Prevalence and Pattern of Dermatoses among Narikuravar Tribal Community in Rural Tamilnadu - A Community based Cross Sectional Study

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Abstract

Narikuravar is a nomadic tribal population whose cultural and behaviour pattern is distinct. Traditionally Narikuravars are hunters, as the name means “fox” or “jackal hunters”. They generally dwell in poor sanitary conditions which make them vulnerable to skin diseases. This study was done to determine the prevalence of dermatoses along with its associated risk factors in Narikuravar community.

Methods: This study was carried among the colonies of Narikuravar tribal community residing in Villupuram district of Tamil Nadu within 50 km radius from Sri Mankula Vinayagar Medical College and Hospital (SMVMCH), Madagadipet Puducherry. Sampling was done by snow ball sampling method and total of 250 individuals were recruited and interviewed using a standardized questionnaire on socio demographic details, history of skin symptoms, sites involved, duration of exposure to sun, hours of working per day, housing, overcrowding, exposure to pets, sharing clothes with friends / family members. General examination and cutaneous examination were done on study participants. Data was entered in Excel and analysed using IBM SPSS statistics version 20. Percentages and proportions are used to present the pattern and prevalence of dermatoses. Bivariate and Multivariate logistic regression were used to assess the significance of association between dependent and independent variables.

Results: Among 250 respondents around 200 respondents (90.9%) had skin diseases in them. Among those had skin lesions around 35.5% participants had fungal infections, 23% had parasitic infestations, 10.5% had inflammatory dermatosis, 6.5% had acne, 6% had urticaria and 12.8% participants constitutes other miscellaneous skin diseases.

Conclusion: There is a high burden of skin diseases among tribal community. Most commonly associated dermatoses include Fungal infection followed by parasitic infestations, inflammatory dermatosis, acne and seborrheic dermatitis.

Keywords: Narikuravar, Vulnerable, Madagadipet, Dermatoses

Introduction:

Dermatoses, encompassing a wide range of skin disorders, pose a significant burden on public health worldwide, including in India. Globally skin conditions are estimated to affect 1.8 billion people at any point in time. In tropical and resource-poor settings, skin infections, which can be of bacterial, viral, fungal or parasitic origin, are the commonest cause of disease.1 Skin conditions contributed 1.79% to the global burden of disease measured in DALYs (Disability Adjusted Life Years).[2] Narikuravar is a nomadic tribal population whose cultural and behaviour pattern is distinct. They have identified as “Gypsy” population, having similar roots of culture as other Romani communities, and at times facing the same type of stigma. Traditionally Narikuravars are hunters, as the name

means “fox” or “jackal hunters”.[3] They predominantly seen over the southern regions of India, including Tamil Nadu, Kerala, Karnataka, and Andhra Pradesh. They are categorised under ST (Scheduled Tribes) status which entitles them to various privileges and beneficial schemes provided by state and central government of India. This community, traditionally nomadic or semi-nomadic, has unique cultural practices, socio-economic challenges, and health disparities that significantly influence the prevalence and management of dermatoses within their population. They generally dwell in poor sanitary conditions which make them vulnerable to skin diseases. Consanguineous marriage is high among this community making them more susceptible to genetic disorders. Skin is the largest organ in the body and it is frequently exposed to various disease-causing agents and hazardous environment.

There is a paucity of studies done in India which determined the prevalence of dermatoses in Narikuravar community. Therefore, this study is done to determine the prevalence of dermatoses along with its associated risk factors in Narikuravar community. With this background, the objectives was to measure the prevalence of dermatoses among Narikuravar, a semi nomadic tribal population in Villupuram, Tamil Nadu and to assess the pattern of dermatoses and associated risk factors for skin diseases among the tribal community.

Materials and Methods

This was a community based cross sectional study among the colonies of Narikuravar tribal community residing in Villupuram district of Tamil Nadu within 50 km radius from Sri Manakula Vinayagar Medical College and Hospital (SMVMCH), Madagadipet Puducherry, South India. The study participants of all age groups and who are available at the time of visit in the study area was included in the study and those individuals who are not available even after two consecutive visits to their households and critically ill subjects will not be included in the study.

Sample size:

Considering the 20% prevalence of dermatological conditions among tribal community in Gujarat from previous study by Singhal R R, at 95% confidence interval and 5% absolute precision and design effect of 1, the sample size is calculated to be 246 which is rounded off to 250, the nearest whole number. The sample size was calculated using Open Epi Software Version 3.[26]

Data collection procedure:

Since people of tribal community belong to special population, exact list of people involved could not be obtained. There are two or three already identified Narikuravar settlements Alanguppam near our Rural Health Training Centre in Villupuram District Villupuram. Line listing of the households in these settlements was done first. Non probability consecutive sampling method will be used to sample respondents for the study inside a settlement. Using snowball sampling method data was collected from Kolliyanur, Kuravan kudiyiruppu (Mugaiyur), Pazhangudi nagar (Odiyampet), Ooralkuttai (Madagadipet) & Thirukovilur and all consenting members of the community were included to reach the desired sample size. The study was conducted for period of 18 months from October 2022 to April 2024 after obtaining approval from the Institutional Ethics Committee.

After obtaining the permission, nomadic tribe who gave consent for the study will be interviewed using a structured questionnaire on socio demographic, environmental, family and occupational history/details, history of any skin symptoms, duration of such symptom, sites involved, contributing factors such as overcrowding, cultural beliefs, details regarding housing environment, details regarding any pre-existing illness. their treatment seeking behaviour will be assessed by a structured questionnaire. The interview schedule was originally drafted in English and later translated to the local language Tamil. All the dermatological lesions was photographed after taking participants consent and masking their identity. The final diagnosis was made in concurrence with the guide. Appropriate treatment was initiated for the identified patients and those of them who need further evaluation was referred to Dermatology OPD of Sri Manakula Vinayagar Medical College and Hospital and followed up. Appropriate advice was given to all the participants to protect themselves from the risk of getting dermatological disorders in future.

Analysis:

Data was entered in Epi Info software 7.2.2.6 and was analysed using IBM SPSS statistics version 20. Categorical variables was presented as frequencies,

percentage and continuous variables are presented as mean and standard deviation. To assess the significance of association between dependent and independent variable, Chi square test was done. Before performing the analysis, eyeballing of each field of variables in the data set was done for missing values, blank values and typing error. In case of any uncertainties, the unique identification number created by combining the cluster number and serial numbers were used to trace the questionnaire and the information was re-checked and re-entered.

Ethical consideration:

This study was carried out after obtaining approval from the institutional ethics committee. Informed consent was obtained from the individual respondents and patient's details was kept confidentially and privacy of the individual was maintained. The lesions were photographed only after masking the identity of the participant. The ethical principles such as respondents, beneficence and justice were adhered throughout the study.

Implications of the study:

The study will be able to assess the prevalence and pattern of dermatoses among tribal community. Skin diseases are a neglected public health problem among the population groups and the Scheduled tribes are particularly vulnerable to skin diseases due poor sanitary conditions. Early diagnosis and treatment of dermatoses may result in better outcome in these community. Hence this study will provide an opportunity to treat the dermatological conditions present among the community and give them appropriate advice to protect them from such conditions.

Guidelines:

Strengthening the reporting of observational studies in epidemiology (STOBE) statements – checklist of items was included reporting the study.

Results

The total population studied in the Narikuravar tribal settlement is 250 with the mean age of the participants were 33.5 and standard deviation 16.7. Majority (31.4%) of participants belong to middle aged group, 23.6% were youth, 23.2% belonged to adolescents age group followed by old aged (18.4**%**), children under 10 years (2.8**%**), etc. More the half of them 50.8% were male and remaining 49.2% were female. Majority of the participants 82% were from rural background and remaining 18% were from urban background. More than half of them 65.6% were married, 32.8% were unmarried and remaining 1.6% were divorced. Lower socio-economic classes (as per BG Prasad classification) constituted the majority (52%) of respondents, 32.2% of them belonged to middle class and remaining 16% belonged to upper class. In terms of literacy (ability to read and write in at least one language) were found to be 64% and 36% of respondents were illiterate. more than half of them (52.4%) lived in semi-pucca, 39.6%lived in kutcha house where as only 8% of the participants lived in pucca house. There were 3.6% of the respondents don't use bedding material for sleeping, 36.8% used mat to sleep and 59.6% used mattress alone for sleeping. About 92.8% of participants are sleeping with other family members in same room and rest (7.2%) did not sleep with other family members in same room.

Out of 250 participants only 200 participants had skin lesions; Among those had skin lesions around 35.5% participants had fungal infections (Dermatophytosis and intertrigo), 23% had parasitic infestations (Scabies and pediculosis), 10.5% had inflammatory dermatosis (Psoriasis, Eczema, pityriasis alba, Lichen simplex chronicus), 6.5% had acne, 6% had urticaria and 2% had seborrhoea capitis, About 12.8% participants constitutes other miscellaneous skin diseases (acrochordon, keloid, melasma, PMLE, herpes zoster, fissure foot, senile pruritus, prurigo simplex, prurigo nodularis, acanthosis nigricans, alopecia areata) mentioned in table 2.

Bivariate logistic regression was performed to find out the association between Socio-demographic variables (Age, gender, residence, marital status, socio-economic status, education, type of family and number of family members) and occurrence of dermatosis among Narikuravar community. Out of 8 predictor variables, only three (Residence, marital status and no. of members in the family) was found to be associated with the occurrence of dermatosis.

When compared to females, males have 1.15(95% CI; 0.62-2.14) times higher odds for developing dermatosis, but the association was not statistically significant. Rural residents have 0.34(95%CI; 0.12-0.99) times lower odds for developing dermatosis when compared to urban residents, which is

statistically significant. When compared to married participants, participants with other marital status have 2.45(95%CI; 1.15-5.19) times higher odds of developing dermatosis, which is statistically significant. Participants who fall in socio economic class V have 2.67(95%CI; 0.83-8.53) times higher odds of developing dermatosis, when compared to participants in SES class IV. Illiterates have equal odds 1.00(95%CI; 0.52-1.91) of developing dermatosis when compared to literates, which is statistically non-significant. When compared to people living in the nuclear family, those living in extended/joint family have 0.78(95% CI; 0.41-1.52) times insignificantly lesser odds for developing dermatosis.

Multivariate logistic regression was performed to find out the association between three Socio-demographic variables (Residence, marital status and no. of family members) which were found to be significant during bivariate analysis and occurrence of dermatosis among Narikuravar community after adjusting for confounding factors. Out of 3 predictor variables, only two (marital status and no. of members in the family) were found to be associated with the occurrence of dermatosis.

Bivariate logistic regression was performed to find out the association between Environmental variables (Type of house, type of bedding, availability of latrines, overcrowding, presence of pet and bathing daily) and occurrence of dermatosis among Narikuravar community. Out of 6 predictor variables, only two (Residence, marital status and no. of members in the family) were found to be associated with the occurrence of dermatosis.

When compared to participants living in kutcha house, people living in pucca house have 1.36(95% CI; 0.28-6.56) times higher odds of developing dermatosis, which is not significant. People living in semi-pucca house have 0.42(95%CI; 0.21-0.84) times lower odds of developing dermatosis which is statistically significant. When compared to people using mattress alone, People with no bedding and mat have 3.88(95% CI; 1.79-8.41) times significantly higher odds for developing dermatosis. When compared to people who don't have latrines in their house have 1.49(95% CI; 0.46-4.91) times higher odds of developing dermatosis when compared to people who have latrines in their house. Participants who had pets in their house have 1.62(95% CI; 0.84-3.09) times higher odds of developing dermatosis when compared to had no pets. When compared to participants who bath daily, participants who did not take bath daily have 1.18 (95% CI; 0.33-4.27) times higher odds of developing dermatosis, which was not statistically significant

Bivariate logistic regression was performed to find out the association between contact history and work-related factors (family history of skin disease, sharing of clothes with family members, sleeping with other family members, history of exposure to plant irritant, type of work, history of skin disease in co-workers/friends and sharing of clothes with co-workers) and occurrence of dermatosis among Narikuravar community as mentioned in table 1. Out of 7 predictor variables, only one (history of exposure to plant irritant) was found to be associated with the occurrence of dermatosis. When compared to people without the family history of skin disease, people with family history of skin disease have 15.67(95% CI; 4.72-51.99) times significantly higher odds for developing dermatosis.

When compared to people without the family history of skin disease, people with family history of skin disease have 16.95(95% CI; 5.08-56.45) times significantly higher odds for developing dermatosis. Participants without history of exposure to plant irritants, participants with exposure have 8.36(95% CI; 1.08-65.02) times significantly higher odds of developing dermatosis.

Table 1: Bivariate analysis to find out environmental associated with occurrence of dermatosis (N=250)

Environmental, personal factors	Total n(%)	Dermatosis		Unadjusted Odds Ratio (95% CI)	p value
		Present	Absent		
Type of house					
Kutcha	99 (39.6)	86(86.9)	13(13.1)	1	

Pucca	20 (8)	18(90)	2(10)	1.36(0.28-6.56)	0.70
Semi-pucca	131(52.4)	96(73.3)	35(26.7)	0.42(0.21-0.84)	0.01*
Type of bedding					
No bedding &Mat	101(40.4))	92(91.1)	9(8.9)	3.88(1.79-8.41)	0.001*
Mattress alone	149 (59.6)	108(72.5)	41(27.5)	1	
Latrine					
Present	15(6)	11(73.3)	4(26.7)	1	
Absent	235(94)	189(80.4)	46(19.6)	1.49(0.46-4.91)	0.51
Overcrowding					
Present	215(86)	169(78.6)	46(21.4)	0.47(0.16-1.41)	0.18
Absent	35(14)	31(88.6)	4(11.4)	1	
Bathing daily					
Yes	233(93.2)	186(79.8)	47(20.2)	1	
No	17 (6.8)	14(82.4)	3(17.6)	1.18 (0.33-4.27)	0.80

Provisional diagnosis of the participants (N=200)

Diagnosis	Frequency	Percentage
Dermatophytosis	49	24.5
Intertrigo	22	11
Scabies	21	10.5
Pediculosis capitis	25	12.5
Acne	13	6.5
Seborrhoea capitis	5	2.5
Acute/chronic urticaria	12	6
Psoriasis vulgaris	5	23.8
Eczema	6	28.5
Lichen simplex chronicus	7	33.3
Pityriasis alba	3	14.2
Acrochordon	4	2
Keloid	3	1.5
Melasma	5	2.5
PMLE	7	3.5
Herpes zoster	2	1
Fissure foot	4	2
Senile pruritus	5	2.5
Prurigo simplex & prurigo nodularis	3	1.5
Acanthosis nigricans	2	1
Alopecia areata	1	0.5

Discussion:

In this community based cross sectional study conducted in Narikuravar community across seven villages, 250 respondents were interviewed and examined in the villages around Rural Health Training Centre of Sri Manakula Vinayagar Medical College and Hospital in its field practice area. Narikuravar community, traditionally nomadic or semi-nomadic, has unique cultural practices, socio-economic challenges, and health disparities that significantly influence the prevalence and management of dermatoses within their population.

It was found 90.9% of the participants from Narikuravar community had dermatosis. Which is high when compared to studies conducted in other communities. Akhter-ul-Alam et al 52% of the participants had skin infections, Singhal RR et al in tribal population found to be 24% of the participants had dermatosis, Saeed Ahmad et al et al found (44%) suffered from infective dermatoses; Roushan Jahanz in Nepal found 32.12% of the children (32.12%) suffered from infective dermatoses;

Warood Albadri et al in Karnataka found prevalence of dermatoses was found to be 89.4 among school children; Manish Kumar et al found 44% of the participant suffered from infectious skin conditions; Renu Kandpal et al found 47% of the participants suffered from infective dermatoses.

In the present study it was found majority of males have 1.15(95% CI; 0.62-2.14) times higher odds for developing dermatosis. It was found 38.4% of them were manual labourers and have 0.56(95% CI; 0.15-2.09) times odds of developing dermatosis. Generally, Men may be less likely to seek medical attention for skin issues compared to women, leading to under reporting or delayed diagnosis and treatment. This could create a perception that men have more dermatosis. Moreover Narikuravar males often engage in outdoor occupations These activities expose them to environmental factors like sunlight, water, dust, and chemicals, which could predispose them to dermatosis.

In the present study 82% of the participants were from rural background. Lower socio-economic classes (as per BG Prasad classification) constituted the majority (52%) of respondents. Hence, they dwell in poor sanitary conditions which make them vulnerable to skin diseases. It was found 38% participants did not have formal education. Almost similar findings were noted Study conducted by Singhal RR et al in tribal population also found lower educational attainment (41 percent are illiterate). They lack proper settlement in one place, educational institution in their area, negligence of government and lack of awareness about important of the education they also practice home remedy.[11] Narikuravar community has unique cultural practices, socio-economic challenges, and health disparities that significantly influence the prevalence and management of dermatoses within their population.[4]

In the present study it was found 63.6% lived in joint family, when compared to people living in the nuclear family, those living in extended/joint family have 0.78(95% CI; 0.41-1.52) times insignificantly lesser odds for developing dermatosis. About 39.6%lived in kutcha house. people with family history of skin disease have 16.95(95% CI; 5.08-56.45) times significantly higher odds for developing dermatosis. Overcrowding at home was present in 86% of participants. Participants who live in overcrowded houses have 0.47 (95% CI; 0.16-1.41) times lower odds of developing dermatosis when compared to people who live in houses without overcrowding. Participants who had pets in their house have 1.62 (95% CI; 0.84-3.09) times higher odds of developing dermatosis. Similar findings were noted in study conducted by Warood Albadri et al noted infectious dermatoses was associated with overcrowding. Due to contagious nature of dermatosis overcrowding and environmental condition play a mainstay role for occurrence for dermatosis. Diseases like scabies are known to occur in overcrowded houses. In our study this was well proven.

In the present study it was found 55.6% had family history of skin diseases. 92.8% of participants are sleeping with other family members in same room. Almost 91.6% participants gave history of skin disease in friends. people with family history of skin disease have 15.67(95% CI; 4.72-51.99) times significantly higher odds for developing dermatosis. participants with exposure have 8.36(95% CI; 1.08-65.02) times significantly higher odds of developing dermatosis.

In the present study it was found 35.5 % had fungal infection (Dermatophytosis &intertrigo) and 23 % had parasitic infection (Scabies & pediculosis), history of exposure to plant irritant) was found to be associated with the occurrence of dermatosis, whereas study conducted by Akhter-ul-Alam et al found 35.56% had parasitic infection, 27.44%) had fungal infection, 18.56% had bacterial infections; Saeed Ahmad et al found the prevalence of scabies was (30.2%) followed by fungal infection (7.8%), warts (3.5%); Mansi Chinchanikar et found Primary hyperhidrosis (23.4%), Dermatitis (6.2%),Skin hyperpigmentation (4.6%).study conducted by H S Rajani et al found prevalence of hyperpigmentation, pityriasis alba, angular stomatitis, acne and fungal infections were 54.5%, 16.7%,41.8%, 8.5% and 2.8% respectively.[9]

Due to improper hair grooming, pediculosis is frequent. Tinea versicolour is a prevalent disorder, and tribal populations are not the only ones who have it. Another condition that is most frequently noticed as a result of their behaviour is dermatophytosis.

An encompassing strategy is needed to address the high incidence of dermatosis in the Narikuravar community. This strategy should focus on bettering living conditions, expanding healthcare access and

education, attending to nutritional needs, honouring cultural customs, and encouraging good hygiene and health habits.

Strength and Limitation:

Very limited studies have been done in Narikuravar community. Understanding the environmental risk factors of the community gives us the better picture to plan behaviour change intervention. All the diagnosis was based on clinical presentation and investigations were not done.

Interviewer bias was minimised as all the interview were conducted by trained investigator. Social desirability bias would have been encountered in the study while capturing family history and contact history. As study is confined to single district cross sectional study, temporarily cannot be maintained. smaller sample size hence the findings cannot be generalized.

The important fact is that the prevalence of genodermatosis is not common in this population though consanguinity is very commonly practised. This is because of small study population.

This study was unique and fulfilling as it not only provided an opportunity to study the pattern of dermatosis in the tribal population. This also gives glimpse of their lifestyle and culture. The population was treated for treated for their dermatosis after the diagnosis.

Conclusion:

This study illuminates the relatively unknown field of dermatology in public health, especially in a vulnerable and socioeconomically disadvantaged population. It was found 90.9% of the participants from Narikuravar community had dermatosis. This study draws attention to the strong association between dermatosis and environmental risk factors availability of water, hygiene, and sanitation.

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