



The Significance of Traditional Medicinal Plants Used for Treating Non-communicable Disease by Kani Tribes in Papanasam, Tirunelveli District

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The significance of medicinal plants used by the ethnic group of people (*Kani/Kanikaran*) of Karaiyar, Papanasam through an ethnobotanical survey for treating Non-communicable diseases (NCD) is documented. Data were collected through a questionnaire survey. Sample size in the survey covers 30 tribal people (men-13, women-17) to analyse various factors and their relationship to the diseases. The survey has included the age range, diseases frequency, gender stats, occupation, BMI, habits and the medicinal practices used. It is estimated that 67% of people still use traditional means for the treatment of diseases. Major medicinal plants used are indigenous to their geographical area which revealed high esteem of ethnobotanical significance and proven to be an effective and sustainable means of treating Non-communicable diseases.

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1. INTRODUCTION

Each year, 15 million people died from an NCD between the age group 30 and 69 years; over 85% of these "premature" deaths occurred in low and middle-income countries. Spread across the globe, NCD poses a severe threat in the future generation. NCD is also known as lifestyle disorders and various factors involved such as chronic tobacco users, physical inactivity, chronic alcohol consumers and unhealthy balanced diets are increasing the risk of the prevalence of these diseases [1]. Effective treatment for these diseases in a sustainable manner is the need of the hour [2]. From ancient time variety of medicinal plants were used for healing, curing and life-saving abilities for fatal diseases. Even now, these methods were employed by the tribal people for tackling NCD. The *Kanikaran* Tribes residing in the southern western ghats forest areas are still dependent on medicinal plants for their primary healthcare and treatment of various diseases. *Kani's* still supplementing their food by gathering roots and tubers from the nearby forest areas. Indigenous plants with the medicinal value used by tribes in treatment for diseases their significance [3]. The Documentation of various medicinal plants through an ethnobotanical study which it's revealed the importance to the world [4].

2. LITERATURE REVIEW

Non-Communicable Disease (NCD) are chronic or acute and mostly non-infectious and nearly 80% of the deceased persons are concentrated in four main types of NCDs - Cardiovascular diseases, Cancers, Chronic Respiratory Diseases and Diabetes. The Cardiovascular diseases account for most NCD deaths occurred 17.9 million people annually, cancers (9.0 million), respiratory diseases (3.9million), and diabetes (1.6 million) people's are affected every year [5,6].

The *Kani* tribal people are living a subsistence lively hood still dependent on medicinal plants for their treatment of various diseases. Out of 15000 species were used in India, According to Handa, 1998 was listed out 1500 species were commonly used in Siddha medical practitioner [7,8]. Healers were considered to have a mystical power to heal using medicinal plants. Most of the *Kani* tribes have a general knowledge of

medicinal plants that are used for primary health care systems [9,10]. These medicinal plants used by them for treatment proved to be effective in controlling the NCD.

2.1 Aim and Objective

To document the medicinal plants used for treating Non - Communicable Disease among *Kani tribes* through an ethnobotanical study.

3. MATERIALS AND METHODS

3.1 Study Period

Six Months -From April 2019 to September 2019.

3.2 Study Area

Karaiyar, Papanasam, Tirunelveli (Dt).

3.3 Study Population

The research work conducted the age group 25-65 years of *Kani* tribe, Papanasam, Tirunelveli District, Tamilnadu.

3.4 Study Design

The descriptive study of medicinal plants used by the traditional practitioner in *Kani* tribal people for curing NCD through an ethnobotanical survey.

4. RESULTS AND DISCUSSION

The collection of data results showed the activities, habits of the peoples for identifying the various reason for the Non-Communicable Diseases [NCD] and documented common the medicinal plants which are used for curing the disease.

Fig. 1 showed the ranges from the age of 25 to 65. The male constitutes about 13 individuals while the female is 17. Least frequency was observed in the age group of 46-55 while the most frequency is in 56-65 years old, also covering about 50%.

Fig. 2 and how the individuals earn through selling the forest produce they collect from the forest constituting the most about 57%. Other important occupations are marginal labour and agriculture accounting 17% and 13% respectively. Remaining 13% of people do differential works as their occupation such as shops, medicinal healers, etc.

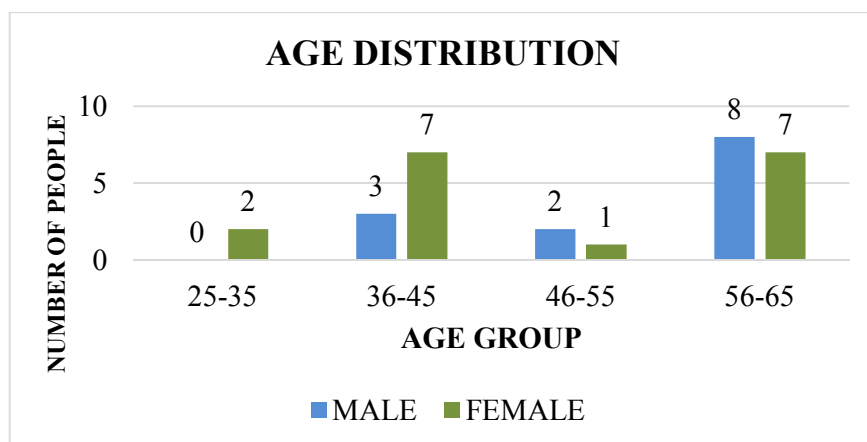


Fig. 1. Describes age-distribution of the randomly selected population for the survey

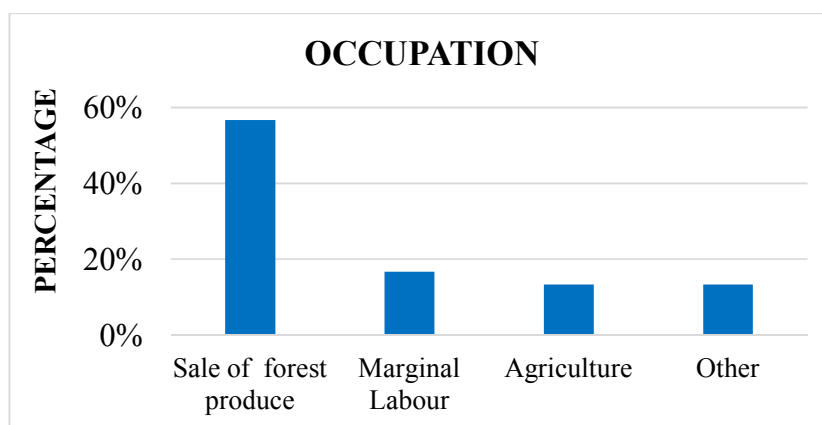


Fig. 2. Occupation of the people

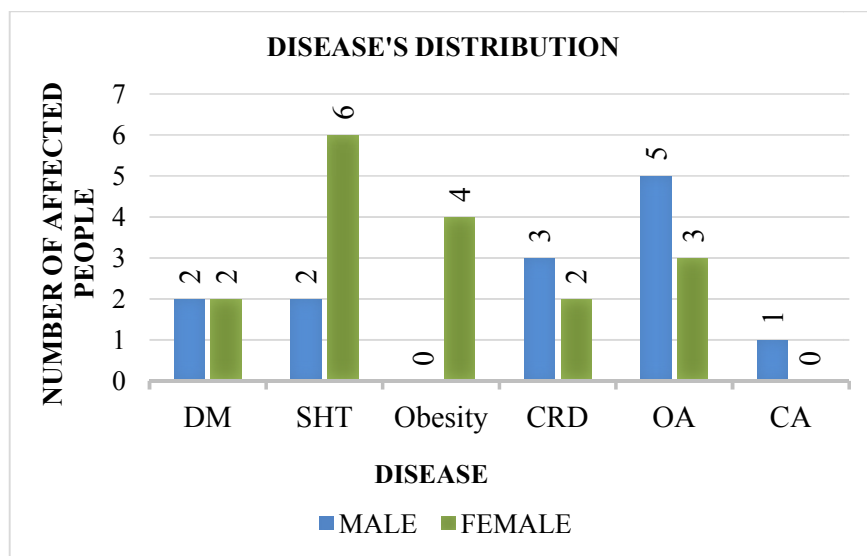


Fig. 3. Distribution of disease in survey population

DM-Diabetes Mellitus, SHT- Systemic Arterial Hypertension, CRD-Chronic Respiratory Disease, OA- Osteoarthritis, CA- Coronary Artery Disease

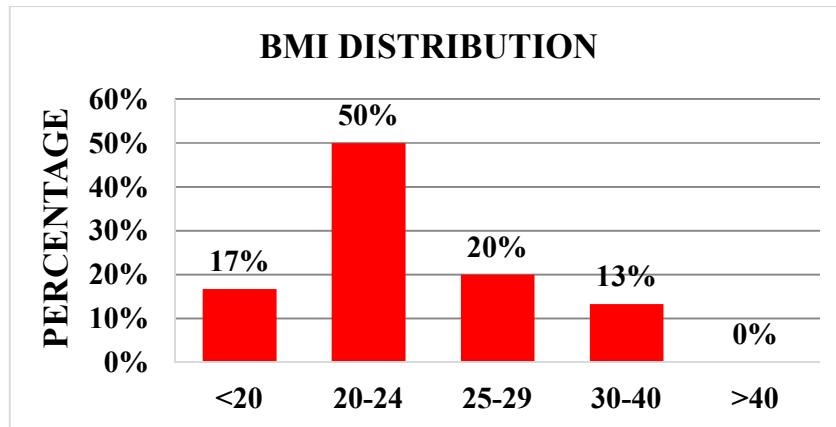


Fig. 4. BMI among survey population

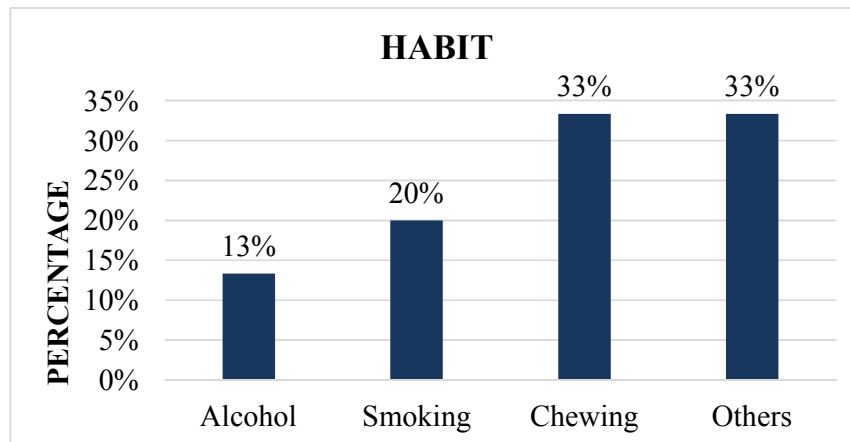


Fig. 5. Frequency of the Habit's practised

The data Fig. 3 the number of persons with different diseases in the selected population in percentage. Most of them are affected by the SHT and OA accounting for 27%, each one separately.

From Fig. 4 depicts the BMI value of the selected people. The BMI ranging is around 20-24 kg/m². This range constitutes about 50%.

According to Fig. 5 estimation of the Habits of the randomly selected survey population concludes that nearly 33% are affected by the habit of chewing which is predominantly seen in the old age peoples. Habits such as alcoholism and smoking are relatively low among them ranging 13% and 20% respectively.

The Fig. 6 advocate, the majority 67% of tribes are traditionally prepared Siddha and Allopathy medicine.

The listed name in Table 1 of plants are used in *Kani* tribes and some biodiversity plants are visualized in around the *Kani* people living places [11].

In Table 1 results revealed that the NCD is only shown in the tribal peoples. The affected group is 50% are above 50+ age. While the youths are also affected in less number of *Kani* people. In the case of the occupation mostly they perform the distribution of resources by selling natural products such as fruits, vegetable and other wood products. BMI of all these still in the range of good for the tribal people. The spread of diseases influenced by different activities such as alcohol, chewing and smoking. The lifestyle changes contradict with their owns making them vulnerable to getting the diseases.

Effective traditional practices are followed in greater percentage even now which used a variety of medicinal plants from the forest

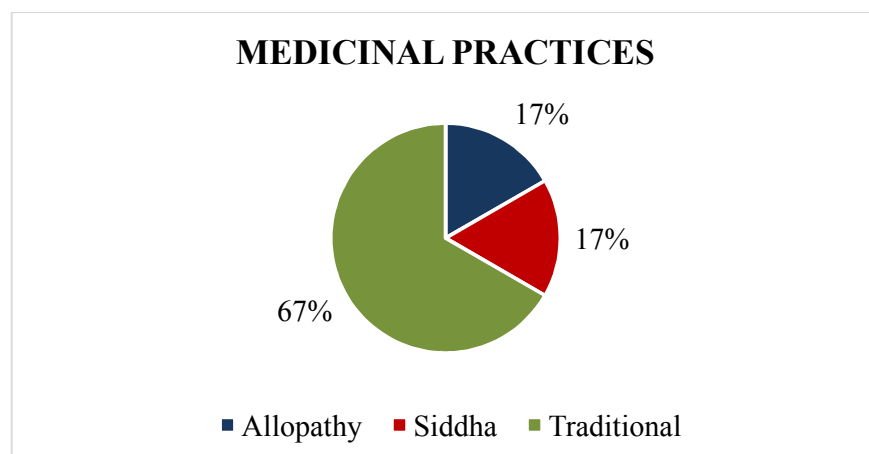


Fig. 6. Medicine used by the survey population

Table 1. List of medicinal plants used by kani tribes for treating NCD

Tamil name	Botanical name	Family
Vembu	<i>Azadirachta indica</i>	Meliaceae
Veliparuthi	<i>Pergularia daemia</i>	Asclepiadaceae
Katralai	<i>Aloe barbadensis, miller</i>	Liliaceae
Mulmurukku	<i>Erythrina variegata</i>	Fabaceae
Vellai poondu	<i>Allium sativum</i>	Amaryllidaceae
Kasakasa	<i>Papaver somniferum</i>	Papaveraceae
Athimathuram	<i>Glycyrrhiza glabra</i>	Fabaceae
Chukku	<i>Zingiber officinale</i>	Zingiberaceae
Thippili	<i>Piper longum</i>	Piperaceae
Valmelagu	<i>Piper cubeba</i>	Piperaceae
Kirambu	<i>Syzygium aromaticum</i>	Myrtaceae
Elam	<i>Elettaria cardamomum</i>	Zingiberaceae
Kodiveli	<i>Plumbago zeylanica</i>	Plumbaginaceae
Chitharathai	<i>Alpinia officinarum</i>	Zingiberaceae
Milagu	<i>Piper nigrum</i>	Piperaceae
Vettiver	<i>Vetiveria Zizanoides</i>	Poaceae
Omavalli	<i>Plectranthus amboinicus</i>	Lamiaceae
Aavarai	<i>Cassia auriculata</i>	Fabaceae
Arunelli	<i>Phyllanthus acidus</i>	Phyllanthaceae
Charanai	<i>Trianthema decandra</i>	Aizoaceae
Chirupelai	<i>Aerva lanata</i>	Amaranthaceae
Chitramutti	<i>Pavonia zeylanica</i>	Malvaceae
Impural	<i>Oldenlandia umbellata</i>	Rubiaceae
Kazharchikodi	<i>Caesalpinia bonduc</i>	Fabaceae
Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
Kuppeimeni	<i>Acalypha indica</i>	Euphorbiaceae
Sindil	<i>Tinospora cordifolia</i>	Menispermaceae
Adhatoda	<i>Justicia adhatoda</i>	Acanthaceae
Thandrikai	<i>Terminalia bellirica</i>	Combretaceae
Kaddukkai	<i>Terminalia chebula</i>	Combretaceae

Area [12]. These plants are studied by an ethnobotanical study and their significance are documented for global welfare [13].

5. CONCLUSION

The traditional medicines from the medicinal plants have no side effects and less cost-effective [14]. This greater significance edges over modern medicines. *Kani* tribes widely use single or the compound herbal preparations which use a variety of medicinal plants. They have more knowledge of several medicinal plants and their applications. The documentation of these medicinal plants has various significance; It helps the future generation to live a diseased free life, promotes research and development and also helps in the preservation of traditional knowledge. The knowledge of ethnomedicinal plants of *Kani tribes* could provide scientific support for these valuable resources [15].

CONSENT

As per international standard informed and written participant consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by the personal efforts of the authors.

REFERENCES

1. Available: https://en.m.wikipedia.org/wiki/Non-communicable_disease
2. Non communicable diseases diseases, both a prerequisite and an outcome of sustainable development. Sida; 2016.
3. Alagesaboopathi C. Medicinal plants used for the treatment of liver diseases by Malayali Tribes in Shevaroy hills, Salem District, Tamil Nadu, India. World Journal of Pharmaceutical Research. 2015;4(4): 816-828.
4. Muniappan Ayyanar, Savarimuthu Ignacimuthu. Ethnobotanical survey of medicinal plants commonly used by Kani tribes in Tirunelveli hills of Western Ghats, India. Journal of Ethnopharmacology. 2011;134(3):851-864.
5. Aadhan K, Anand Sp. Survey of medicinal plants used for the treatment of diabetes by the Paliyar's tribe in Sadhuragiri hills, Tamil Nadu, India. International Journal of Herbal Medicine. 2017;5(3):17-25.
6. Non Communicable Diseases Country Profiles. World Health Organisation; 2018.
7. Handa S.S. Indian efforts on standardization and quality control of medicinal plants using scientific parameters. Amurth (The Traditional Healthcare Magazine). 1998;2:10.
8. Pandikumar P, Chellappandian M, Mutheeswaran S, Ignacimuthu S. Consensus of local knowledge on medicinal plants among traditional healers in Myiladumparai block of Theni District, Tamil Nadu, India. Journal of Ethnopharmacology. 2011;134(2):354-362.
9. Allimuthu M, Soundarajan S, Thomas walter M, Murugan V. Ethno – Medical Knowledge of Kaani Tribes of Tirunelveli District, Tamil Nadu, India. Photo review ResearchGate; 2008.
10. Ayyanar M, Ignacimuthu S. Traditional knowledge of kani tribes in kouthalai of Tirunelveli hills, Tamil Nadu, India. Journal of Ethno pharmacology. 2005;102: 246-255.
11. Manickam V.S, Jothi G.J, Murugan C, and Sundaresan V. Check-list of the Flora of Tirunelveli hills, Southern Western Ghats, India. Center for Biotechnology, St.Xavier's College, Palayamkottai, India. 2003;pp i-ii.
12. Rani E, Chidambaram Pillai S, Ethnomedicinal plants used as medicine by the tribals in vilavancode Taluk, Kanyakumari District of Tamil Nadu, India. International Journal of Biology Research. 2018;3(1):145-147.
13. Rasingam L. Ethnobotanical Studies on the wild edible plants of Irula tribes of pillar

- valley, Coimbatore District, Tamil Nadu, India. Asian Pacific Journal of Tropical Biomedicine. 2012;2(3):S1493-S2497.
14. Suresh K, Norman TSJ. Ethnomedicinals Plants used by Kurumba tribals of Nilgiris hills, Tamil Nadu, India. Pant Archives. 2009;9:377-379.
15. Yoganarasiman S N. Medicinal Plants of India. Tamil Nadu. 2000;2:1-175.

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