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Research Article

Effect of Educational Intervention on the Knowledge and Awareness of Rabies Among College Students in Dehradun City of Uttarakhand State

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A B S T R A C T

Introduction: Although rabies is highly fatal, with timely and correct postexposure prophylaxis (PEP) for animal bite victims, it could be prevented. The young population should be aware of the appropriate rabies management during their formative years so that they put the right practice into play later on.

Objective: The present study was conducted with the objective of assessing the effectiveness of a brief educational intervention in the form of "Rabies Awareness" on knowledge of rabies among college students without control. A total of 1354 college students from 4 colleges situated in Dehradun City, Uttarakhand State, were included in the study that was conducted between January and March 2026.

Methodology: 1354 college students answered a predesigned and pretested questionnaire on various aspects of rabies. This was followed by an awareness session consisting of a PowerPoint presentation and video clips, followed by a question-and-answer session. One month later, 1280 (94.5%) of the same students answered the same questionnaire. The difference between the pre-session and the follow-up answers was analyzed using proportions and McNemar's test.

Results: The analysis of knowledge regarding rabies revealed that college students' understanding of rabies significantly increased after participating in the awareness session. Knowledge that animals other than dogs can transmit rabies increased from 20.3% to 41.6%. Knowledge that rabies can be transmitted by scratch increased from 18.3% to 43.9%. As a symptom of rabies, hydrophobia was known to only 20.0% of students, which increased to 82.5% after attending the session. Knowledge regarding treatment of bite wounds through washing with soap & water increased from 55.6% to 92.1%. The knowledge that the vaccination schedule consists of 5 injections increased from 40.8% to 70.9%. This clearly indicated the effectiveness of the awareness session.

Keywords: Rabies, Education, Effectiveness, Awareness

Introduction

Rabies is a preventable yet fatal disease that is responsible for approximately 59,000 deaths each year. However, widespread underreporting of rabies cases means that the actual number of deaths is likely to be higher.[1,2] Over 95% of human cases are caused by the bite of a rabies-infected dog and disproportionately affect rural communities, particularly children, from economically disadvantaged areas of Africa and Asia, where awareness of the disease and access to appropriate post-exposure prophylaxis are limited or non-existent.[3,4,5,6]

The situation is especially pronounced in India, which reports about 18 000 to 20 000 cases of rabies a year and about 36% of the world's deaths from the disease. Rabies incidence in India has been constant for a decade, without any obvious declining trend, and reported incidence is probably an underestimation of true incidence.

Awareness is an effective tool for the prevention of rabies. Knowledge about the prevention of rabies among the general public has been observed to be poor.[5] Studies have shown that brief educational interventions are highly effective in increasing college students' awareness of health aspects.[8,9] However, a literature review revealed that very few such studies have been conducted for rabies, especially for college students in India. The present study was carried out with the objective of assessing the effectiveness of a brief educational intervention on the various aspects of rabies among college students.

Objectives

The present study was undertaken to assess the effectiveness of a brief educational intervention in on the knowledge and awareness regarding various aspects of rabies like aetiology, transmission, clinical presentation and prevention. This study was conducted among college students of Dehradun city in Uttarakhand State.

Study Design

This was a quasiexperimental (before and after type) study conducted among the study population with the assessment done before and after the awareness session.

Materials and Methods

The present study was conducted in four-degree colleges situated in Dehradun city in Uttarakhand state between January and March 2026. A total of 1568 students were studying in the four colleges taken for the study. They were aged between 18 and 23 years. A total of 1354 (86.3%) students answered a predesigned and pretested questionnaire regarding various aspects of rabies and its prevention. The remaining 214 were excluded from the study, as they were absent.

The students were assembled in class-wise batches, which ranged from 50 to 80 students, and after administering the questionnaire, a brief educational intervention in the form of a "Rabies Awareness Session" was conducted for students. The awareness session consisted of a PowerPoint presentation and video clips, which lasted for about 40 minutes. This was followed by a question-answer session.

One month later, 1280 (94.5%) students of those who attended the awareness session answered the same questionnaire. The remaining 74 students were excluded from the study, as they were absent. The follow-up questionnaire was administered after one month to avoid bias due to short-term memory.[8]

The difference between the pre-session answers and the follow-up answers was analyzed using proportions and McNemar's test.

Results

92.2% of the students had heard about rabies before the awareness session, which increased to 100% after the awareness session. This difference was statistically not significant. The knowledge that rabies is caused by a virus increased from 48.5% before the awareness session to 66.1%. The increase is statistically significant. The knowledge that rabies is a fatal disease and that it cannot be cured increased from 74.6% and 40.0% before the awareness session to 96.2% and 66.8%, respectively. The increase is statistically significant.

The knowledge that dogs transmit rabies increased from 96.5% to 100%. The difference was statistically not significant. The knowledge that cats transmit rabies increased significantly from 55.8% to 79.9%. The knowledge that monkeys and other wild animals transmit rabies increased significantly from 8.4% to 50.9%. The knowledge that goats, sheep, pigs, donkeys, etc. transmit rabies increased significantly from 6.0% to 17.8%.

25.3% were under the impression that rats, bandicoots, squirrels, etc. transmit rabies, which decreased significantly to 11.8% after the awareness session. The misconception that hens & birds transmit rabies was just 0.9%, which further decreased to 0.4%, but the decrease was not significant.

Knowledge regarding the route of transmission of rabies improved significantly, like 'biting' (from 93.1% to 100%), 'licking' (from 11.3% to 27.1%), and 'scratching' (from 18.3% to 43.9%).

There was no significant increase in the knowledge that drinking milk of affected animals (6.1% to 10.5%) and touch (from 1.7% to 1.5%) were routes of infection for rabies.

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Knowledge regarding symptoms of rabies in animals improved significantly, like 'excessive frothing in the mouth' (from 75.2% to 82.1%) and 'unprovoked biting' (from 36.6% to 66.8%). Knowledge that 'lethargy & drowsiness' is a symptom did not increase significantly (from 11.3% to 16.2%).

48.8% of the students thought that the persons affected by rabies would start behaving like animals. This significantly decreased to 9.2% after the intervention. 34.5% thought that the human rabies cases would go mad; this perception decreased significantly to 24.1%. The knowledge that hydrophobia is a manifestation increased significantly from 20.0% to 82.5%.

The knowledge regarding treatment of bite wounds (washing with soap & water and application of virucidal agent) increased very significantly from 55.6% and 30.1% to 92.1% and 53.5%, respectively. Initially, 37.8% opined that irritants like turmeric, lime, coffee, etc. should be applied to the bite wound; this significantly decreased to 16.4% after the awareness session.

93.4% of the students knew that a vaccine is required for the exposed person, and 40.8% knew that the schedule consists of 5 injections. This proportion significantly increased to 99.5% and 70.9% after the awareness session. 79.9% felt that animals should be vaccinated to prevent rabies, which significantly increased to 88.8% after the awareness session. 64.2% felt that stray animal populations should be controlled to prevent rabies transmission. This proportion very significantly increased to 83.5% after the awareness session.

Table 1.Significance of change in knowledge and awareness after Educational Intervention about rabies in-general

Variable	Pre-session No. (%)	Follow-up No. (%)	Statistical Significance
Know about rabies	1180(92.2)	1280(100)	p >0.05
Rabies is caused by virus	621(48.5)	845(66.1)	p < 0.01
Rabies is a fatal disease	9569(74.6)	1232(96.2)	p < 0.01
Rabies cannot be cured	512(40.0)	856(66.8)	p < 0.01

Table 2.Significance of change in knowledge and awareness after Educational Intervention related to animals responsible for rabies transmission

Variable	Pre-session No. (%)	Follow-up No. (%)	Statistical Significance
Dog	1236(96.5)	1280(100)	p >0.05
Cat	715(55.8)	1023(79.9)	p < 0.01
Monkeys & Wild animals	108(8.4)	652(50.9)	p < 0.01
Goat, sheep, donkey, pig, Horse etc	75(6.0)	228(17.8)	p <0.05
Rat, Squirrel	325(25.3)	152(11.8)	p < 0.05
Hen & Birds	12(0.9)	6(0.4)	p >0.05

Table 3.Significance of change in knowledge and awareness after Educational Intervention related to Mode of Transmission

Variable	Pre-session No. (%)	Follow-up No. (%)	Statistical Significance
Bite	1163(93.1)	1280(100)	p <0.05
Scratch	235(18.3)	563(43.9)	p < 0.01
Lick	145(11.3)	346(27.1)	p < 0.01
Milk	78(6.1)	135(10.5)	p >0.05
Touch	23(1.7)	19(1.5)	p > 0.05

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Table 4.Significance of change in knowledge and awareness after Educational Intervention related to Symptoms of rabies in animals

Variable	Pre-session No. (%)	Follow-up No. (%)	Statistical Significance
Excessive frothing	963(75.2)	1052(82.1)	$p < 0.05$
Unprovoked biting	469(36.6)	856(66.8)	$p < 0.01$
Lethargy & drowsiness	142(11.3)	208(16.2)	$p > 0.05$

Table 5.Significance of change in knowledge and awareness after Educational Intervention related to Symptoms of rabies in humans

Variable	Pre-session No. (%)	Follow-up No. (%)	Statistical Significance
Animal like behaviour	625(48.8)	118(9.2)	$p <0.01$
Insanity	442(34.5)	308(24.1)	$p <0.05$
Fits/ epilepsy	286(22.3)	263(20.5)	$p < 0.05$
Hydrophobia	256(20.0)	1056(82.5)	$p < 0.01$

Table 6.Significance of change in knowledge and awareness after Educational Intervention related to Treatment of bite wound

Variable	Pre-session No. (%)	Follow-up No. (%)	Statistical Significance
Wash with water	978(76.4)	1008(78.7)	$p > 0.05$
Application of irritants	485(37.8)	210(16.4)	$p <0.01$
Wash with soap & water	712(55.6)	1178(92.1)	$p < 0.01$
Application of antiseptic	386(30.1)	685(82.5)	$p < 0.01$

Table 7.Significance of change in knowledge and awareness after Educational Intervention related to Vaccination and prevention of transmission

Variable	Pre-session No. (%)	Follow-up No. (%)	Statistical Significance
Vaccine is required for exposed person	1196(76.4)	1274(78.7)	$p < 0.01$
Vaccine schedule has 5 injections	523(40.8)	908(70.9)	$p < 0.01$
Animals should be vaccinated	1023(79.9)	1137(88.8)	$p < 0.05$
Stray animals should be decreased	823(64.2)	1069(83.5)	$p < 0.01$

Conclusion

The present study has shown that a brief, focused 'educational intervention' is an effective method to enhance college students' knowledge and awareness regarding rabies. The improvement in knowledge was sustained even after one month after the 'educational intervention.' Use of multimedia and an interactive question-and-answer session boosts students' enthusiasm to gain knowledge. This study finds that college students can comprehend the various aspects regarding rabies easily and may help spread the knowledge and awareness to their houses and neighborhoods. Rabies awareness sessions are effective in increasing college students' knowledge and awareness of rabies and should be conducted regularly in colleges. More such studies on a larger scale will further endorse the efficacy of awareness drives on rabies.

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