RESEARCH ARTICLE

AN ETHNOZOOLOGICAL ASSESSMENT OF TRADITIONALLY USED ANIMAL-BASED THERAPIES IN ATTAPPADY OF PALAKKAD DISTRICT, KERALA, INDIA.

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ABSTRACT

The present study is an attempt to collect and document the ethnozoological knowledge possessed by the traditional tribal people of Attappady hills of Western Ghats in Palakkad district. The study area consisted of three categories of tribes namely, Irula, Kurumba and Muduga. Irulas contribute the majority followed by Mudugas and Kurumbas respectively. The study involved collection of information regarding the topic from all the three categories of tribes. Informations were collected by direct personal interviews with traditional healers belonging to tribal community. The mentioned animals were identified by their local names and previous studies in ethnozoology and available biodiversity records of regions in and around Attappady which involves Silent Valley National Park. The lack of biodiversity records posed difficulty in identifying the animal mentioned by the healers. The collected data was analyzed mathematically by calculating Informant Consensus Factor (ICF) to know the category of ailment for which more treatment is available, Fidelity level of animal species to identify the most preferred species for zootherapeutics, and Informant Agreement Index (IAR) to determine the agreement between informants for the use of a particular animal species for the treatment of a particular ailment category. ICF value obtained is highest for orthopedic ailments, FL is highest for *Varanus bengalensis* and *Rusa unicolor and* IAR is highest for seven species. The reduction in number of animals, lack of efficiency in implementing forest laws and their cultural taboos regarding the interaction with the outside world have resulted in the deterioration of traditional knowledge among the tribal population itself and also, due to legal issues, they have switched over almost completely to floral medicine. Therefore, they have a very little knowledge on the practice of zootherapeutics and ethnozoology.

Keywords: Ethnozoological assessment, animal based therapies, Attappady, Palakkad.

1. INTRODUCTION

The tribal population is identified as the aboriginal inhabitants of our country. The traditional use of animals or their products for medicinal purposes has been documented throughout the history in ancient documents such as papyri, archives and several classical medicinal compendiums, even back to the practices of the ancient Mesopotamian, Assyrian and Babylonian civilizations (1). A major portion of the people dwelling in Western Ghats relies on traditional medical system, because their livelihood is based on their local environment. The people are trained in usage of natural systems for their living in the form of food and medicine and other uses (2). As other traditional communities, they also have the knowledge about the usage of biological diversity, through their traditional expertise and organization reflection.

The science of ethnozoology is a sub-field of anthropology concerned with how human beings perceive, manage, classify and use animal species. It also focuses on the ways in which animals influence the people they interact with and how man utilized animals for food, clothing, work, workshop and companionship.

Some of the best known medicinal compendiums containing animal samples are those from Hippocrates (Greece, V-IV century BC), Discorides (Greek physician born in Anatolia, first century AD), Avicenna (Persia, X-XI century AD) and Ibn al Baitar (Andalusia, XII-XIII century AD). About 10% of the medicinal samples included in the main classical works come from animals (3).

India is gifted with immense faunal and floral diversity. There are about 45,000species of plants and 81,000 species of animals. The tribals who depend on plants and animals for their day-to-day life and health problems are the real custodians of the knowledge of medicinally important plants and animals. Most of the knowledge accumulated by the tribes on medicinal plants and animals is unknown to the scientific community. Most of the biodiversity associated with tribes has either disappeared or is on the verge of extinction.

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Therefore, the immediate concern of the scientific community is to document the indigenous knowledge related to therapeutic use of plant and animal species and to devise strategies to preserve and tap this rich knowledge in a more sustainable way for the benefit of mankind.

The present study was aimed to explore and document the traditional uses of animals and to evaluate the importance of medicinal animals used in local healthcare system. It is believed that the present documentation will serve to record this vanishing knowledge before it is eroded completely from the hills and to the scientific community. It is also anticipated that the present documentation will be fundamental to protect traditional knowledge, for the conservation and sustainable use of rich biodiversity for future generations and to ensure the region and traditional people sovereign rights over its genetic resources for conservation and sustainable use by documenting them.

2. MATERIALS AND METHODS

2.1. Study area

Attappady, the study area, is an extensive mountain valley at the head waters of Bhavani River. It is a part of the Nilgiri Hills of the Western Ghats. Attappadi comes under Mannarkkad Taluk in Palakkad District, Kerala State. The population of the valley is mostly Muduga (10%), Irula (84%) and Kurumba (6%) tribal people with a section of settlers from Tamil Nadu and other districts of Kerala. Thus, out of the whole, Irular inhabiting the plains and low elevations constitute the majority.

2.2. Selection of traditional healers

The informants or traditional healers were selected based on their knowledge of medicinal animals in the study area. Totally, 10 informants were selected. Of them, 8 were men and only 2 were women. The healers selected were belonged to the age groups of around 40 years to 70 years to get the ethnozoological information through direct interviews or oral conversation.

2.3. Investigative method

Field investigations were conducted in all the three village panchayats of Attappady in 20 sites which includes Pattimalam, Ummathampadi, Nakkuppathi, Choriyannooru, Kulukkooru, Kadambara, Mulli, Chavadiyur, Nellippathi, Malleeswaranmudi, Goolikkadavu, Pakkulam, Vengakkadavu, Veerannur, Mukkali, Mattathikkadu, Abbannooru, Kurukkuthikkallu, Kaniyoor and Dhonikkundu and obtained informations from 8 sites. The animals told by them are identified using the available biodiversity details and also by referring to reports of previous studies due to limitation of the duration of study and facilities for collecting specimen animals.

2.4. Quantitative analysis

2.4.1. Ailment categories

Based on the information obtained from the traditional healers in the study area, all the reported ailments were categorized into 13 categories viz. Respiratory ailments (RA), General health ailments (GHA), Dermal ailments (DA), Genito-urinal ailments (GUA), Hair care (HC), Neurological ailments (NA), Orthopedic ailments (OA), Gastrointestinal ailments (GIA), Veterinary ailments (VA), Fever ailments (FA), Oncology (O), Psychological ailments (PA) and Customary use (CU). Several diseases were placed in an ailment category based on the body systems treated and are mentioned in Table 1.

Table 1. Ailment categories.

S. No.	Ailment category	Diseases
1	RA	Asthma, Cough,
2	GHA	Fatigue, Weight loss, Immunity,
3	DA	Wound, Albinism Rashes,Soriasis, Scabies
4	GUA	Delivery, Brest milk,
5	HC	Bald, Hair loss
6	NA	Epilepsy
7	OA	Muscle pain, Back pain, Joint pain, Rheumatism, Tetanus,
8	GIA	Appetite loss,Ulcer, Vomitting, Diarrhoea
9	VA	Rinder pest
10	FA	Fever, Plague, Typhoid
11	O	Cancer
12	PA	Anger
13	CU	Death ceremony, Food Ear Puncture, Black magic

2.4.2 .The fidelity level

To determine the most frequently used animal species for treating a particular ailment category by the informants of the study area, we calculate the fidelity level.

The FL was calculated using the following formula:

FL (%) = (Np /N) × 100

Where Np is the number of informants that mentioned the specific animal species used to treat certain ailments, and N is the total number of the informants who utilized the animals as medicine for treating any given ailments.

2.4.3. Informant consensus factor

The informant consensus factor (ICF or FIC) is calculated by the following formula:

FIC = Nur - Nt / (Nt -1)

Where Nur is the number of use-reports of informants for a particular illness category and Nt refers to the number of species used for the illness category by all informants.

FIC values range from 0 to 1. A value close to one indicates a high intra cultural consensus (i.e. most informants use the same species for treatment of the same illness). A value close to zero indicates a high variation in the use of species (i.e. informants disagree over which species to use in the treatment within a category of illness)

2.4.4. Index of Agreement on remedies

To assess the importance of individual species in each illness category, Index of Agreement on Remedies was calculated. It is calculated by the following formula:

Index of Agreement on Remedies (IAR) = nr-na / nr-1

Where nr is the total number of citations registered for species (s) and na is the number of use-categories that are treated with this species.

3. RESULTS

3.1. Demographic characteristics of informants

Demographic characteristics of respondents were determined and recorded through face-to-face interviews. The number of practitioners between the age group 50-80 was high when compared to the other age groups. The percentage of practitioners with an age lower than 50 years was only 30%. Women's participation as a traditional medical practitioner was very low as indicated by high male-female ratio and it remains almost a male-exclusive domain. The same fact was also documented in some previous works with traditional medical practitioners in India. 80% of the practitioners are uneducated but all have got certificates as traditional healers from Kerala Institute for Research Training and Development Studies of Scheduled Castes and Scheduled Tribes, Calicut (KIRTDS). Some of them were reluctant to reveal their traditional knowledge due to cultural taboos. They told that they believe that they have lost their tradition as a result of curse for they revealed it to the outsiders as against their value and thus took advantage over them.

In this study, a total of 29 species of animals categorized into 5 taxa were recorded that produced 33 usages. The 29 species consisted of 28 vertebrates and only one invertebrate.

Among them, mammals occupied 66% of the total animals followed by 17% of Aves, 10% of Reptiles, 4% of Amphibians and 3% of Insects of the whole respectively. Our survey indicated that only 8 informants were able to give some information about the use of animals in traditional medicine and no one is reported to use animals for their present medical treatments. It is also informed that instead of subscribing to pure animal-based preparations, it is advised to consume combinations of animal-based products with plant products. *Sus scrofa,* commonly known as pig has got more use citations i.e., for six diseases belonging to six ailment categories. *Rusa unicolor* which is commonly known as Sambar deer is mostly cited to be used for curing General health ailments by maximum number of healers . These results reveal that the animals belonging to mammalia and aves have been used mainly for medicinal purposes.

3.2. Data analysis

In this study, three quantitative indexes were used to study the medicinal animal species used by the local people.

3.2.1. Informant consensus factor (ICF)

The category with the highest degree of consensus from informants was orthopaedic ailments with ICF value of 0.83. The ranking is followed by General health ailments Respiratory ailments and other medical conditions. The lowest level of consensus was for Psychological, Oncological and veterinary ailments (ICF: 0) These results vary considerably from the case of Uganda (4), as gastro intestinal ailments ranked the highest; while in Waheed *et al.*, 2013, dermatological ailments, cardiovascular ailments, inflammation ailments, fever ailments and dental ailments ranked at the top. These differences are due to the geographical locations and local hygienic conditions of each nation (5).

No.	Ailments/Categories	Taxons	Use-reports	ICF
1	Respiratory ailments (RA)	8	21	0.65
2	Genito-urinary ailments (GUA)	5	6	0.2
3	General health ailments (GHA)	14	41	0.675
4	Cultural uses (CU)	4	5	0.25
5	Orthopedic ailments (OA)	3	13	0.83
6	Dermatological ailments (DA)	6	11	0.5
7	Hair care (HC)	2	4	0.66
8	Gastro-intestinal ailments (GIA)		5	0.25
9	Psychological ailments (PA)	1	1	0
10	Oncology (O)	1	1	0
11	Fever ailments(FA)	2	3	0.5
12	Neurological ailments (NA)	5	7	0.33
13	Veterinary ailments (VA)	1	1	0

3.2.2. Fidelity level (FL)

Fidelity value is useful for identifying the residents most preferred species in use for treating certain ailments.

FL values in this study varied from 10% to 80%. Generally, a FL of 100% for a specific animal indicates that all the informants use a particular animal for the treatment of a certain ailment category. The present study never revealed any species of animal with an FL value of 100%. The maximum FL value obtained for a species is 80% i.e., for *Varanus bengalensis* and *Rusa unicolor.* The results from this study indicate that 65.5% of the animal species are reported to cure more than one ailment. This trend is a common precise in Kerala (6) and other traditional medicines around the world (7).

3.2.3. Index of Agreement on Remedies (IAR)

The highest index of agreement on remedies values documented for & animal species in the current study implies that all informants agree upon he exclusive use of the medicinal animal species for a particular ailment condition. The highest IAR value of 1 is obtained for *Corvus splendens, Capra indicus, Manis craasicaudata, Loris sp., Macaca sp., Rusa unicolor* and *chamaeleo zelyanicus..* IAR value of) 0.5 and above are reported for 11 species indicating moderate agreement within the informants and also no agreement among the informants exist for the use of 9 species indicating IAR value of 0.

4. DISCUSSION

Honey has had a valued place in traditional medicine for centuries

Mootoosamy and Mahmoodally (8) According to El-Soud (9), the usage of honey as a medicine has continued into present day traditional medicine. The ancient use of honey for coughs and sore throats has perpetuated into traditional medicine of modern times. Similarly, the present study also reported the use of honey against cough.

An ethnozoological study in Tamil Nadu by Solavan (10) reported the use of *P. cristatus* flesh for the treatment of paralysis. In this study also, citations were available for the use of feathers for the treatment of skeleton-muscular disorders. Charred feathers were reported to treat cough in other tribal communities.

This study indicated the importance of intensive studies not only considering the physiological but also ecological, anthropological, socioeconomic factors associated with the use of these animals for medicinal purposes.

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