

## Original Research Article

# Assessment of knowledge, attitude and practice regarding rabies and its prevention among construction workers: a cross-sectional study in Berhampur, Odisha

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### ABSTRACT

**Background:** Rabies is a viral zoonosis and human infection usually occurs following transdermal bite or scratch by an infected animal. It is one of the most dangerous and completely preventable diseases. Construction workers are vulnerable to animal bites. So, this study was undertaken to study the knowledge, attitude and practice regarding animal bite and rabies among construction workers.

**Methods:** A cross sectional study was done in campus of MKCG medical college, Berhampur, Odisha, India. Data was collected by using pre-designed interview from 400 construction workers. Data was entered and analyzed using SPSS V.17. Descriptive statistics and chi square test were applied. KAP score were calculated.  $P < 0.05$  was considered statistically significant.

**Results:** Mean age group of study participants was  $37.75 \pm 15.8$ , 72.5% were male and 27.5% were female. 84% of the participants had heard the word rabies. 65.75% among them had poor KAP score. KAP score was significantly associated with age, sex, education and residence.

**Conclusions:** Construction workers had poor knowledge about animal bite and rabies. Their knowledge, attitude and practice with respect to prevention and treatment of rabies can be improved by providing proper health education.

**Keywords:** Construction workers, KAP score, Rabies

### INTRODUCTION

Rabies is a viral zoonosis and human infection usually occurs following a transdermal bite or scratch by infected animal.<sup>1</sup> The clinical signs include sudden behavioral changes, hyper salivation, paralysis, hydro and photophobia, restlessness, aggressiveness and biting inanimate objects.<sup>2</sup>

Every year, more than 15 million people worldwide receive a post-exposure vaccination to prevent the disease-this is estimated to prevent hundreds of thousands

of rabies deaths annually.<sup>3</sup> Still, rabies is the 10<sup>th</sup> biggest cause of death due to infectious diseases worldwide.<sup>4</sup> Rabies causes about 26,000 to 55,000 deaths worldwide per year, more than 95% of which occur in Asia and Africa.<sup>5</sup> Based on available evidence, a fair estimate of rabies burden in India is 2.74 rabies cases/100,000 population annually.<sup>4</sup> In India, the burden is unevenly distributed among different states.

About 98% of the human rabies cases occur in developing countries that possess large number of dogs, many of which are stray. Rabies is 100% fatal disease

which can be prevented by timely and appropriate anti rabies prophylaxis. Earlier many studies have been done on medical students, health care professional, veterinary personals, and animal bite victims.<sup>6-9</sup> The present study was under taken among construction workers working in the campus of MKCG medical college campus, Berhampur. They are more prone to be bitten by stray animals as their main stay of work is outdoor so they are usually the first ones to meet a victim of animal bite.

### Objectives

- To assess the socio-demographic profile of study participants
- To study the knowledge, attitude and practice regarding animal bite and rabies among construction workers
- To identify factors associated with KAP regarding animal bite and rabies.

### METHODS

A cross-sectional study was done in the campus of MKCG, MCH, Berhampur, Odisha, India, for a period of 3 months (September-November 2016).

#### Sample determination

The required sample size for this study was estimated by considering 50% of population knowing about Rabies since there is no awareness study about rabies and prevention among construction workers on the area before so by considering 95% confidence interval, 5% absolute precision sample size calculated is 400.

By formula:  $N = \frac{4 * p * (1-p)}{l^2}$ ; (P is the prevalence, l is the absolute precision). Data was collected on 3 alternate days of a week, each week around 33-35 workers were interviewed randomly. Those who did not give consent the next worker was interviewed, so by 12 weeks end total sample size we have got is 400. Data was collected using a semi structured, pre-designed interview method. The method consisted of questions regarding basis socio demographic characteristics, knowledge, attitude and

practice of animal bite and rabies. Data was collected after taking informed consent from workers who were working in fields at the time of data collection.

Data analysis was done in department of community medicine by using SPSS version 17. Percentages and chi square test were applied to test association between categorical variables. KAP (knowledge, attitude and practice) scores were calculated as below

KAP scoring: 21 questions were asked for each participant regarding cause, sources and mode of transmissions, clinical features and prevention practices and treatment measures of rabies which was resulted in a response of either, choose the correct answer (had got one mark) or wrong answer (had got zero mark) for each question. The mean scores were calculated for KAP.

The participants who had KAP score more than mean were considered as good and less than mean was considered as poor. Good knowledge was defined as those getting a score of 10 and above, poor knowledge as getting a score less than 10. The data show that majority of study participants were having poor KAP level.

### RESULTS

From 400 study population 137 (34.25%) had good KAP whereas 263 (65.75%) had poor KAP about the prevention of Rabies and its treatment protocols.

#### Socio-demographic characteristics

A total of 400 participants were interviewed. More than half (72.5%) of study participants were Males. Regarding age groups (61%) of the study participants were between 18-30 years followed by (36.5%) who were 31-50 years. Most participants were Hindu (82.75%) followed by Muslim (16.25%) and others (1%). (52.5%) of the participants studied up to primary school followed by (33.75%) were illiterate. Majority of participants were from rural area (87.5%). (60%) of study participants were belonging to upper lower class followed by (27.5%) of lower-middle.

**Table 1: Knowledge of the study participants.**

Characteristics	Yes	No
Heard of the disease (n=400)	336 (84%)	64 (16%)
Source of infection (dog) n=336	330 (98.2%)	6 (1.7%)
Animals other than dog as source of infection (n=336)	34 (10.1%)	302 (89.9%)
Causative agents (n=336)	315 (93.7%)	21 (6.3%)
Mode of spread (n=336)	330 (98.2%)	6 (1.7%)
Other mode of spread (organ transplant etc) (n=336)	5 (1.5%)	331 (98.5%)
Clinical feature of rabies in animal (n=336)	4 (1%)	332 (98.8%)
Clinical feature of rabies in human (n=336)	40 (11.9%)	296 (88.1%)

**Knowledge of participants related to cause, mode of transmission and clinical signs**

84% of the participants were familiar with the disease; 98.2% of those participants knew dog was the source of infection and only 10.11% knew other animals as source of infection.

93.74% were aware that infection was the cause of rabies and 98.2% knew that rabies was transmitted from animal to human. 1% among the participants could identify clinical feature of rabies in animal and 88.09% of the

participants were not aware about clinical features of Rabies in humans (Table 1).

**Knowledge of participants regarding prevention of rabies**

14.88% of participants had proper knowledge about first aid after bite. 5.95% wanted to have full course of vaccination. 2.97% were aware about anti rabies immunoglobulin whereas 99.10% had no idea about pre-exposure prophylaxis (Table 2).

**Table 2: Knowledge of study participants regarding prevention of rabies: n=336.**

Characteristics	Yes	No
Proper knowledge about first aid after bite (n=336)	50 (14.9%)	286 (85.1%)
Vaccination of human (n=336)	50 (14.9%)	286 (85.1%)
Full course of vaccination (n=336)	20 (5.9%)	316 (94.0%)
About anti rabies immune globin (n=336)	10 (2.9%)	326 (97.0%)
About pre-exposure prophylaxis (n=336)	3 (0.9%)	333 (99.1%)
Vaccination of pets (n=336)	100 (29.8%)	236 (70.2%)

**Table 3: Attitude and practices among study participants: (n=400).**

Characteristics	Yes	No
<b>Preventive measures to be taken</b>		
Wash the wounds	255	63.8%
Apply turmeric	68	17%
Go near quacks	50	12.5%
Apply mud	10	2.5%
Others	17	4.3%
<b>Do you have pet animals?</b>		
Yes	60	15%
No	340	85%
<b>Willing to take the patient for treatment near</b>		
Doctor	308	77%
Traditional healers	76	19%
Not to take anywhere for treatment	16	4%
<b>Is your pet dog vaccinated (n=60)?</b>		
Yes	6	10%
No	54	90%
<b>Willing to go for complete vaccination</b>		
Yes	204	51%
No	196	49%
<b>In favour of mass vaccination?</b>		
Yes	154	38.5%
No	246	61.5%
<b>Do you think animal bite is serious?</b>		
Yes	248	62%
No	74	18.5%
Do not know	78	19.5%

### Attitude and practice among study participants to prevent rabies

63.75% participants said they will wash the wound immediately with soap and water after bitten by animals as preventive measures and 77% will seek treatment near doctors after being bitten and only 19% among them had positive attitude for traditional healers. Animal bite was a serious condition that were answered by 62% of the participants. 15% of the participants had pet animals among them only 10% had vaccinated their pet dogs. 51% had willingness to go for complete vaccination if ever being bitten by animal, where as 61.5% of the study

participants were not in favour of mass vaccination (Table 3).

### Factors associated with workers KAP on rabies

Association between independent (socio-demographic) variables and KAP scores on rabies was assessed using Pearson's chi square (Table 4). There was significantly association between KAP score with age ( $\chi^2 = 26.105$ ,  $p < 0.05$ ) the good scores were highest in age group of 18-30 years, educational status was significantly associated with KAP scores ( $\chi^2 = 122.836$ ,  $p < 0.05$ ).

**Table 4: Relationship between KAP scores about rabies and socio demographic profiles.**

Variables	Good	Poor	X <sup>2</sup>	P value
<b>Sex</b>				
Male (290)	187	103	34.453	0.0000
Female (110)	35	75		
<b>Residence</b>				
Rural (350)	50	300	57.143	0.0000
Urban (50)	30	20		
<b>Education</b>				
Illiterate (135)	25	110	122.836	0.0000
Primary (210)	165	45		
Secondary (50)	22	28		
High school (5)	4	1		
<b>Age</b>				
18-30 years	90	154	26.105	0.000
31-50 years	20	126		
>51 years	1	9		

## DISCUSSION

In current present study 34.25% of study participants had good knowledge, attitude practice scores. In a study conducted by Chandan N et al 51% of study participants had good knowledge and attitude scores, where as 45% of study participants had good practice scores.<sup>10</sup> In the present study 72.5% of study population were male and 27.5% were females. Age ranged from 18 to 60 years. Considering education 33.75% were illiterates, 52.5% had completed primary education, 12.5% had completed high school but in a study conducted by Chandan N et al 85% were male and 15% of study population were female. Considering education 11.75% were illiterates, 34.5% had completed primary education, 43.75% had completed high school, 8% up to PUC (12<sup>th</sup> standard) and only 2% had completed their graduation.<sup>10</sup>

Similar findings were obtained in a study by Singh et al where all knew about Rabies and 98.6 % knew about the transmission of rabies by dog bite.<sup>7</sup> However, in the present study many study subjects did not know that

other animals could also transmit the disease. Majority of the study population did not know about the clinical features of rabies in man whereas hydrophobia as the presenting feature was known to majority of subjects in a study by Kishore et al.<sup>11</sup>

Knowledge about first aid and about importance of immunoglobulin after dog bite was not known to majority of the workers. This could be because majority of the study subjects have studied up to only primary level or are illiterate. In another study though majority knew about first aid after animal bite, they had no knowledge about use of anti-rabies immunoglobulin which is very essential as far as the management of dog bite is concerned.<sup>11</sup> In a study conducted by Chandan N et al 67% of the study participants had heard that there is some vaccination for animal bite.<sup>10</sup>

In the present study, it was seen that the attitude towards animal bite was good in more than half of the study population. They opined that they would wash the wounds and go for treatment to doctors. Similar findings were also obtained by Chandan et al where majority said

they would wash the wound with soap and water if bitten by animal.<sup>10</sup> However, Ichhpujani et al in their study observed that less than 50 % people were in favour of wound toileting.<sup>8</sup>

Majority i.e. 62% said that Animal bite is a serious condition. However, only 51% were willing to go for complete vaccination if ever being bitten by animal. In the study by Kamble et al 89 % of study population considered vaccination to be necessary after animal bite for rabies prevention.<sup>12</sup> Only 10 % of the workers having pet dogs had vaccinated their dogs, where as 61.5% of the study participants were not in favour of mass vaccination. However, Chandan N et al observed in their study that 81% of study participants believed pet dogs should be vaccinated.<sup>10</sup> In the present study age, sex, education and residence were significantly associated with knowledge, attitude and practice scores but in a study conducted by Chandan N et al knowledge score was statistically significantly associated with age and socio-economic status. Attitude score was significantly associated with age, education and socio-economic status. Practice score was significantly associated with age, education, religion and socio-economic status.<sup>10</sup> In another study from Bahir Dar town by Guadu et al KAP scores were significantly associated with sex and educational status.<sup>13</sup>

## CONCLUSION

The lack of knowledge and awareness of construction workers might translate to higher morbidity and mortality related to rabies in their respective work areas. There is a need for sensitization of construction workers so that their knowledge can be enhanced and their positive attitude further can be translated into proper practices for prevention and control of Rabies.

## Recommendations

The knowledge, attitude and practice about animal bite and its prevention could be further enhanced through proper health education through electronic media in local language and by the use of IEC materials.

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