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Health Seeking Behavior towards Malaria among Tribal & Non-Tribal Groups Inhabiting Villages of Kotra, Udaipur

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Abstract:

Background & objectives: Low socio-economic conditions, poor education and difficult accessibility to health facilities, tribal population is more prone to Malaria. Tribal people live in main villages & surrounding hamlets where health personnel's services are not available due to lack of proper road & transport facilities. Hamlet dwellers need to reach at main villages to receive any health service. Present paper aims to reveal the health seeking behavior towards Malaria by tribal as well as non-tribal groups residing in main villages & hamlets, so that informational needs of tribal groups on malaria issues can be addressed by health authority.

Methods: A cross sectional community based study was conducted in 97 tribal households out of which 70 from main villages & 27 from hamlets from two study villages of Kotra, Udaipur during February, 2013 to May, 2013. Non-tribal households (n=103) were also covered from two study villages.

Results: Occurrence of malaria was observed 79.4% in tribal households (hamlets & main villages) as compared to 70.8% in non-tribal households. 40.3% of 77 total 'Tribal Suspected Malaria Cases' sought treatment from Bengali Doctors & 37.7% from Government Health Facility. In case of 73 'Non-Tribal Suspected malaria Cases', 61.6% of them sought treatment from Government Health Facility & 9.6% from Bengali Doctors.

Interpretation & conclusions: The findings of the present paper will help health authorities / concerned institutes to better understand the informational needs of tribal groups on malaria issues.

Keywords: Health seeking behavior, tribal, Udaipur district, delay in seeking treatment, inadequate clothing, Bengali doctors

1. Introduction

In India, 705 Scheduled tribes are notified in 28 states & 2 UTs (Chandramouli 2013) . In Rajasthan, ST population is 13.5 % to total population of state. The state's share of ST population is 8.9 % to India's ST population (Chandramouli 2013). In southern part of Rajasthan, 23 tehsils of 5 districts were declared as Scheduled V area based on the preponderance of Scheduled Tribe population. Studies on adaptation of tribal behavior to alleviate the risk of malaria and dengue are scanty. As a result IEC material specific for tribal of Rajasthan is lacking .Therefore, a study titled " KAP study of Dengue and malaria to design appropriate intervention of tribal of Rajasthan was recommended with intramural funding in the Pre SAC meeting of DMRC Jodhpur held on 3rd December 2012 . The objectives of the study was to assess existing knowledge , attitude practice of tribal of Rajasthan of malaria & dengue & its comparison with Non-tribal living in the same area, in order to design an appropriate intervention for the tribal of Rajasthan.

The present paper which is an offshoot from the aforesaid study reveals the pattern of health seeking behavior towards malaria among tribal as well as non-tribal residing villages under Kotra tehsil, Udaipur District, Rajasthan. Udaipur district was included in the Scheduled V area of Rajasthan. The Major Tribes reside in Udaipur district are Bhil, Bhil-Mina, Kathori and Garasia. Different societies hold a variety of beliefs according to their culture, education, religion and economic status. Currently, with the availability of the best interventions, including long-lasting insecticidal nets (LLINs) and Artemisinin Combination Therapy (ACT), a 17% reduction in the number of reported cases and 26% reduction in the number of deaths in 2010 was reported as compared to 2000. However malaria is still a ubiquitous. About 44 million populations of tribal areas of Andhra Pradesh, Madhya Pradesh, Gujarat, Maharashtra, Bihar, Rajasthan, Orissa and North Eastern States are contributing 50 percent of *P. falciparum* cases of the country(Das & Malini

2003). Study (Choubisa *et al* 2005) reported *Plasmodium falciparum* and *P. vivax* are widely prevalent species in the tribal rural areas of Banswara, Dungarpur and Udaipur districts of Rajasthan. Another Study (Krishnamachari *et al* 1990) revealed low socioeconomic status of tribal people residing in Dungarpur, Banswara & Sirohi district of Rajasthan is related with several health problems including malaria as well as availability of health facility. Tribal hamlets were scattered & inaccessible as compared to their main villages. Health personnel's services were not available in the hamlets due to lack of proper road & transport facilities. Study (Dam *et al*) reported manifestation of clinical malaria (2.0%) in all age groups of tribal respondents residing villages of Sirohi & Dungarpur district, Rajasthan. The situation of health facility for hamlet dwellers remained unchanged even on today. During present study, this was observed that Malaria is one of the major diseases among the tribal living in hilly terrains of Kotra, Udaipur having scattered distribution of households in hamlets & the main villages that remains inaccessible throughout the year & more so during rainy season. Findings of the study may also be useful for the state health authorities to design & develop appropriate information resources to help tribal groups effectively recognize certain issues on malaria like adverse effect of delay in seeking treatment, attenuating tendency of tribal people towards incomplete intake of course of malaria treatment, merits of adopting personal protection measures against mosquito bites, difference in habitat & biting time of Malaria & Dengue vectors & advantage of seeking treatment of fever cases at PHC, CHC, OPD of Government Hospital.

2. Material & Methods

2.1. Study area

District Udaipur consists of 17 tehsils & study villages for present study were selected from Kotra tehsil. The tribal groups were covered from two villages namely 'Malwa Ka Chora' & 'Mewaron Ka Math' as well as the adjoining hamlets, surrounding the two villages. Study villages were selected based on the criteria of high malaria reported areas during previous years & the years precede to previous years, by collecting the information from CMHO office, Udaipur. The two tribal & four non-tribal populated villages (Kotra, Bikarni, Jura & Bekariya) were included in study (Fig. 1). About 97 tribal & 103 non tribal households were selected using systematic random sampling Rajasthan was categorized into five eco-cultural zones based on ecological features and dialects, viz. 1. Dhundari 2. Marwar 3. Hadoti 4. Mewar & 5) Shekhawati (Singh, 2002). Udaipur district comes under Mewar eco-cultural zone located at between latitudes of 23° 46' - 26°2' N & longitude 73°0' to 74°35'E with an average elevation of 1962 ft.

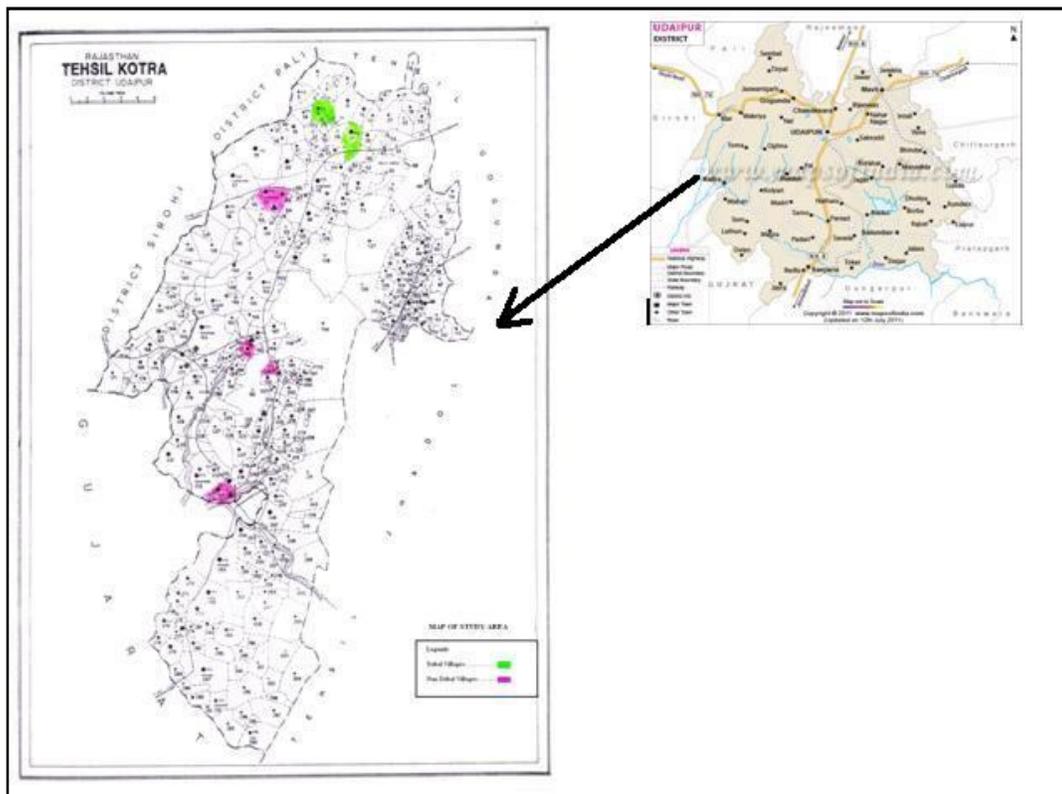


Figure 1: Map of Study area

Source: Udaipur District Census Hand book 2001, State Rajasthan

2.2. Design of Study

The present study is a cross sectional & community based survey & was conducted in 4 months (February-May, 2013). The first household in the village was selected randomly to start the household selection and then the rest of the households in each study village/hamlets through systematic random sampling. The Head of the household in presence of his wife was interviewed.

2.3. Ethical Guidelines Followed

Informed and free consent form was obtained from the participants before collecting any data from the respondents in the household. However, Ethical Clearance Certificate was obtained from the Member Secretary of the *Ethics Committee* of DMRC Jodhpur before commencement of the study. The copy of Recommendation of the *Ethics Committee* regarding the project is enclosed herewith.

2.4. Study Group

Rajasthan is the home of the 12 tribes (Census of India Udaipur , Rajasthan , 2011) & present study villages were inhabited mostly by 'Garasia' tribe. Non-tribal groups were comprised of different caste groups according to the trades & requirements of the community i.e. Goswami (ancestors of the other Brahmins), Prajapat (persons who make earthenware pots), Lohar (ironsmith), Baniya (Traders), Brahman (priestly Hindu caste), Nai (Barber) etc.

2.5. Data Collection & Analysis

Schedules were prepared in Hindi & administered in Mewari language & also in tribal dialect with the help of ASHA workers, male nurse, Village Health Workers & ANMs of the study villages. The study team first took the cognizance of local health authority i.e. CMHO & Dy. CMHO in Udaipur district followed by Medical officers and Paramedical staff in CHC Kotra & PHC in Malwa Ka Chora village, CHC Bekariya & the village sarpanch in study villages. Data was collected through structured questionnaires pertaining to knowledge & attitude towards Malaria & dengue, practice of treatment & treatment seeking behavior, effectiveness of treatment taken and personal protection. Most of the questions being pre coded, however, the open ended questions were coded once the data collection was over. The independent variables included tribe, caste, religion, socio-economic condition, existence of CHC/PHC/Sub center/informal health care providers in or around the village & hamlets where tribal & non-tribal respondents lived. The dependent variables included following aspects of malaria & dengue: informal & modern medical treatment, practices related to treatment, promptness in obtaining treatment, prevention & personal protection measures adopted. The data collected was analyzed by using computer programme. Quantified scores were developed with respect to each questionnaire and associations between participants' characteristics and kind of practice of health seeking behavior was explored.

3. Results

97 tribal households were studied out of which 70 from main villages & 27 from hamlets. Out of total 27 tribal households covered from hamlets, 23 total cases of malaria (85.2%) was reported from 22 households, whereas 77.1% of total 70 tribal households covered from main villages reported occurrence of malaria. Thus occurrence of malaria was observed 79.4% in tribal households (hamlets & main villages) as compared to 70.8% in non-tribal households (Table. 1). 40.3% of 77 total 'Tribal Suspected Malaria Cases' sought treatment from Bengali Doctors whereas 9.6% of 73 total 'Non-Tribal Suspected malaria Cases' opted Bengali Doctors. 37.7% of 77 totals 'Tribal Suspected Malaria Cases' took treatment from Government Health Facility (e.g. Sub centre, PHC, CHC, Government hospital) as compared to 61.6% of 73 total 'Non-Tribal Suspected malaria Cases' who shown their predilection towards Government Health Facility. This shows significant difference ($p < 0.05$) in pattern of seeking treatment among the Tribal and Non-Tribal respondents from the Bengali Doctors as well as from Government Health Facility (Table 11). From Table II Chi-Square value for Health facility is 25.96 & P value $< .0001$ shows Significant difference towards seeking treatments from Bengali Doctors, Govt. health facility and Private Doctors.

26 of 54 total 'Tribal Suspected Malaria Cases' from main villages (i.e.48.1%) availed Government Health facilities (e.g. Sub Centre, Primary Health Centre, Community Health Centre, Government Hospital) against 45 of 73 total 'Non-tribal Suspected Malaria Cases' from main villages (i.e.61.6%), who opted for Government Health facilities. 3 of 23 total 'Tribal Suspected Malaria Cases' inhabiting Hamlets (i.e.13.04%) availed Government Health facilities (e.g. Sub Centre, Primary Health Centre) whereas 18 of 23 total 'Tribal Suspected Malaria Cases' inhabiting Hamlets(i.e.78.3%) availed health services from Bengali Doctors to cure malaria. Moreover, 13 of 54 total 'Tribal Suspected Malaria Cases' inhabiting main villages (i.e.24.07%) availed health services from Bengali Doctors. This indicates that living in the same locality, the non-tribal group of respondents shown higher degree of preference towards PHC/CHC/OPD of Government hospital for their Treatment of fever cases as compared to the tribal (Table. 11).

31'Tribal Suspected Malaria Cases' from hamlet & main villages obtained treatment from 'Bengali Doctors' for recovery from malaria & 100% of them reported that treatment was effective (Figure.2). Moreover, total period of treatment along with medicines & injections provided by 'Bengali Doctors' was of moderately short duration that helped them to join the work at the earliest, leading to facilitation of economic pursuit .

8 of 54 total 'Tribal Suspected Malaria Cases' from main villages (14.8%) & 11 of 73 total 'Non-tribal Suspected Malaria Cases' from main villages (15.06%) opted treatment from Chemist shop (Table. 11). Treatment provided by Chemist shop was without undergoing any diagnostic blood test. Such medicines were used randomly following incomplete doses and without any prescribed guideline. However, only 2 of 11 'Non-tribal Suspected Malaria Cases' (i.e.18.1%) who procured medicines etc. from Chemist shop expressed that treatment was effective. Similarly 3 of 8 total'Tribal Suspected Malaria Cases' from main villages (37.5%) revealed that treatment for malaria from Chemist shop was effective (Figure.2).

In all, 29.8% of 77 tribal malaria cases from hamlets & main villages & 47.9% of 73 non-tribal cases opted treatment on same day of commencement of fever. However, 62.3 % of tribal cases approached for treatment on 2-3rd day after commencement of fever as compared to 50.7% of 73 non-tribal cases. A few tribal respondents (7.8%) approached for treatment on later than 3rd day as well. (Table-IV).

54 of 77 'tribal suspected malaria cases' & 38 of 73 'Non-tribal suspected malaria cases' not seeking any treatment on same day revealed various inhibiting factors that impeded them to seek treatment on same day of commencement of fever (Table V).

'Absence of family Members' as inhibitory factor for not seeking treatment on same day shows Significant difference (Z value for is 4.88, $p < 0.05$) among 'Tribal cases' from hamlets & main villages (5.5%) and 'Non-tribal cases' from main villages (28.9%). Further, 'Cure by itself' observed as inhibitory factor for not seeking treatment on same day shows Significant difference (Z value for is 4.86, $p < 0.05$) among 'Tribal cases' from hamlets & main villages (22.2%) & 'Non-tribal cases' from main villages (15.8%). Home Remedies as inhibitory factor for not seeking treatment on same day shows Significant difference (Z value 2.78, $p < 0.05$) among Tribal cases from hamlets & main villages (14.8%) and Non-tribal cases from main villages (34.2%). Non Availability of fund as Inhibitory factors for not seeking treatment on same day shows Significant difference (Z value 2.65, $p < 0.05$) between Tribal cases from hamlets & main villages (46.3%) and Non-tribal cases from main villages (28.9%)

Similarly, as in table IV, time of seeking treatment on same day of commencement of fever varies significantly (Z value: 2.44, $p < 0.05$) among 'Tribal total malaria Cases' from Hamlets & Main Villages (29.8%) & 'Non Tribal total malaria Cases' from main villages (47.9%).

The tribal respondents revealed that Bengali RMP Practitioners popularly known as 'Bengali Doctors' emerged as the most common source of treatment and the first point of referral for any type of illness including malaria & fever.

4. Discussion

Incorrect beliefs or inappropriate behavior can interfere with the effectiveness of vector control measures (Deressa *et al*, 2000). Study revealed (Matta *et al* 2004) of 200 fever cases that 66.5% patients waited for more than three days before consulting a doctor and 41(20.5%) patients went to chemist for medication without consulting a doctor when WHO recommends that at least 60% of those suffering from malaria should seek treatment within 24 hours of the onset of symptoms (WHO 2000). Existence of a positive relationship between poverty and illness (i.e. morbidity and mortality) in every social structure cannot be denied are documented to be higher among the poor (Wag staff, 2002). Tribal respondents were also found unaware that Malaria infection can be of two types (i.e. *P. vivax* & *P.falciparum*) & detection of malarial parasite type is important from treatment point of view, which is possible only after blood test of the person suffering from fever. This paper attempts to reveal health seeking behavior of tribal people & the adjoining non-tribal population towards malaria. The Informal health care providers (Bengali RMP Practitioners) used to play an important role in recovery from health problems of tribal groups. Tribal respondents revealed that flexibility in treatment procedures, response towards tribal belief system with spontaneity & remaining involved with the tribal groups made 'Bengali RMP practitioners' more trustworthy & acceptable. Moreover, availability of allopathic doctors is limited in the CHCs of semi-urban tehsil headquarters whereas 'Bengali Doctors' are adequately available throughout the study area. Despite lowering of population norms for setting up of Sub-Centres & PHCs in Tribal areas relative to other areas, about 15-20 villages fall under jurisdiction of one ANM as tribal inhabitations are scattered in difficult terrains. Rajasthan has a shortfall of 175 PHCs & 45 CHCs. Such situation heavily constrains the ANMs from providing adequate service to tribal people (Ministry of Tribal Affairs, GOI, 2010). Certain factors like shortage of medicines, unofficial fees incurred for treatment & tablet being prescribed as treatment by Govt. Health Facility, (as majority of tribal expressed fascination towards treatment by injection) were the main reasons behind the reluctance of tribal towards using 'free' public-health facilities. Further, tribal people used to hesitate to pay visit to health facilities on account of habitual disliking expressed by health workers towards tribal for their non-vegetarian diet habit, remaining intoxicated by drinking liquor, different pattern of clothing etc.

Treatment of fever cases at PHC/CHC/OPD of Government hospital is very significant, particularly in the context of malaria transmission, prevention & control. Study reported about overwhelming community response once IEC campaigns as part of 'Integrated Disease Vector Control Strategy for Increased Awareness & Community Compliance' was undertaken in close coordination of state/district health authorities among the communities living BPL (>30%) in North East India (Vyas Dev, 2009). To combat malaria effectively in the tribal villages & hamlets, it is the need of the hour that tribal as well as the 'Bengali Doctors' should be made educated through dissemination of biological materials (e.g. larva, pupa, adult form of vectors, larvivorous fishes, positive slides under microscope to specify various stages of malaria parasites, etc.).

5. Conclusion

The findings of the present study may be helpful in terms of developing an appropriate intervention plan for the tribal to improve their awareness & practice towards malaria. Findings may also be useful for the state health authorities to design & develop appropriate information resources to help tribal groups effectively recognize certain issues on malaria like adverse effect of delay in seeking treatment, attenuating tendency of tribal people towards incomplete intake of course of malaria treatment, merits of adopting personal protection measures against mosquito bites, enhance awareness about habitat & biting time of Malaria & Dengue vectors & advantage of seeking treatment of fever cases at PHC, CHC, OPD of Government Hospital. It is of paramount importance that the tribal should be made convinced to take upon themselves the responsibility of making their residential area free from vectors or biting nuisance of mosquitoes. The pictorial posters with live demonstration in tribal dialect highlighting precautions & no delay in treatment after commencement of symptom of fever should be communicated to the tribal for anticipated behavior change which can be brought into

reality by sensitizing through acceptable messages & time to time effective monitoring, so that their knowledge may be transformed into practice.

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Annexure

Household	Households covered	Households Reported occurrence of Malaria	Total cases of Malaria from households	% of occurrence of malaria
Tribal Households (hamlets)	27	22	23	85.2
Tribal Households (main villages)	70	54	54	77.1
Total Tribal households (Hamlets & main villages)	97	76	77	79.4
Total Non-tribal households (main villages)	103	73	73	70.8
Total of tribal & non-tribal households	200	149	150	75.0

Table 1: Occurrence of malaria among Tribal and Non-Tribal households

Health facility	Tribal N=77	Non-Tribal N=73	Z Value	Chi-Square	P value
Bengali Doctors	40.3	9.6	3.95*	25.96	<.0001
Govt. health facility	37.7	61.6	4.0*		
Private Doctors	22.0	28.8	0.90		

Table 2: Health Seeking Behavior of Tribal & Non-Tribal against Malaria

*Significant difference $p < 0.05$

Type of treatment	Tribal in main village (n=54)	Tribal in hamlets (n=23)	Non-Tribal in main village (n= 73)	Non-tribal in hamlets[non-resident] (n=0)
Sub centre / Primary Health Centre/ Community Health Centre/ Govt. Hospital	48.1	13	61.6	0
Bengali Doctor	24.1	78.3	9.6	0
Pvt. Doctor	11.1	4.3	4.1	0
Pvt. Hospital	1.8	4.3	9.6	0
Chemist's Shop	14.8	0	15.1	0

Table 3: Respondents (in percent) using different treatment measures against malaria

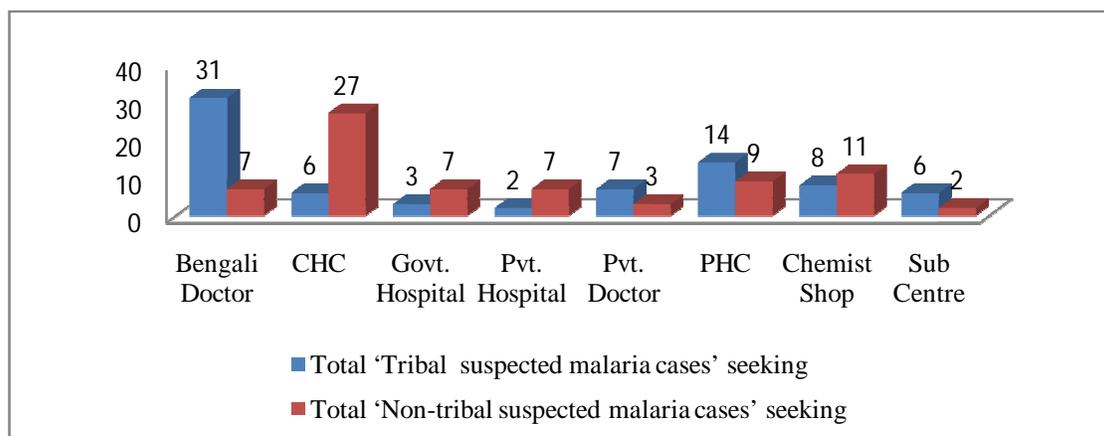


Figure 2: Distribution of effectiveness of different treatment measures against malaria used by the respondents

Time of seeking treatment	Tribal Total malaria cases		Tribal Total malaria Cases	Non- Tribal Total malaria Cases	Z Value
	Hamlets (n=23)	Main Village (n=54)	Hamlets & Main Village (n=77)	Main Village (n=73)	
Same day	7 (30.4)	16 (29.6)	23 (29.8)	35 (47.9)	2.44*
2 nd -3 rd day	13 (56.5)	35 (64.8)	48 (62.3)	37 (50.7)	1.54
later than 3 rd day	3 (13.0)	3 (5.5)	6 (7.8)	1 (1.4)	1.5

Table 4: Distribution of respondent's time of seeking treatment against malaria
*Significant difference $p < 0.05$

Inhibitory factors	Tribal cases not seeking treatment on same day from hamlets (n=16)	Tribal cases not seeking treatment on same day from main villages (n=38)	Tribal cases not seeking treatment on same day from hamlets & main villages (n=54)	Non-tribal cases not seeking treatment on same day from main villages (n=38)	Z Value
Non Availability of fund	8 (50.0)	17 (44.7)	25 (46.3)	7 (18.4)	2.65*
Home Remedies	2 (12.5)	6 (15.8)	8 (14.8)	13 (34.2)	2.78*
Traditional healers	0 (0.0)	2 (5.3)	2 (3.7)	1 (2.6)	0.27
Distance & no conveyance	4 (25.0)	0 (0.0)	4 (7.4)	0 (0.0)	1.33
Absence of family Member	0 (0.0)	3 (7.9)	3 (5.5)	11 (28.9)	4.88*
Cure by itself	2 (12.5)	10 (26.3)	12 (22.2)	6 (15.8)	4.86*

Table 5: Inhibitory factors for the respondents to seek treatment on same day
*Significant difference $p < 0.05$