*Indian Journal of Extension Education*
*Vol. 54, No. 3, 2018 (119-122)*

# Behavioural Assessment of Migratory Nomads towards Zoonotic Importance of Scabies/ Mange Infestation

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**ABSTRACT**

Scabies is a skin disease caused by infestation and sensitization of Sarcoptes scabiei mite. It is endemic in tropical and subtropical regions around the world and is a public health problem. The most dominant factor in the incidence of scabies is poverty and poor individual hygiene. The purpose of this study was to the analyze the relationship between level of education, knowledge, attitudes and practices with the incidence of scabies in sheep, goats and their rearers. A cross sectional study was conducted with random sampling with sample of 120 respondents. The results of this study showed that there is a significant positive association of knowledge with attitude (p=0.910) and practices (p=0.856) with scabies events. The study reveals that low knowledge and lack of hygienic practices increases the risk and incidence of scabies. Therefore, it is imperative to inform and educate the vulnerable societies for the prevention of this disease which not only affects animals, but humans too and causes huge economic losses.

**Key words:** Attitude, knowledge, practices, scabies.

## INTRODUCTION

Scabies is a contagious skin disease, characterised by crusty, pruritic dermatitis and hair/ feather loss and caused by a variety of parasitic mites burrowing in or living on the skin. Some alternative historical names for scabies are 'mange' 'itch', 'scab' and 'scabies' (a term that should be reserved only for mange caused by Sarcoptes scabiei). Specifically, on domestic hosts (*i.e.* livestock, poultry, companion and laboratory animals), about 50 mite species in 16 families and 26 genera may cause mange. A number of other skin conditions (e.g. dermatitis, wheals, blisters, nodules) may be confused with mange and must be considered in differential diagnoses, including those resulting from allergic reactions to other kinds of mites, various arthropod bites, fungal diseases, or reactions to physical or chemical aspects of plants. Mange diagnosis in domestic animals is based on clinical manifestations and the demonstration of mites or their developmental stages in host skin scrapings. Scabies is caused by infestation and sensitization to Sarcoptess scabiei mites and is an endemic in tropical and subtropical areas of India. According to a World Health Organization (WHO) report scabies has a potential to bring about an epidemic condition in an area. Feldmeier et al. (2009), reported an incidence of scabies in human in India (13 per cent), Australian aboriginal communities (50 per cent) and in Sierra Leone (86 per cent).

Scabies occurs mostly to very young and older children, also young adults, because they are more vulnerable to many skin diseases and reflect reduced immunity (Walton *et al.,* 2009). Scabies often infests children living in boarding schools as they live together with a group of people which will lead to an easy and high risk condition for contracting various contagious diseases especially skin diseases (Saad, 2008). Also, scabies is most often a result from unhealthy behaviours, such as living in close association with dogs and other animals, hanging clothes in the room, exchange of clothes and personal items and also sharing bedding, sleeping on ground with partial partition or without partition in animal houses. The disease can be transmitted by direct contact (skin to skin) such as by shaking hands, sleeping together and sexual relations or by indirect contact such as sharing things like clothes, sheets, towels and others (Djuanda *et al.,* 2008). Several factors that also play a role in disease transmission are low socioeconomic conditions, poor personal and environmental hygiene, unhealthy behaviour and population density (Saad, 2008). Lack of knowledge about personal hygiene increases the incidence of scabies, 15 per cent due to rarely taking a

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shower and 42 per cent due to frequently sharing clothes with friends (Kumalasari, 2011).

According to Bloom's theory in Notoatmodjo (2003), behaviour includes knowledge, attitude and practice of an individual. Knowledge is gaining through experience and is the result of knowing people's sense of any particular object which is important for the formation of a person's actions. Meanwhile, attitude is a readiness or willingness to do something.

As environment plays an important role in disease transmission among migratory nomads and in their livestock and could be one of the risk factors for the transmission of scabies disease. A study was conducted to know the incidence of scabies in sheep, goats and nomads who migrate to Poonch and Rajouri districts of Jammu and Kashmir state and it was observed that 14.59 per cent sheep, 6.6 per cent goats and 4.16 per cent of their rearers were suffering from the disease. This study was conducted to know the level of knowledge, attitude and practice of nomads in efforts to prevent scabies among them and their livestock.

## METHODOLOGY

This study was conducted on 120 representatives of nomad families during March 2015 to January 2017. A questionnaire cum interview schedule was set up consisting of questions about basic knowledge of scabies such as clinical aetiology, symptoms, risk factors, prevention, treatment, attitude and practice of nomads towards scabies in order to prevent scabies in livestock and among themselves. The level of knowledge, attitude, and practice was measured using a scoring system as follows: Good: score is $\geq$75 per cent, Moderate: score is 40 per cent - 74 per cent, and Poor: score is <40 per cent. Data were analyzed using frequency distribution.

## RESULTS AND DISCUSSION

The level of knowledge of the respondents to prevent scabies was generally good (60 %), where as 25 per cent respondents were having moderate level of knowledge and 15 per cent were in poor level.19.2 per cent respondent were having good level of attitude, 55.8 per cent having moderate score and 25 per cent were having poor score (table 1).

A significant positive correlation between knowledge and attitude (p=0.910) and practices (p=0.856) with the incidence of scabies events was found in this study.

**Table 1: Distribution of respondents based on level of knowledge and attitude**

| | Frequency (Total, n=120) | Percentage (%) |
|---|---|---|
| **Level of knowledge** | | |
| Good (score : ≥ 36 marks) | 72 | 60 |
| Moderate (score : 19-34 marks) | 30 | 25 |
| Poor (score : ≤18 marks) | 18 | 15 |
| **Level of attitude** | | |
| Good (score : ≥ 20 marks) | 23 | 19.2 |
| Moderate (score : 11- 19 marks) | 67 | 55.8 |
| Poor (score : ≤ 10 marks) | 30 | 25 |
| **Level of practice** | | |
| Personal hygiene | | |
| Good (score : ≥ 10 marks) | 88 | 73.3 |
| Moderate (score : 5- 9 marks) | 32 | 26.7 |
| Poor (score : ≤4 marks) | 0 | 0 |
| **Habits** | | |
| Good (score : ≥ marks) | 68 | 56.7 |
| Moderate (score : 5-9 marks) | 0 | 0 |
| Poor (score : ≤ 4 marks) | 52 | 43.3 |

A very interesting finding came in light by this study that most of the respondents were not aware of the cause of scabies/mange in their animals (91.6%) and refused that it can be transmitted to humans (87.5%). However most of the respondents (96.5%) knew the signs and symptoms of the disease in their animals (table 2).

**Table 2: Distribution of respondents based on knowledge**

| Knowledge items | Answer | Frequency (Total, n=120) | Percentage (%) |
|---|---|---|---|
| Have you ever heard of scabies/mange disease of man and animals | Yes | 101 | 84.16 |
| | No. | 19 | 15.84 |
| What is the cause of scabies/mange in man and animals | Correct answer | 10 | 8.34 |
| | Wrong/no answer | 110 | 91.66 |
| What are the sign and symptoms in man | Know | 95 | 80 |
| | Do not know | 25 | 20 |
| What are the sign and symptoms in sheep, goat and other livestock | Know | 111 | 96.5 |
| | Do not know | 9 | 7.5 |
| Parts of body that are affected | Yes | 96 | 80 |
| | No. | 24 | 20 |
| Can scabies disease be transmitted from animals | Yes | 15 | 12.5 |
| | No. | 105 | 87.5 |
| Can bedding of infected dog sheep, goat, infect man | Yes | 20 | 16.7 |
| | No | 100 | 83.3 |
| What type of animal can transmit scabies | Dog | 20 | 16.7 |
| | Sheep, goat, others | 80 | 66.7 |
| | All | 20 | 16.7 |
| Who can suffer from scabies | All age groups but more common in children | 60 | 50 |
| | Children only | 60 | 50 |
| Can exchanging clothes with an infected person spread scabies/mange | Yes | 20 | 16.7 |
| | No | 100 | 83.3 |
| Can scabies/mange be harmful to the health of skin or pelt | Yes | 102 | 85 |
| | No | 18 | 15 |
| What should we do to break the chain of scabies disease | Disinfection of clothing, bedding material, living shed and simultaneously treatment of infected ones | 10 | 8.3 |
| | Need regular treatment only | 96 | 80 |

| | | | |
|---|---|---|---|
| | No answer | 14 | 11.7 |
| How to prevent scabies/mange in animals & man | Careful handling of infected livestock and their bedding, | 30 | 25 |
| | Avoiding living within animals houses | 30 | 25 |
| | Maintenance of personal hygiene | 60 | 50 |

56.7 per cent of respondent were in favour of having good habits for control of scabies (table 1). In general, the majority of respondents were having poor knowledge about etiology (80 per cent) whereas 50 per cent respondents were aware that personal hygiene can prevent transmission of scabies/mange and 25 per cent respondents said that careful handling of infected livestock and their bedding can prevent scabies/mange in humans and animals.

The attitude of respondents was moderate, 50 per cent respondent agreed that maintaining environment hygienic in animals houses will decrease zoonotic diseases, 25 per cent agreed that if bedding material of animal houses, human beings was dried regularly and disinfected occasionally, it can reduce scabies/mange infestation, 58.34 per cent agreed that besides personal hygiene, there must be a good environment in order to prevent scabies (table 3).

**Table 3: Distribution of respondents based on types of attitude**

| Attitude items | Answer | Frequency (Total, n=120 | Percentage ( per cent) |
|---|---|---|---|
| Maintaining environment hygienic of animals | Agree | 60 | 50 |
| houses will decrease zoonotic diseases | Not agree | 60 | 50 |
| Bedding material, Mattresses and pillows are dried | Agree | 30 | 25 |
| or disinfected occasionally | Not agree | 90 | 75 |
| Did not exchange clothes, towels and bedding with | Agree | 70 | 58.34 |
| others | Not agree | 50 | 41.66 |
| Scabies/mange patients do not need to be avoided | Agree | 103 | 85.84 |
| | Not agree | 17 | 14.16 |
| Personal hygiene is very necessary to keep the | Agree | 96 | 80 |
| body free from scabies | Not agree | 24 | 20 |
| Scabies can be prevented by maintaining a good | Agree | 90 | 75 |
| personal hygiene | Not agree | 80 | 25 |
| If found cases of scabies, treatment should be done | Agree | 90 | 75 |
| quickly to prevent the transmission of disease | Not agree | 30 | 25 |
| Besides personal hygiene, there must be a | Agree | 70 | 58.34 |
| good environment in order to prevent scabies | Not agree | 50 | 41.66 |
| Scabies sufferers have to be quarantined | Agree | 60 | 50 |
| | Not agree | 60 | 50 |

Majority of the respondents had a good practice of personal hygiene 85 per cent and 91.7 per cent respondents reported that they should not enter into animal houses with naked feet, 25 per cent respondents slept on floors with animals not knowing that it can transmit scabies/mange and 86.6 per cent shared of clothes with each other which can also spread the infection (table 4).

**Table 4: Distribution of respondents based on types of practice**

| | Types of practices followed | Frequency (Total, n=120) | Percentage (%) |
|---|---|---|---|
| Personal hygiene | Washing of hands with soap after handling animals. | 102 | 85 |
| | Entering into animal houses with naked feet. | 110 | 91.7 |
| | Keeping of kids in personal bedding during bad weathers. | 60 | 50 |
| Habits | Hanging of cloths in animal houses. | 81 | 67.5 |
| | Sleeping on floor in close association with animals. | 30 | 25 |
| | Sharing of cloths with each others. | 104 | 86.6 |

## CONCLUSION

According to Notoatmodjo (2003), the level or quality of knowledge can be grouped into 6 levels, where each level is a sequence of processes from the lowest to the highest level. The lowest level is knowing which is defined as memorizing a material. In this stage, it involves recalling the things that have received stimuli before. The second level is called comprehension, the ability to correctly describe the disease of scabies. The third level is application, the ability in applying the knowledge in everyday life. The next levels are analysis, synthesis and evaluation.

In our study, the level of the respondent's knowledge was more than level one, as most of the respondents could apply the knowledge of preventing the transmission of scabies in daily life activities such as doing good practices of personal hygiene. However, health education should be carried out since there were still respondents who did not know about the etiology, what to do to break the transmission and how to prevent scabies, whether it can be transmitted from animal to humans.

Attitude is the assessment toward the stimulus or objects and in this case it is a matter of health, including illness. Once a person knows the illness, the next process will be to assess or show attitude towards the illness. Therefore, an indicator for the health attitude starts with the knowledge of health itself. The level of attitude of Nomads towards the scabies disease was moderate because there were still respondents who did not know about the cause, about the transmission from animal to humans and prevention of scabies. Unfortunately, there were still 25.0% of Nomads who sleep on floor in close association with their livestock due to poverty, lack of education, habit of migration.

In this study the level of practice of the respondents' personal hygiene and habits were on a good and moderate level respectively. However there are still some respondents who have poor practices such sleeping on floor, sleeping in close association with their livestock.

The reason was lack of facilities, harshness of winter, lack of knowledge and poverty. This study concluded that the knowledge, attitude and practices towards the prevention of transmission of scabies were moderate.

*Paper received on : December 26, 2017*
*Accepted on : January 09, 2018*

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