS) and IKS research in diverse regions of the world encompasses problems of social justice, human rights and transformation (Khupe et al., 2016).

Such a strategy is also acceptable when we encounter instances of cultural disputes and obstacles that prevent minority groups from modernising their traditions and restrict knowledge sharing and engagement in different networks for advancement and change. The main focus here is on the preservation of indigenous knowledge and culture as well as the range of its applications.

Each regional language conveys the region's distinctiveness and conveys information about its exclusivity and uniqueness. Oral tradition is frequently regarded as the only way to obtain traditional knowledge that has been handed down orally through generations. Traditional cultural expressions include things like language, songlines, dancing, activities, myths, crafts, visual art, and construction. Some forms of traditional knowledge also reveal changes in culture, narratives, traditions, folklore, ceremonies, songs, and laws.

Traditional knowledge encompasses various fields such as knowledge of midwifery, ethnobotany, and ecology, conventional healers, celestial navigation, prescribed way, ethnoastronomy, environment, and others. It also includes types of knowledge about existing approaches of subsistence (such as tools and methods for hunting or cultivation). These types of knowledge, which are essential for survival and subsistence, are typically derived from a buildup of empirical observation and from encounters with the environment.

We should clarify the phrase "traditional wisdom" in this context to improve clarity. Local knowledge (LK), indigenous knowledge (IK), and traditional knowledge (TK) all relate to knowledge systems ingrained in local, indigenous, or regional cultures' cultural traditions. Traditional knowledge and traditional cultural expressions (TCE) are both categories of indigenous

knowledge, according to the World Intellectual Property Organization (WIPO) and the United Nations (UN) (Wikipedia).

In various parts of the world, diverse ethnic and tribal communities have retained their own unique interpretations of old knowledge. Even though these skills may have certain elements in common, they do not make up a single (or straightforward) toolbox. Indigenous knowledges can be seen of as a hereditary system of learnt awareness and competence that makes it possible to acquire wisdom and make tools out of available materials as needed. Although these knowledges have their origins in a certain location or habitat, they are not necessarily stable or static.

According to Stephen Augustine, traditional knowledge is a body of information acquired from the strategies for surviving that Indigenous peoples developed over many generations and kept in communal teachings and collective memory:

This knowledge is exercised within the context of the social values and philosophies of the tribe...The fact that Native science is not fragmented into specialized compartments does not mean that it is not based on rational thinking, but that it is based on the belief that all things are connected and must be considered within the context of that interrelationship (Augustine, 1997; Simon Brascoupé & Endemann, 1999).

This thorough knowledge mapping is referred to as "Native science" by Gregory Cajete:

Native science is the collective heritage of human experience with the natural world; in its most essential form, it is a map of natural reality drawn from the experience of thousands of human generations. It has given rise to the diversity of human technologies...in profound ways Native science can be said to be "inclusive" of modern science, although most Western scientists would go to great lengths to deny such inclusivity (Cajete, 2000).

According to studies, many groups use oral tradition to transmit traditional and indigenous knowledge. Here, oral tradition is the means of information transmission that frequently offers insightful justifications that concentrate on the details: origin tales referring to the built-up and natural features of the landscape; descriptions of the creatures that live there; articulations of the reciprocal relationships between these creatures; and traditional beliefs that govern how people interact with their environment (Bruchac, 2014).

Typically, this knowledge is transmitted through literal and metaphorical storytelling, which verbally reconstructs ties to the past. Oral traditions, in the hands of a skillful storyteller — a storiér — can trigger fundamental realisations, as Gerald Vizenor (Anishinaabe) puts it:

Native storiérs of survivance are prompted by natural reason, by a consciousness and sense of incontestible presence that arises from experiences in the natural world, by the turn of the seasons, by sudden storms, by migration of cranes...by the favor of spirits in the water, rimy sumac, wild rice, thunder in the ice, bear, beaver, and faces in the stone.

The concept of "survivance" refers to more than just physical survival; it also refers to the active upkeep of customs that safeguard the awareness of these ties, including ongoing communication with the dead to preserve a conscious "feeling of presence over absence."

Indigenous knowledge, which includes the study of traditional ecological knowledge of species and landscapes retained by native nations, has become increasingly important due to the rapid loss

of native biodiversity, habitats, and languages. 20% of species described globally are predicted to go extinct during the next two to three decades. Even the most conservative estimates show that current extinction rates across vertebrate taxa are 114 times higher than background rates.

Time is of the essence in cooperative documentation initiatives of local biological categories and accompanying traditional knowledge of species diversity and ecosystems. The formal articulation of Western and Eastern scientific tenets is thousands of years behind many historic place-based knowledge systems.

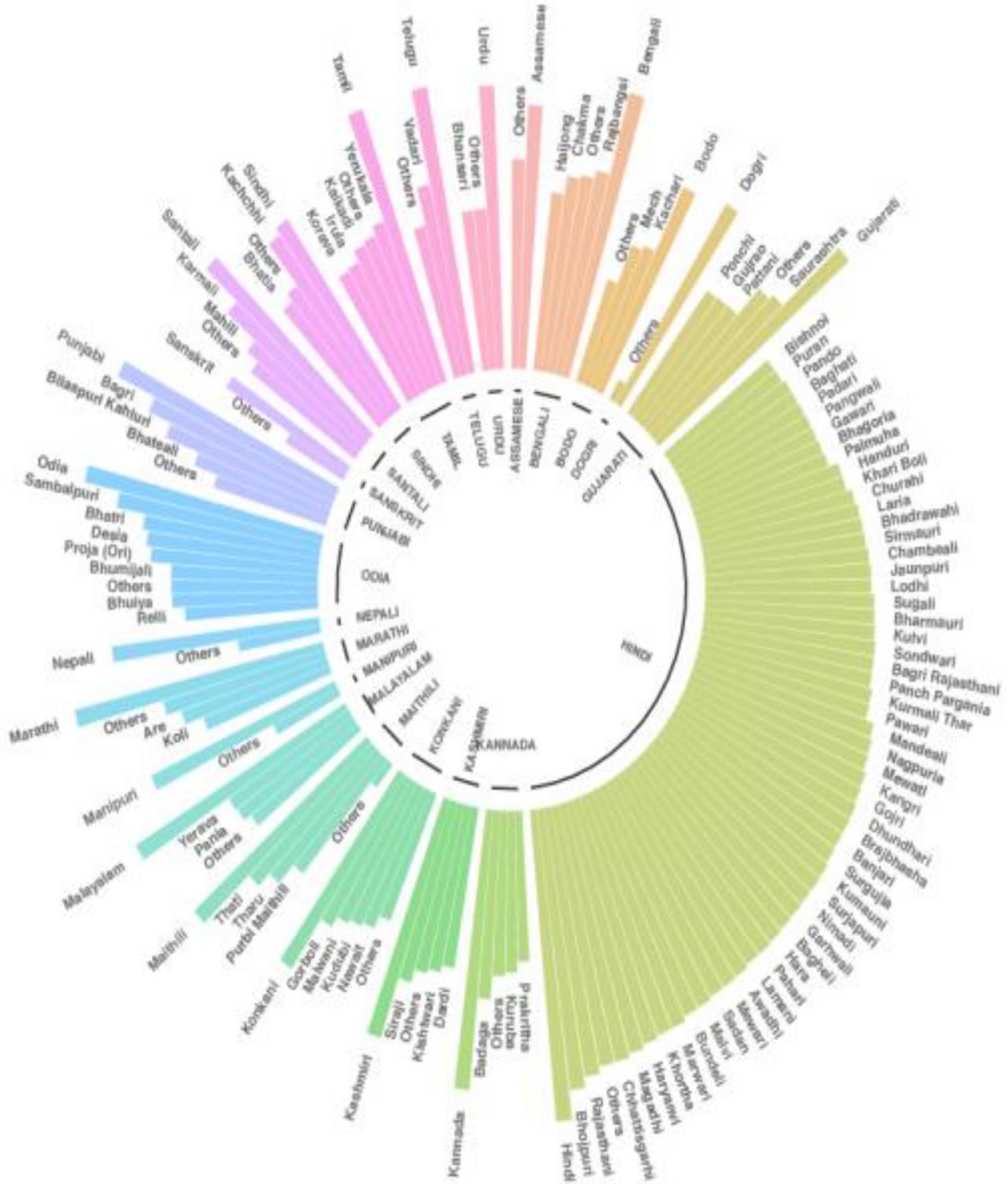
But adaptive ecological knowledge is increasingly deteriorating, if not completely disappearing. This is especially true in areas where the use of their native languages is dwindling. In order to preserve their traditional ways of life based on local natural resources and revive their native languages, communities must receive immediate support (Wilder et al., 2016).

A current global concern is the endangerment of languages. India is home to a sizable number of the world's endangered languages (Moseley & Nicolas, 2010).

The Atlas of the World's Languages in Danger study by UNESCO (Journals of India, 2021) states:

- Out of the 99 non-scheduled languages registered, the number of speakers decreased according to the 2011 Census for 22 of those languages. (Only languages with more than 10,000 speakers are counted in India's language census.)
- As of 2017, India had the most languages that were endangered, vulnerable, or extinct (197).
- Out of them, 5 were extinct, 42 were critically endangered, 7 were severely endangered, 62 were unquestionably endangered, and 81 were vulnerable.
- The Northeast and the Andaman & Nicobar Islands are where around 60% of these languages have their origins.
- Because they have less than 10,000 speakers, more than half of endangered languages are not counted in the Indian Census.

Figure 1: Scheduled Languages and their mother tongues in India
(Source: Jolad and Agarwal)



3. Motivation of the Research

Language spoken by people is not only their mode of expression, they convey many more messages of higher meaning and values. An important message that they convey is knowledge. People living in a region provides its information, importance and scope of development through their language. Since a diverse geography like India is comprised on large variety of human communities located in various zones of the country, knowing their local language served two-way benefit. One, we know about the location, its traditional, system and specificity. Other is, we can easily deliver knowledge from outer areas to that place.

Unfortunately, maintenance of language, specially languages of minority groups and tribals are not paid much attention. Even, they are not recognized officially. Due to this ignorance, people of that zone as well as their location remains separated from the rest of the world in terms of development and knowledge sharing. This leads to gradual destruction of a community and its culture.

Extinction of a tradition and its indigenous knowledge somehow reduces our knowledge area. Therefore, to gain ease of access to a region, comprehend with the local people, study them thoroughly, gain and share knowledge and utilize their specificities, it is essential that we locate

and recognize local languages. Tribal language comes to this area, even if it may belong to a minority group, which is very natural in many countries including India where population diversity is very prominent.

This research is developed on this theme and it explores the region of Jharkhand to locate the vitality of eroding tribal languages of that zone. The research connects this ethnic damage to the risk of losing valuable indigenous knowledge of medicinal plants of which the tribal group of Jharkhand are aware. This research is desired to enhance the socio-cultural essence as well as encourage further exploration on ethnobotany of this zone.

4. Related Works

In this section, a review of literature is presented on selected scholarly works that includes (a) indigenous knowledge conservation through language recognition and (b) Jharkhand's tribal people, their culture, language, indigenous knowledges and threat of tribal language destruction.

Across a data-driven discussion from **1991, Brenzinger, Heine, and Sommer** surveyed the condition of language dying in Africa. Additionally, it concentrated on the social contexts in which languages disappear as well as the processes that came before their actual extermination. The researchers attempted to create a linguistic map of the Tanzanian region as part of their project called "Language Death in Africa," but they were informed of the futility of doing so. They were given this explanation: the languages of the area are quickly disappearing, and it's possible that they will no longer be able to transmit traditional knowledge or indigenous knowledge in the long haul.

The researchers discovered that while the issue involving the extinction of vernaculars was not as dire in many other African countries as it was in Tanzania, languages were dying out in Africa at an accelerating rate, and every year several of them are lost for posterity.

Luoch (2016) used the desk study design to deliver the clarification as gleaned from indigenous knowledge, which is by no means the only factor, and came to the conclusion that the main causes of environmental degradation, among other things, were unchecked resource exploitation, the loss of languages, and the consequent loss of Indigenous Knowledge banked in these languages. Because these three parts are inextricably intertwined, any effort to halt this trend of environmental deterioration that did not include cultural revival, the revitalization of indigenous languages, and an emphasis on Indigenous techniques of environmental preservation was unlikely to be successful. Instead of doing a thorough investigation of the topic, the research relied on local perceptions and expertise, which it believed to be the most accurate data.

Indigenous knowledge networks were introduced by **Cámara-Lereta et al. (2019)**, defining the knowledge held by indigenous people regarding plant species and the services they offer. The findings of their study, which included 57 Neotropical groups, demonstrated the value of cultural legacy in keeping indigenous knowledge alive both locally and regionally. Indeed, knowledge

networks collapsed as fast when plant species were driven extinct as when cultural diffusion, either within or among communities, is lost. However, they found that a far higher rate of network deterioration was caused by the loss of both plant species and information at the same time. The research's conclusions cleared the way for holistic policies that clearly acknowledged the interdependence of genetic and cultural heritage.

A classification scheme for risks to traditional ecological knowledge (TEK) and the accompanying conservation measures was created by **Tang and Gavin in the year 2022**. To get the desired outcome, they used a literature review, a survey including questionnaires, and semi-structured interviews. They discovered that TEK degradation is common (89% of examples in the literature and 87% of cases from the survey), and that it is often caused by a complicated web of threats acting at several spatiotemporal scales. According to them, conservation responses could best address the interconnectivity through the involvement of multiple actors across different institutional and spatial levels. The research demonstrated the utility of the classification system by applying it to an examination of TEK threats in Inner Mongolia, China.

Singh (2008) described some important ethno medicinal plants of Jharkhand, which were being used by various tribes for the treatment of forty major groups of diseases, disorders and ailments (Abortion, asthma, contraceptives, bone fracture, burns, cough and cold, diaorrhoea and dysentery, diabetes, digestive disorder, leucorrhoea, delivery, dog bite, ear trouble, epilepsy, eye complaints, fever, gum diseases, headache, jaundice, leprosy, miscarriage, piles, post delivery complaints, rheumatism, pains, scorpion sting, skin diseases, snake bite, swelling, throat sore, toothache, tuberculosis, urinary disorder, venereal diseases, veterinary, vomiting, vermifuge, weakness, wound and as wormicide). With author reference, portions used, and local names in parenthesis, the author divided them into groups and arranged them alphabetically within each group.

In his thesis on the tribal traditions of Jharkhand, **Mundu (2006)** analyses a few significant historical events pertaining to the Adivasi communities that are currently found in the country's central-east. It also looked into the factors influencing their traditional institutions, which were crucial to the management of their social and cultural affairs.

These businesses, as stated by the researcher, also exhibited their social and cultural identities. As according to author, these people represented historical communities that required appropriate recognition in order to assert their collective rights within the current nation-state.

The study examined many angles on the conflict between state-granted individual rights and collective rights. This thesis outlined the theoretical and practical reality of the institution of Adivasis and its current applicability. The Adivasi peoples' traditional social-cultural institution developed a politics that the author felt should be examined in the context of the contemporary nation-state. This institution is synergistically tied to the phases of nature that are represented in their cultural practises.

The zonal languages used in various regions of the State of Jharkhand were identified by the **Sharma, (2013) in (M-TALL) akhra** project. This research identified the state's multilingualism as a great resource that needed to be valued and well utilised. This study, conducted by the Mother Tongue based Active Language Learning (M-TALL akhra), looked at the state's linguistic variety as well as the experiences of kids in the school setting. The research made several recommendations, including the need for a bridge course to bridge the language gap, teacher preparation programmes for managing multilingual classrooms, helpful TLMs like Picture Lexicon, and community-based language support initiatives.

In their news report on Jana village in Jharkhand's Gumla district, **Chaudhuri et al. (2020)** discussed the cultural and socioeconomic characteristics of the local tribal population. More than 90% of the population was described in the report as tribal or Adivasi. The authors used contemporary conveniences to begin speaking with Jana. The area got access to new industrial and scientific advancements that affected lifestyle, healthcare, and agriculture. However, it was observed that the locals were still using parts of their traditional agricultural practises, and that only a small number of old individuals still had access to their ancestors' knowledge of ethnomedicine.

Western Himalaya's tribal-dominated hinterland was investigated by **Uniyal et al. (2006)**. The purpose of the study was to investigate the variety of plant resources that the local population used to treat various illnesses. To elicit information on the applications of various plants, questionnaire surveys, participant observations, and field trips were arranged. 35 plant species were discovered to be regularly used by locals to treat a variety of ailments. 45 percent of the time, the plant's underground portion was utilised. *Anemone rupicola* and *Ranunculus hirtellus* have new uses in medicine, according to this region. The preparation of "sik," a traditional dish used to provide pregnant women with a balanced diet, was also undocumented elsewhere. The study discussed how changes in socioeconomic situations and capacity development have an impact on traditional knowledge.

In order to examine the presence of herbal remedies in the research area, **Utami et al. (2019)** carried out an investigation from April to August 2018 in seven villages, including Ngesrepbalong, Banyuwindu, Kalisidi, Gondang, and Sumber Rahayu, Sriwulan, and Gogik. The ethnobotany and local wisdom study's preliminary data collection process includes 35 interview informants and nine components. Both a quantitative and qualitative analysis of the results was done. The investigation of three cultural elements yielded no particular lessons or idioms that society uses in reference to itself. They noted that the level of knowledge and cultural wisdom in the community was low because no one knew how the hamlet had developed in relation to the local flora or the tale surrounding particular Mount Ungaran plants. On the whole, the community around Mount Ungaran's social structure, which detailed the existence of particular institutions and related to conservation and special laws on the preservation of flora, did not receive a good enough rating.

There were still some issues with the execution of Flora protection in Mount Ungaran, such as public disregard for Mount Ungaran.

5. Study Method and Materials

This research is conceived, planned and developed in mixed mode comprised on qualitative as well as quantitative analysis on the data collected on the study area. That is, endangered tribal languages of Jharkhand and evidences of risk of loss of indigenous knowledge of medicinal plants of the region as an outcome. Data from qualitative study is collected from both primary and secondary open access sources, such as, Government factsheet, reports, news articles, existing scholarly research. Quantitative data is collected through a questionnaire based survey done in the study area of Jharkhand.

Three separate questionnaires have been designed after studying medicinal plants of the respective areas for the communities, Santali, Mundari and Ho. Each questionnaire has 50 medicinal plants name in local language and in English. For **Medicinal Plants' Name (Local Language) Familiarity Index** our team has primarily identified these medicinal plants and for every (e.g., Santali, Mundari and Ho) language we have asked the respondents of different age groups to identify the plant with local name.

6. Study Area Description

Jharkhand, India's currently recognized state that was formed in November 15, 2000. The state is located at 22°00' & 24°37' North latitude and 83°15' & 87°01' East longitude. Its boundaries are connected with Bihar located at North, Orissa at South, West Bengal at East and Chattisgarh and Uttar Pradesh at the West. The state covers a total geographical area of 79714 sq. kms, about 2.45 of India's landmass.

The population count of Jharkhand as per Census 2011 reading is given below (Jagran Josh, 2013):

Table 2: Population Distribution of Jharkhand (Source: Census 2011; JHARKHAND A STATISTICAL PROFILE 2020)

Population Sections	Figure
Total population	32,988,134
Male population	16,930,315
Female population	16,057,819
Urban Population	7,933,061
Rural Population	25,055,073

Jharkhand's official language is Hindi. The principal languages that are widely spoken in the state of Jharkhand include Urdu, Oriya, Bengali, Nagpuri, Khortha, Bhojpuri, Angika, and Sadri (Priya & Singh, 2016). In the entire Santhal Parganas region, Angika is the primary language used for communication. Recently, the Jharkhand state established proficiency in at least one of the four tribal languages required for its government officials in an effort to appease the tribal people.

These are the 4 tribal languages:

- Kurukh
- Mundari
- Santali
- Ho

Table 3: Status of Tribal Languages in Jharkhand (Source: Evans, 2011)

Language	Number of Speakers (Approx.)	Endangerment Status
Santali	7000000	Additional Official language of Jharkhand ¹
Mundari	750000	Vulnerable
Ho	400000	Vulnerable
Kurukh/Kurux	1751489	Vulnerable
Kharia	200000	Vulnerable
Bhumij	47000	Vulnerable
Koda	25000	Vulnerable
Korwa	35000	Vulnerable
Malto	224926	Definitely endangered
Asur	7000	Definitely endangered
Turi	5000	Definitely endangered
Birhor	2000	Critically endangered

The language distribution of Jharkhand is given below in the map:

Figure 2: Map of Jharkhand based on Language Distribution (Source: Know Your Languages, 2021)

¹ Santali is not included in the list, source of this Santali data Census of India, 2011.

Areal distribution			
Ranchi	-	20	-
Garwa			
East Singhbhum,	40	30	60
West Singhbhum	-	20	60
Jamtatara	40	-	-
Khunti	-	30	-
Lohardaga			
Dhanbad	20	-	-
Sahebganj	20	-	-
Simdeg	-	20	-
Total (Sample Size per selected tribal language spoken in Jharkhand)	120	120	120

Note: The samples include male, female, rural as well as urban areas as per the requirement of the study.

8. Study Observation and Findings

The Questionnaire based survey on **Medicinal Plants' Name (Local tribal Language), Familiarity and their Medicinal use Awareness** have been designed based on the following parameters:

1. 50 Medicinal Plants names for each community.
2. Plants are selected after studying on Medicinal Plants of these areas by our Team.
3. The Medicinal use of the Plants have been identified or recognized by the people of the community members who know it before conducting survey.
4. Both **Medicinal Plants' Name (Local Language) Familiarity and Plants' Medicinal use Awareness** have been asked to the respondents of these community.

Survey findings based on all the variables considered for gathering facts on “Medicinal Plants’ Name (Local Language) Familiarity and Plants’ Medicinal use Awareness, respondent answers and summary of the survey are provided below.

**Familiarity towards Tribal Medicinal Plants in Local Language
Speech Community- Santali Number of Plants-50**

**Table 5: Familiarity of Medicinal Plants in People Speaking Santali Language in
Jharkhand**

Santhali Average Medicinal Plant Familiarity Index

	Santhali Speaker N=30 for each Age Group (Total N=120)	Age Group			
		N=30 Senior Adult 60 and above	N=30 Middle Age Adult (40-59 yrs)	N=30 Adult (20-39 yrs)	N= 30 Teenagers (13-19 yrs)
S1		35	22	19	22
S2		28	19	21	19
S3		34	39	21	25
S4		31	21	39	31
S5		29	29	09	29
S6		42	25	22	22
S7		27	26	19	25
S8		05	09	31	06
S9		39	15	21	09
S10		44	14	05	13
S11		35	19	09	15
S12		42	03	23	33
S13		23	39	19	29
S14		31	44	33	29
S15		44	09	21	18
S16		29	25	19	21
S17		18	31	12	23
S18		44	35	34	29
S19		41	09	13	17
S20		32	31	41	18
S21		35	19	23	21
S22		32	31	32	32

	S23	29	21	12	32
	S24	29	39	29	11
	S25	13	21	06	42
	S26	19	09	29	33
	S27	29	21	17	09
	S28	38	26	10	22
	S29	08	11	20	10
	S30	21	26	09	21
Total		906	688	618	666
Medicinal Plant Familiarity Index Percentage		60.4	45.8666667	41.2	44.4

Note below speaker =S

Please note that the data given in the above tables of **Medicinal Plants' Name (Local Language) Familiarity Index** is a representation of our practical work of survey. In the case of Medicinal Plants' Name (Local Language) Familiarity Index, we conducted questionnaire based survey to record the Medicinal Plants' Name Familiarity Index for the other two local languages, that is, Mundari and Ho by following the same procedure. The procedure guideline used to fill the above table is given below (Same approach is followed to collect all other data that led us to determine familiarity index and awareness index as given in Table 6 and Table 7 respectively.)

We have asked medicinal use of 50 plants that grow in Jharkhand region and are recognized in local languages.

Survey is conducted with local people of Jharkhand (Distribution as given in Table 4) separated in age groups. Each Age group contains 30 respondents.

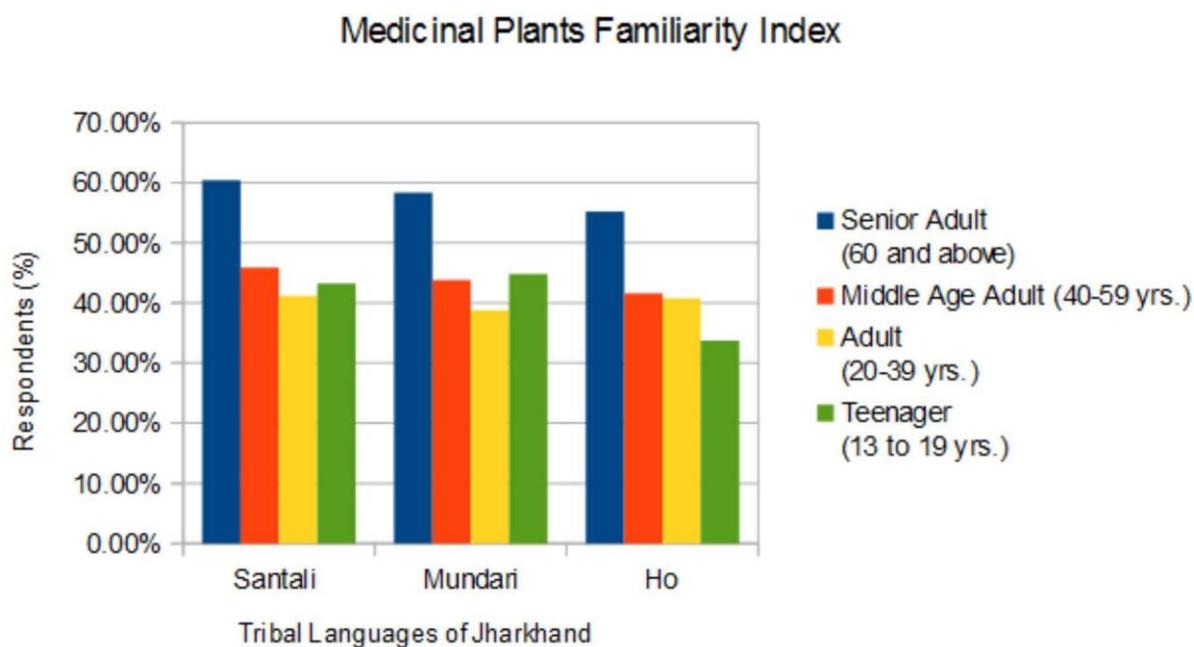
For example: In the table of Medical plants' name familiarity index found for Santali language Speaker 1 of Senior Adult (60 and above) age group answered 35 out of 50,
Speaker 1 of Middle Age Adult (40-59 yrs.) age group answered 22 out of 50,
Speaker 1 of Adult (20-39 yrs.) age group answered 19 out of 50
Speaker 1 Teenager (13 to 19 yrs.) age group answered 22 out of 50

Table 6: Summary-Familiarity towards Tribal Medicinal Plants in Local Language

Medicinal Plants' Name (Local Language) Familiarity Index				
Language	Age Groups			
	Senior Adult (%) (60 and above)	Middle Age Adult (%) (40-59 yrs.)	Adult (%) (20-39 yrs.)	Teenager (%) (13 to 19 yrs.)
Santali	60.4	45.86	41.2	44.4
Mundari	58.4	43.8	38.6	41.2
Ho	55.2	41.6	40.8	33.73

Graphical representation of the above summary is shown below:

Figure 3: Graph Showing Medicinal Plants Familiarity Index on People Speaking Santali, Mundari and Ho languages in Jharkhand

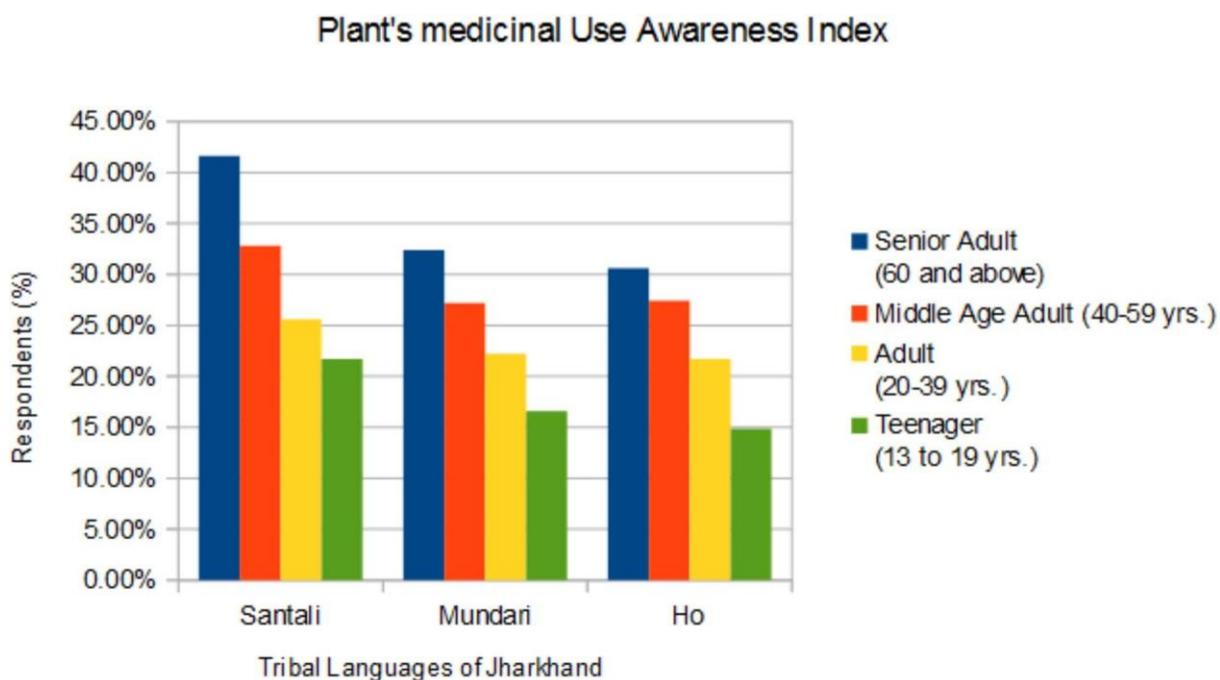


As mentioned before, by following the same approach of data collection as used to determine Medicinal Plants' Familiarity Index among local people speaking Santali, Mundari and Ho, we found the Plant's Medicinal Use Awareness Index among local people of Jharkhand speaking Santali, Mundari and Ho. The below table shows the result of the same.

Table 7: Plant's Medicinal Use Awareness Index for People of Jharkhand Speaking Santali, Mundari and Ho

Plants' Medicinal use Awareness Index				
	Age Groups			
Language	Senior Adult (60 and above)	Middle Age Adult (40-59 yrs.)	Adult (20-39 yrs.)	Teenager (13 to 19 yrs.)
Santali	41.6%	32.8%	25.6%	21.7%
Mundari	32.4%	27.2%	22.2%	16.6%
Ho	30.6%	27.4%	21.7%	14.86%

Figure 4: Graph Showing Medicinal Plants Awareness Index on People Speaking Santali, Mundari and Ho languages in Jharkhand



In the table below, we present the factors that are identified to be putting influence on local people's (Age wise differing in their forms) familiarity on medicinal plants found in Jharkhand.

Table 8: Factors that Influence Familiarity of Common People on Medicinal Plants in Jharkhand_

Language	Age Group of Local People of Jharkhand speaking the language	Factors Influencing Medicinal Plants' Familiarity
Santali	<i>Senior Adult (60 and above)</i>	<ol style="list-style-type: none"> 1. Connected with Nature, tradition, Culture, Religion. 2. Less affected by Globalization of economic, social, cultural, linguistic, or whatsoever 3. They don't care about the Sense of Pride or Prestige as their life deeply rooted in their, tradition, Culture, Religion. 4. Less migration from native village to town and other places or culture or religion. 5. Less connection with modern Lifestyle and Systems. 6. Loss of traditional rights 7. Loss of other aspects of traditional institutions, Loss of the traditional way of resolving conflict, like people prefer court for justice than other native social institution and others. 8. Loss of traditional rituals, ceremonies and other cultural and spiritual practices, less in Santali and Mundari but more in Ho community and others
	<i>Middle Age Adult (40-59 yrs.)</i>	<ol style="list-style-type: none"> 1. Globalization of economic, social, cultural, linguistic, or whatsoever. 2. Cultural/political/economic dominance. 3. Lack of Sense of Pride or Prestige (Prestige as cause of

Language and Culture Endangerment).

4. Lack of Economic Activities in these Languages.
5. Lack of Institutional support : For lack of institutional supports like representation of a language in public domains, e.g. academia, administration, sports, entertainment, and the media, the situation of language shift arises and the speakers of an endangered language drift to the dominant language causing loss of the language.
6. Linguistic Jingoism: The feelings of a giving prestige symbol of nation; symbol of civilization, symbol of progress to a particular language and the feelings of giving low prestige to an endangered language contribute to the loss of a language.
7. Minor Influence induced by dominant societies and reduced incentive and interest in own tradition, Culture, Religion due to extensive use of various form of Media or internet.
8. Change of traditional livelihood practices. Reduced needs and practices of, or abandonment of traditional livelihood, which often involves a transition from traditional subsistence livelihood to non-traditional livelihood activities, such as engaging with industrial and trading activities or jobs in Govt. or Pvt. Sector
9. Loss of traditional rights.
10. Reliance on modern products and/or technologies. (Minor portion)
11. Migration or Shift of physical location and environment (Minor portion)
12. Loss of other aspects of traditional institutions,
 1. Loss of the traditional way of resolving conflict

		<p>like people prefer court for justice than other native social institution and others.</p> <p>2. Loss of traditional rituals, ceremonies and other cultural and spiritual practices, less in Santali and Mundari but more in Ho community and others.</p>
	<p><i>Adult</i> (20-39 yrs.)</p>	<ol style="list-style-type: none"> 1. Globalization of economic, social, cultural, linguistic, or whatsoever. 2. Cultural/political/economic dominance. 3. Lack of Sense of Pride or Prestige (Prestige as cause of Language and Culture Endangerment). 4. Lack of Economic Activities in these Languages. 5. Lack of Institutional support : For lack of institutional supports like representation of a language in public domains, e.g. academia, administration, sports, entertainment, and the media, the situation of language shift arises and the speakers of an endangered language drift to the dominant language causing loss of the language. 6. Linguistic Jingoism: The feelings of a giving prestige symbol of nation; symbol of civilization, symbol of progress to a particular language and the feelings of giving low prestige to an endangered language contribute to the loss of a language. 7. Younger generations' absence from the traditional community Younger generations resident in town for jobs or education and disconnected from their own communities 8. Influence induced by dominant societies and reduced incentive and interest in own tradition, Culture, Religion due to extensive use of various form of Media or internet.

		<ol style="list-style-type: none"> 9. Change of traditional livelihood practices. Reduced needs and practices of, or abandonment of traditional livelihood, which often involves a transition from traditional subsistence livelihood to non-traditional livelihood activities, such as engaging with industrial and trading activities or jobs in Govt. or Pvt. Sector 10. Loss of traditional rights 11. Reliance on modern products and/or technologies (Large Portion) 12. Migration or Shift of physical location and environment (little more than Minor portion) 13. Loss of other aspects of traditional institutions, <ol style="list-style-type: none"> 1. Loss of the traditional way of resolving conflict like people prefer court for justice than other native social institution and others. 2. Loss of traditional rituals, ceremonies and other cultural and spiritual practices, less in Santali and Mundari but more in Ho community and others
	<p><i>Teenager (13 to 19 yrs.)</i></p>	<ol style="list-style-type: none"> 1. Globalization of economic, social, cultural, linguistic, or whatsoever. 2. Cultural/political/economic dominance. 3. Lack of Sense of Pride or Prestige (Prestige as cause of Language and Culture Endangerment). 4. Lack of Economic Activities in these Languages. 5. Lack of Institutional support : For lack of institutional supports like representation of a language in public domains, e.g. academia, administration, sports, entertainment, and the media, the situation of language shift arises and the speakers of an endangered language drift to the dominant language causing loss of the language.

6. Linguistic Jingoism: The feelings of a giving prestige symbol of nation; symbol of civilization, symbol of progress to a particular language and the feelings of giving low prestige to an endangered language contribute to the loss of a language.
7. Younger generations' absence from the traditional community. Younger generations resident in town for jobs or education and disconnected from their own communities
8. Still in the case of teenagers, they more connected with own Nature, tradition, Culture, Religion than the Adult age group.
9. Influence induced by dominant societies and reduced incentive and interest own tradition, Culture, Religion due to extensive use of various form of Media or internet.
10. Change of traditional livelihood practices.
11. Reduced needs and practices of, or abandonment of traditional livelihood, which often involves a transition from traditional subsistence livelihood to non-traditional livelihood activities, such as engaging with industrial and trading activities or jobs in Govt. or Pvt. Sector
12. Loss of traditional rights
13. Reliance on modern products and/or technologies (Large Portion)
14. Shift of physical location and environment (little more than Minor portion)
15. Loss of other aspects of traditional institutions,
16. Loss of the traditional way of resolving conflict

		<ol style="list-style-type: none"> 1. Like people prefer court for justice than other native social institution and others. 2. Loss of traditional rituals, ceremonies and other cultural and spiritual practices, less in Santali and Mundari but more in Ho community and others
Mundari	<i>Senior Adult</i> (60 and above)	Same findings as collected from Santali speaking local people
	<i>Middle Age Adult</i> (40-59 yrs.)	
	<i>Adult</i> (20-39 yrs.)	
	<i>Teenager</i> (13 to 19 yrs.)	
Ho	<i>Senior Adult</i> (60 and above)	Same findings as collected from Santali speaking local people
	<i>Middle Age Adult</i> (40-59 yrs.)	
	<i>Adult</i> (20-39 yrs.)	
	<i>Teenager</i> (13 to 19 yrs.)	

Note: The findings of the factors impacting on the medicinal plants familiarity index on local people of Jharkhand speaking Santali, Mundari and Ho showed similar traits as are recorded above. That is to say, people of the region, although differed in local language, but they showed similar behavioural, knowledge and interest level based on age group to respond for their familiarity of medicinal plants growing in Jharkhand.

Below discussion is presented to explain the findings of the impacting factors on local population percentage (spoken tribal language selected as Santali, Mundari and Ho; data collected by classifying the respondents in different age groups as shown in the table) on Plants' Medicinal Use Awareness Index.

While interacting with the respondents (opinions were more or less similar for all age group considered as categorized as Table 8), for each of the three selected languages, namely, Santali, Mundari and Ho, they are found to know the plants but are not aware of their medicinal use. Urbanization is influencing the use of medicinal plants and the respondents are mostly found to

use modern facilities rather than availing traditional form of treatment based on plants found in their area.

Uses of medicinal plants are found to be varying based on familiarity and awareness as identified in the study. Significantly, the knowledge of medicinal plants are found mostly confined within a family and the awareness on their medicinal worth are passing from one family generation to other only rather than getting wider scope of knowledge sharing. Mostly, females are seen to have more awareness towards environment and surrounding nature than men of the region.

The respondents (all age groups matched with similar behavioral trait) are not found to make any significant initiatives to spread knowledge of medicinal plants growing in the region. This attitude relates the sign of apathy and low privilege as noted while recording the factors influencing the familiarity index of medicinal plants among the local people of Jharkhand.

The current trend shows a visible diminishing interest and motivation of people towards promoting their indigenous knowledge of medicinal plants. Such trend is alarming and is not justifying the commercialization standard as followed in the current globalization approaches.

Also, modern education and lifestyle choices are leading to shifts in the perception of living patterns where traditional knowledge are seen to be sidelined with modern and easily available features. Therefore, the lowering of awareness of medicinal plants growing in Jharkhand is a risk for the loss of indigenous knowledge that may become severe in later days depending on how active becomes the ways of conserving these knowledge. Moreover, language vulnerabilities, if are not prevented may accelerate this damage.

9. Conclusion and Corrective Recommendations

The research proceeds with the primary knowledge of vulnerability status of tribal languages of Jharkhand, where the three selected languages, namely, Santali, Mundari and Ho are marked vulnerable. Based on this existing knowledge, the survey result shows nearly average or low percentage of Medicinal Plants Familiarity Index and Medicinal Plants Awareness Index. Key findings of the research are given here:

- Local people speaking these languages (in all age group considered) know about medicinal plants growing in their accessible areas. However, there are few who know about their medicinal values.
- There is issue of minority discrimination for the Ho community leading to ignorance and unrecognition of their knowledges and lack of protection to upgrade their language.
- Youth and Middle aged adults are found to be migrating towards city for better livelihood and financial opportunities. This is another reason of language loss and gradual erosion of indigenous knowledge on medicinal plants.
- Female members of the communities who speak Santali, Mundari and Ho languages are more attached to natural resources. Likewise, their knowledge on medicinal plants is more than the men respondents.

The above findings are prominent markers to indicate the threat of loss of indigenous knowledge of medicinal plants of Jharkhand region due to growing indifference and lack of interest towards exploring the regional resources.

Language conservation initiatives proceeded in these regions include:

1. Ethnicity conserved by the few people and their religion, culture and rituals.
2. Government has taken many initiatives to protect the language, culture and religion and other aspects of these communities, like **SPPEL**.
3. Use of Modern methods of transmission of Knowledge is being used to spread awareness on indigenous knowledge (e.g., facebook, youtube and others).
4. Threatened Culture, Language and knowledge system are being documented by the various Govt. Pvt. Institution or organization, for example, Centre For Endangered Languages, Visva-Bharati, Santiniketan.

The research findings emphasize on stronger and robust conservation programs to be implemented in the region as well as stringent awareness initiatives on language protection and cultural motivation.

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