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A Study to Assess the Effectiveness of Video-assisted Teaching Programme on Knowledge Regarding Prevention and First Aid Management of Snakebite Among Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) Workers in Selected Areas at Wayanad

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Abstract

This study aimed to assess the impact of a video-assisted instructional program on the awareness of snake bite prevention and first aid practices among MGNREGS workers in Meppadi Panchayath, Wayanad. Using a quasi-experimental one-group pre-test post-test research approach, the study included 60 participants selected through convenient sampling. The participants' demographics revealed a varied distribution, with the majority falling within the 36–45 year age bracket (35%) and having an educational background of 8–12th standard (86.6%). The study found that none of the participants had received previous training regarding snake bite prevention. The video-assisted teaching program significantly improved participants' knowledge levels, shifting from an average level (64%) to a good level (87%). The statistical analysis indicated a significant association between pre-test knowledge scores and the level of education (p value = 0.03 < 0.05), highlighting the effectiveness of the program. However, no significant associations were observed with other demographic variables, including age, religion, and working experience. In conclusion, the video-assisted teaching program proved to be effective in enhancing knowledge about the prevention and first aid management of snake bites among MGNREGS workers. The findings underscore the importance of tailored educational interventions, especially considering the significant impact on individuals with varying levels of education.

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INTRODUCTION

Snake bite is an acute life threatening, time limiting medical emergency and one of the major public problems in the tropical and subtropical region. There are more than 2,500 distinct snake species distributed across the Earth, inhabiting every continent except Antarctica, which is too

frigid for their survival. Nearly 300 snake species inhabit in India and the varying habitats across the country, of which, more than 60 are venomous, 40+ mildly venomous and 180 are non-venomous. There are primarily two categories of snakes: venomous snakes and non-venomous snakes [1]. A majority of snakes, in fact, are not venomous, with fewer than one-third of them possessing venom, and only around 300 species are potentially lethal to humans. Venomous snakes are typically categorized into one of two venom types: hemotoxic venom, which affects the blood, and neurotoxic venom, which impacts the nervous system. These reptiles can be found across the globe, inhabiting all continents except Antarctica, where the extreme cold prevents their existence [2, 3].

Every year, close to 60,000 individuals in India succumb to snakebite envenoming, with the majority of fatalities occurring in rural areas where various human and ecological factors increase the likelihood of snake encounters and subsequent bites. India's agrarian workers are particularly affected. In contrast to many other serious health conditions, highly effective treatment strategies exists. Most of the death and the complications related to snake bites are preventable by making safe and effective use of anti-venom [4, 5].

A special group called the MGNREGS workers are at higher risk for snake bite envenomation as they are more likely to work in the field. The Mahatma Gandhi National Rural Employment Guarantee Act 2005, formerly known as the National Rural Employment Guarantee Act or NREGA, is an Indian labour and social security law enacted on August 23, 2005, during the UPA government led by Prime Minister Manmohan Singh [6–8]. The main goal is to guarantee the "right to work" by offering a minimum of 100 days of paid employment annually to at least one family member, thereby improving livelihood security in rural regions. Additionally, the Act seeks to accomplish diverse objectives, such as preserving the environment, empowering women in rural areas, diminishing rural-urban migration, and fostering social equity [9].

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of video-assisted teaching programme on knowledge regarding prevention and first aid management of snakebite among Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) workers in selected areas at Wayanad.

OBJECTIVES

1. To evaluate the understanding of snake bite prevention and initial aid procedures among MGNREGS workers.
2. To evaluate how effective a video-assisted teaching program is in enhancing knowledge about snake bite prevention and first aid management among MGNREGS workers.
3. To investigate the association between the understanding of snake bite prevention and first aid management among MGNREGS workers and specific demographic variables.

Hypothesis

- *H1:* There is a notable disparity between the average pre-test and post-test knowledge scores of MGNREGS workers both prior to and following the video-assisted teaching program on snake bite prevention and first aid management, with a significance level of 0.05.
- *H2:* There is a significant association between the pre-test knowledge score and specific demographic variables at a significance level of 0.05.

MATERIALS AND METHODS

The investigators adopted quantitative approach for this study. The institutional ethical committee granted ethical clearance, and content validity was verified by experts. The pilot study was conducted among 6 MGNREGS workers under Meppadi Panchayath, Wayanad. The main study was conducted in Meppadi Panchayath among 60 samples on 29/092022 to 30/09/2022. Convenient sampling technique was used to select samples. A 45 min video-assisted teaching program was executed to evaluate the knowledge of MGNREGS workers on snake bite prevention and first aid. The study

employs a self-administered semi-structured questionnaire, with the dependent variable being the understanding of snake bite prevention and management. The independent variable is the video-assisted teaching program, while personal variables encompass age, religion, education, working experience in the MGNREGS scheme, and prior knowledge. Subjects provided informed consent after a thorough explanation of the study's purpose. Following the establishment of a positive rapport with the participants, a questionnaire was administered to gather data. As per the instruction, they marked their responses and returned the tool. Data were collected from 30 participants per day on an average. The complete duration for the tool's administration was approximately 1 h. The score was graded as follows:

Mark Grading

21–25 Excellent,
16–20 Good,
11–15 Average, and
0–10 Poor.

RESULTS

Table 1 displays data indicating that in the pre-test, the majority of participants (64%) possessed average knowledge, while 8% exhibited good knowledge, and 28% demonstrated poor knowledge regarding the prevention and first aid management of snake bites. During the post-test, 87% of the subjects had good knowledge, 8% had excellent knowledge and only 5% had average knowledge regarding the prevention and first aid management of snake bite. Hence the result showed that there was significant increase in the knowledge score on prevention and first aid management of snake bite among MGNREGS workers.

Table 1. Frequency and percentage distribution of the subjects based on the knowledge regarding prevention and first aid management of snake bite before and after video-assisted teaching programme.

Knowledge score	Pre-test		Post-test	
	F	***%***	***F***	***%***
Excellent	0	0%	5	8%
Good	5	8%	52	87%
Average	38	64%	3	5%
Poor	17	28%	0	0%

The information displayed in Table 2 indicates that the initial knowledge score range was 12, which subsequently decreased to 10 in the post-test. The mean pre-test knowledge score was 12.27 with a standard deviation of 2.58. The mean post-test knowledge score was 18.03 with a standard deviation of 1.80. The pre-test knowledge score had a median of 13, and this value increased to 18 in the post-test.

Table 2. Comparison of range, mean, median, standard deviation of pre-test and post-test knowledge score.

Knowledge score	Range	Mean	Median	Sd
Pre-test	12	12.27	13	2.58
Post-test	10	18.03	18	1.80

Table 3 clearly depicts that the mean post-test knowledge score (18.03) of MGNREGS workers on knowledge regarding the prevention and first aid management of snake bite after the video-assisted teaching programme was significantly higher than the mean pre-test knowledge score (12.27). The p-value obtained was less than 0.001 which showed that the result was highly significant.

Here, the p-value of education is less than 0.05 (0.03) so there is an association between post-test knowledge and education. The p-value of age, religion and working experience is greater than 0.05, so it is not statistically significant (Table 4).

Table 3. Shows significant difference in the pre-test and post-test knowledge scores of subjects on prevention and first aid management of snake bite.

Knowledge score	Mean	SD	't' Value	P-value	Significance
Pre-test	12.27	2.58	–13.28	<0.001	S*
Post-test	18.03	1.80	–13.28	<0.001	S*

S level of significance at 0.05.*

Table 4. Association of pre-test knowledge regarding prevention and first aid management of snake bite and selected demographic variables.

Variables	X^2 Value	Df	P-value	Inference
Age	4.55	6	0.60	Ns
Religion	0.74	6	0.99	Ns
Education	10.74	4	0.03	S*
Working experience	4.78	6	0.57	Ns

S Level of significance at 0.05,*
NS: not statistically significant.

DISCUSSION

A cross-sectional single centred observational study was conducted among 156 cases of Rural agrarian workers in Ahmedabad, Gujarat to assess the level of knowledge regarding the clinical profile of snake bite and the age group where snake bites most frequently occur. Structural questionnaire was given. Data were analysed using EPI2000. Mean and frequencies for each variable are calculated. The result showed that majority (67.4%) of the snake bite victims were in the age group between 15 and 45 years and 40% only had proper knowledge regarding prevention and first management of snake bite and its clinical profile. 64% of the samples had no adequate knowledge. Thus, this aligns with the aim of assessing the level of knowledge concerning the prevention and first aid management of snakebites [10]. In our research, the initial assessment indicated that 28.33% of the entire sample exhibited insufficient understanding of snakebite prevention and first aid management, while 63.33% demonstrated a moderate level of knowledge. 8.33% of samples had good knowledge and 0% samples had excellent knowledge regarding prevention and first aid management of snakebite.

CONCLUSION

Out of 60 samples who participated in the study, the highest percentage of sample (35%) belongs to 36–45 years age group and majority of the samples were from Muslim religion (35%). Most of the samples had an educational qualification of 8–12th standard (68%) and none of the samples received any training related to prevention and first aid management of snake bite.

Majority of the source of information is from textbook, followed by mass media, journal content and from other source.

The knowledge level of the samples showed a drastic increase after the administration of video-assisted teaching programme from average (64%) to good (87%). None of them had poor knowledge. The p-value for education (0.03) was <0.05, It is statistically significant. As a result, the video-assisted teaching program proved to be successful in enhancing knowledge about snakebite prevention and first aid management among MGNREGS workers. Demographic variables like age, religion, and working experience did not show any notable correlation, except for education. Consequently, a significant association was observed between the pre-test knowledge score and the level of education.

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