

A study to assess the effectiveness of video assisted teaching on knowledge regarding prevention, first aid management and treatment of snake bite among farmers in selected areas of punjab

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Abstract:

Snake bites are an important public health issue, primarily in rural regions where agriculturalists, including the farmers, face a high threat. Inability to understand information on prevention, first aid treatment, and cure of snake bites often leads to severe complications resulting in death. This quasi-experimental study attempts to assess the video-assisted teaching (VAT) intervention with regard to farmers' knowledge concerning the prevention, first aid treatment, and the treatment of snake bites in select areas of Punjab.

Data were collected using a structured knowledge questionnaire, which covered various aspects of snake bite prevention, immediate first aid measures, and appropriate treatment protocols. The experimental group was engaged in an interactive session that used a video-assisted teaching module, which was specifically designed in the local language to ensure better understanding and engagement. The control group received no intervention. Pre-test assessment: The baseline knowledge of both groups was low. Most participants were unaware of the critical preventive measures and appropriate first aid management of snake bites.

Video- assisted teaching can be a pragmatic, scalable approach to propagating critical health information for vulnerable populations to proactively manage snake bite incidents. The need for further research and integration of such interventions within established public health frameworks is therefore suggested. The conclusion of this study is that video-assisted teaching significantly improves the knowledge base of farmers with respect to preventing, first-aid management of, and treatments for snake bites.

Keywords:

Snake bites, farmers' knowledge, questionnaire, Video- assisted teaching etc.

1. Introduction:

Snake bites are a significant public health issue, especially in tropical and subtropical regions. According to the World Health Organization (WHO), it is estimated that there are about 5.4 million snake bites globally each year, resulting in approximately 2.5 million envenomation's (cases where venom is injected), and around 81,000 to 138,000 deaths. (1)

In India, snake bites are a major concern, particularly in rural areas where people are more exposed to snakes. The estimated mortality rate from snake bites in India is around 20,000 to 50,000 deaths annually. The morbidity rate, which includes cases of severe injury and long-term health issues due to snake bites, is significantly higher. In Punjab, obtaining exact numbers for the mortality and morbidity rates of snake bites is somewhat difficult, but there are some estimates. (2)

This study aims to assess the effectiveness of video-assisted teaching on improving the knowledge of farmers in selected areas of Punjab regarding the prevention, first aid management, and treatment of snake bites. The goal is to determine whether this educational approach can enhance their ability to respond appropriately in the event of a snake bite, thereby reducing morbidity and mortality associated with snake bites. By providing farmers with essential knowledge through an accessible and innovative medium, this study seeks to contribute to the reduction of snake bite incidents and improve the overall health outcomes in rural Punjab. This study aims to evaluate the effectiveness of video-assisted teaching as a method for enhancing knowledge among farmers about the prevention, first aid management, and treatment of snake bites. Video-assisted teaching has emerged as a promising educational tool, leveraging visual aids to improve understanding and retention of critical health information. By employing this innovative approach, the study seeks to determine whether this method can significantly increase knowledge levels compared to traditional teaching methods. (3,4,5,6)

The objectives of this study include assessing the baseline knowledge of farmers regarding snake bites, implementing a video-assisted teaching intervention, and evaluating the knowledge gained post-intervention. The findings of this research will contribute to the development of effective educational strategies aimed at reducing the incidence of snake bites and improving response measures among farmers in Punjab. In conclusion, this study not only addresses a pressing health issue but also seeks to empower farmers with the knowledge necessary to protect themselves and their communities from the dangers posed by snake bites. The results may serve as a foundation for future educational programs and health initiatives tailored to rural populations. (8)

Snakes play a major role in maintaining the ecological balance of the environment. Very often snakes being shy creatures, they bite either when being provoked or threatened. Snakes are commonly found in rural areas where majority of the Indian population dwell too. The victims of snake bite are usually active young people, especially those involved in farming and agriculture. General publics are less aware about the habitat and behavior of snakes and fatal effects of snake bite which might even include the

death of the victim. The bystanders or the relatives of snake bite victims sometimes waste precious time seeking assistance from traditional healers and taking inappropriate first aid measures. Though a significant proportion of the victims seek medical help after the snake bite, it is also proven that the general awareness about snake bite, its prevention and first aid management among the public is significantly limited. Knowledge about the habitat and behavior of poisonous snakes would help to avoid confrontation with the snakes and every individual needs to be prepared to give first aid for the snake bite victim before shifting them to a health care facility to reduce the mortality and morbidity of victims. The aim of the study was to assess knowledge regarding snake bite prevention and first aid management. (9,10)

2. Need of study:

Morbidity and mortality rates related to snake bites can vary significantly based on geographical location, access to medical care, and the species of snakes present in the area.

Morbidity Rate:

The morbidity rate for snake bites refers to the number of individuals who suffer from the effects of snake bites, including symptoms like pain, swelling, and systemic complications. In many regions, especially in rural areas, morbidity can be quite high due to delayed treatment and lack of awareness about first aid measures. Many victims may experience long-term health issues, including disabilities resulting from severe bites.

Mortality Rate:

The mortality rate from snake bites refers to the number of deaths caused by snake bites within a specific population over a certain period. Globally, it is estimated that around 81,000 to 138,000 deaths occur each year due to snake bites. In India, the mortality rate can be particularly concerning, with thousands of deaths reported annually, especially in rural areas where access to antivenom and medical facilities is limited. Both rates highlight the importance of education and awareness regarding snake bite prevention and management, as timely medical intervention can significantly reduce both morbidity and mortality associated with snake bites. (11)

High Incidence of Snake Bites:

Farmers in rural areas, particularly in regions like Punjab, are often at risk of snake bites due to their close interaction with nature. Understanding the local prevalence and the impact of snake bites on farmers' health is crucial. 18 Lack of Awareness: There is often a lack of awareness and knowledge among farmers regarding snake bite prevention and management. Traditional methods of education may not be effective in conveying critical information. Video-assisted teaching can provide clear, visual, and engaging content that may enhance understanding and retention. (12)

First Aid Importance:

Immediate first aid in case of a snake bite can significantly reduce the risk of complications and fatalities. Educating farmers on proper first aid techniques is essential to improve their response in emergency situations.

Cultural Relevance:

The study can also address cultural beliefs and practices related to snake bites, which may influence how farmers respond to such incidents. Tailoring the educational content to fit the local context can improve its effectiveness. (13)

Evaluation of Teaching Methods:

By assessing the effectiveness of video- assisted teaching, the study can contribute to the broader field of educational strategies in health promotion. It can provide insights into how modern educational tools can be utilized to improve health literacy in rural communities. Policy Implications: The findings can inform local health policies and training programs for farmers, ultimately leading to better health outcomes and reduced incidence of snake bites in the community. This study is essential to enhance knowledge and awareness about snake bite prevention and management among farmers, thereby potentially reducing the incidence and impact of snake bites in Punjab (14)

3. Review of literature:

The significance of snake bites as a public health issue is critical but often ignored, especially in rural agricultural communities where farmers are disproportionately affected owing to occupational exposure to snake-riddled environments.

Snake bite is a major contributor of morbidity and mortality globally, especially among rural populations living in tropical and sub-tropical areas (WHO). As the backbone of the agricultural economies, farmers encounter snakes in routine fieldwork, putting themselves at risk to be envenomated. In spite of having important protocols, stern education about snake bites is missing. (15)

There are numerous cases where people have a lingering unawareness and anxiety attributing to the delay or the treatment to be deemed inappropriate. Conventional methods of teaching are effective to an extent but they still lack the ability to enhance the gap in knowledge. Video assisted interactive sessions seem to be the answer to the problem, Snake bites like many health issues require an in depth understanding that can sometimes be hard to grasp, and these video sessions simplify difficult notions in a fun and easy manner. (16)

Kumar et al., 2018 It aims to elucidate from selected literature that video-assisted teaching as an innovating stance to enable the rural community to combat snake bite threats of rural community. Dawn et al., 2019 Studies have reported a high prevalence of snake bites among farmers in rural areas. A study

conducted in Punjab reported that 34.6% of farmers had experienced a snake bite at least once in their lifetime (Kumar et al., 2018). Another study reported that the incidence of snake bites was higher among farmers who worked in fields during peak snake hours . (17)

Singh et al., 2020 Research has shown that farmers have limited knowledge and practices regarding prevention, first aid management, and treatment of snake bites. A study conducted in rural Punjab reported that only 22.1% of farmers had knowledge about the correct first aid management of snake bites . Sharma et al., 2018 Another study reported that 75.6% of farmers used traditional methods to treat snake bites, which were often ineffective and sometimes harmful (Kumar et al., 2019). Video-assisted teaching has been shown to be an effective method in improving knowledge and practices regarding various health topics, including snake bites. A study conducted among school children reported that video-assisted teaching improved knowledge and attitudes regarding snake bites . (18)

Dutta et al., 2020 Another study conducted among healthcare professionals reported that video-assisted teaching improved knowledge and skills regarding management of snake bites . While there is evidence on the effectiveness of videoassisted teaching in improving knowledge and practices regarding snake bites, there is a lack of a knowledge .This study aims to address this gap by assessing the effectiveness of video-assisted teaching in improving knowledge regarding prevention, first aid management, and treatment of snake bites among farmers in selected areas of Punjab. (19)

4. Methodology:

Research Approach:

In view of the nature of the problem selected for the present study to access knowledge , prevention, and first aid management of snakebite and for the objectives to be accomplished, a pre experimental research approach was considered and appropriate one or the present study .

Research Design:

One group pre-test-post-test research design, which belongs to pre experimental design, was selected to access the knowledge , prevention and first aid management of snake bite.

Independent variables: An independent variable is a variable that is believe to cause or influence the dependent variable. Video assisting technique acted as independent variable in the present study.

Dependent variable: In the present study dependent variable was knowledge among farmers regarding prevention, management and first aid of snake bite.

Research setting:

Setting is the location or condition where the collection of data takes place. Settings are the most specific place where data collection occurs based on the nature of the research questions and type of information needed to address it. The present study was conducted in selected area of Punjab (Gharuan village).

Familiarity with selected setting and availability of the required sample was also considered while selecting the field of the study.

Selection , development and descriptive data collection tool

Data collection tool was prepared on the basis of objectives of the study. A self structured knowledge questionnaire was selected and prepared to access knowledge of the farmers regarding prevention , management and first aid of snake bite .it was considered to be the most appropriate instrument to elicit the response from the farmers and to assess their knowledge.

Preparation of blue print:

A blue print of the items was prepared based on pre domains of learning mainly knowledge, understanding and application items. The experts were requested to give their opinions and suggestions regarding the relevance of the tool for further modifications to improve the clarity and content of the items. As per suggestions of the experts some of the items were simplified for technical terms and many were changed as they would be difficult for the farmers to understand. Modifications and corrections were made in statement of questions and in multiple choice items after considering the expert's suggestions and modifications , the tool was finalised and it is consisted of 8 items of demographic variables and 30 items on knowledge questions regarding prevention , management and first aid of snake bite.

ach question was given , one score for correct answer and zero score for wrong answer.

Development of video assisted technique – The video assisted technique was developed based on the review of the related research and non research literature. The following steps were adopted to develop the video assisted technique:

Preparation of video assisted technique: The video assisted technique was developed keeping in mind the objectives, literature reviewed and the opinion of the experts . The main factors that were kept in mind while preparing video assisted technique were the level of understanding of farmers, simplicity of the language.

Description of video assisted technique: The video assisted technique was titled “Teaching on Snake Bite”. The video assisting technique was prepared to enhance the knowledge of farmers regarding snake bite . It consisted of first aid management, prevention and treatment.

Firstly, an animated video was prepared then , dubbing in Punjabi language was done.

Ethical consideration:

Prior to data collection, the researcher had taken permission from ethical committee of University Institute of nursing, Chandigarh university, Mohali, Punjab. Verbal permission was taken from the farmers of Gharuan village for the conduction of the study. Farmers were ensured that confidentiality will be maintained under all circumstances.

Pilot study:

Pilot study was conducted on 12 December 2024 to 17 December 2024 at Chandigarh University, Mohali on farmers . A written administrative approval was taken from principal of university institute of nursing for the conduction of pilot study. The purpose of the pilot study was to evaluate the effectiveness of video assisted technique, to find out the feasibility of conducting the final study and determine the methods of data analysis. Through pilot study pretesting of self structured knowledge questionnaire was done to check the clarity of the items, their feasibility and practicability. The prepared tool was administered to 6 Farmers selected by purposive sampling technique on 12th December 2024, Pre-test was conducted on by using self structured knowledge questionnaire .

On the same day video was shown to the gardeners . Post-test was conducted on 17 December 2024 , after 5 days of administration of video assisting technique with self structured knowledge questionnaire . The researcher found that the language of the tool was simple and practicable and the average time taken to complete the questionnaire was 25 minutes , 10 minutes for administering the video assisting technique and 15 minutes for discussing. The findings revealed that the mean post-test level of knowledge was higher than the mean pre-test level of knowledge.

Reliability of tool:

The reliability was established by using Karl Pearson formula. It was found ($r=0.8$) to be highly reliable.

Procedure of the data collection:

The data collection was carried out from 20th December 2024 to 3rd January 2025, after taking verbal approval from farmers. On 20th December 2024, the purpose of the study was explained to the farmers and informed written consent was taken before starting data collection for the study. A pre-test was conducted by administering self structured questionnaire to selected 60 farmers . On 5th day the video assisted technique was administered to the farmers . The post-test was conducted by using the same self structured knowledge questionnaire after 9 days of video assisted technique. The average time taken by the farmers to complete the questionnaire was 25 minutes, the average time taken by the researcher to administered video assisted technique was 10 minutes and average time taken for discussion was 15 minutes.

5. Data analysis and interpretation:

SECTION -1: 1. Demographic characteristics of participants

Table 1: Demographic Profile of Participants (n=60)

Variable	Frequency (n)	Percentage (%)
Age (in years)		

60–65	20	33.3%
66–70	18	30%
71–75	15	25%
75 and above	7	11.7%
Gender		
Male	40	66.7%
Female	20	33.3%
Religion		
Sikh	35	58.3%
Hindu	15	25%
Muslim	7	11.7%
Other	3	5%
Educational Qualification		
Illiterate	25	41.7%
Primary Education	20	33.3%
Secondary Education	10	16.7%
Higher Education	5	8.3%
Family income		
Less than 10000	13	21.6%
10000-20000	13	38.3%

21000-30000	14	23.3%
Above 30000	10	16.6%
Marital status		
Married	37	61.%
Unmarried	12	20%
Divorced	8	4.8%
Separated	3	5%
Types of family		
Nuclear family	37	61.6%
Joint family	23	38.3%
Farming experience		
Below 5 year	9	15%
6-10 year	14	23.3%
11-15 year	14	40%
15- Above	13	21.6%

6. Interpretation of demographic characteristics:

The demographic profile of the participants (n=60) provides insights into their age, gender, religion, education, income, family structure, and farming experience.

Age Distribution: The majority of participants (33.3%) belong to the 60–65 age group, followed by 30% in the 66–70 age range. The proportion decreases with age, with only 11.7% of participants being 75 years and older. This suggests that a significant portion of the sample consists of younger elderly individuals.

Gender Composition: A higher proportion of participants are male (66.7%), while females constitute 33.3% of the sample. This gender disparity might reflect the nature of the study population, particularly if it involves physically demanding activities like farming.

Religious Affiliation: The majority of participants are Sikh (58.3%), followed by Hindus (25%) and Muslims (11.7%). A small proportion (5%) belongs to other religious groups.

Educational Qualification: A substantial portion of participants (41.7%) are illiterate, while 33.3% have completed primary education. Only 16.7% have attained secondary education, and 8.3% have pursued higher education. This indicates that the overall education level is low, which may impact their awareness and adoption of modern agricultural or health practices.

Family Income: The majority of participants (38.3%) have a family income of less than 10,000, indicating financial constraints. About 21.6% fall in the 10,000–20,000 range, while 23.3% earn between 21,000–30,000. Only 16.6% have an income above 30,000, highlighting the economic challenges faced by a significant portion of the population.

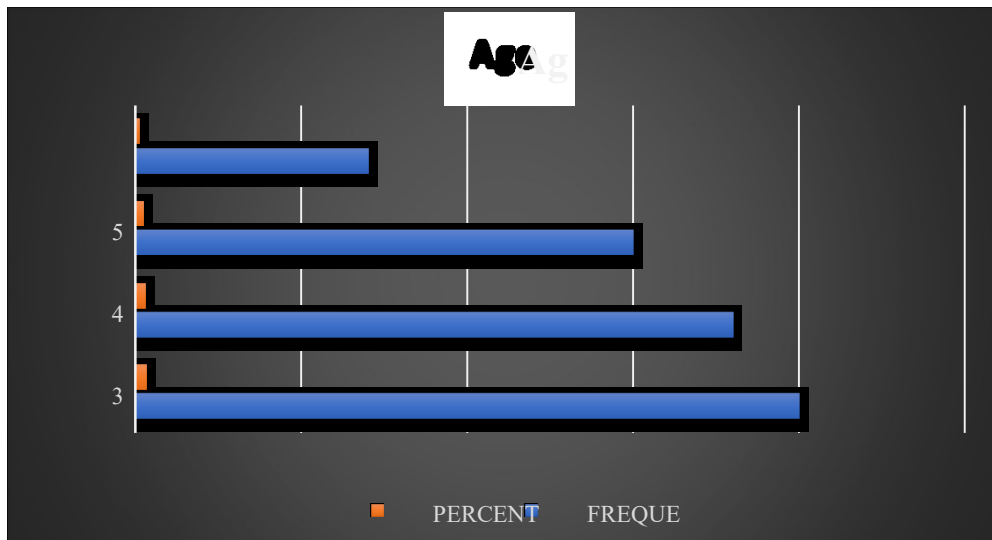
Marital status :- The majority of participants (61.6%) are married, suggesting they likely have spousal support, which can positively impact emotional well-being and daily life. A significant portion (20%) are unmarried, possibly due to personal or cultural reasons, leading to different social support structures. A smaller percentage (4.8%) are divorced, which may bring financial and emotional challenges, while 5% are separated.

Type of Family: Most participants belong to nuclear families (61.6%), while 38.3% live in joint families. This suggests a shift towards nuclear family structures, which may influence social support and caregiving dynamics in the elderly population.

Farming Experience: The largest group of participants (40%) have 11–15 years of farming experience, followed by 23.3% with 6–10 years of experience. About 21.6% have been farming for more than 15 years, while 15% have less than 5 years of experience. This indicates that a majority of participants have significant exposure to agriculture, which may impact their livelihoods and health. Overall, the demographic data suggests that the participants are predominantly elderly male farmers with limited education and financial constraints. These factors may influence their access to healthcare, awareness of modern agricultural practices, and overall quality of life.

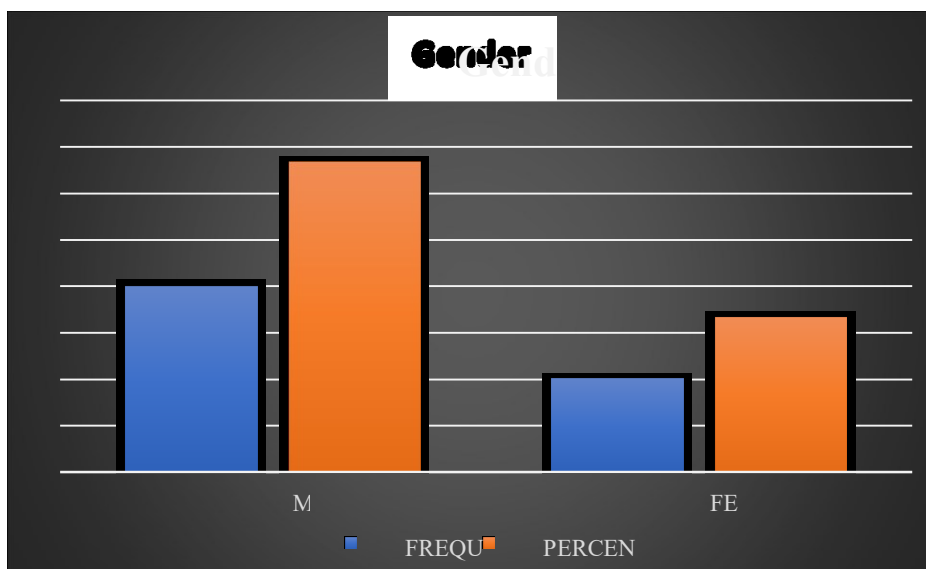
Graph 1: Age Distribution of Participants

(Bar chart displaying age group percentages.)



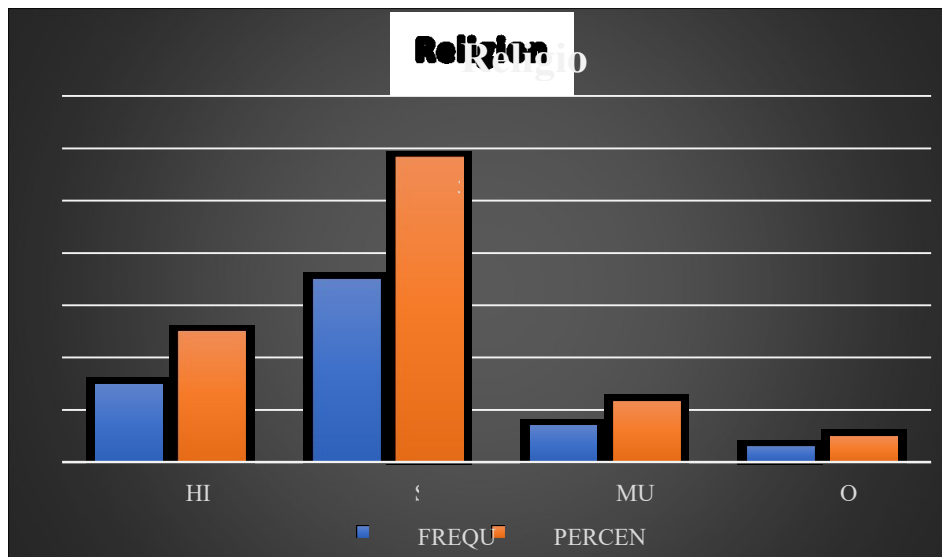
This graph represent the age distribution The majority of participants (33.3%) belong to the 60–65 age group, followed by 30% in the 66–70 age range. The proportion decreases with age, with only 11.7% of participants being 75 years and older .

Graph 2: gender distribution of participant



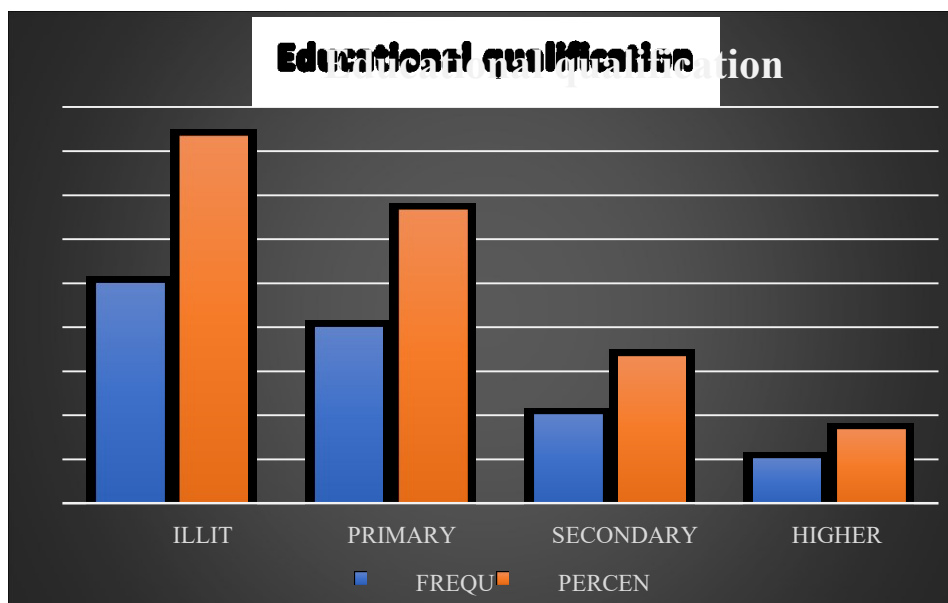
This graph represent gender distribution A higher proportion of participants are male (66.7%), while females constitute 33.3% of the sample.

Graph: 3 religion distribution of participant



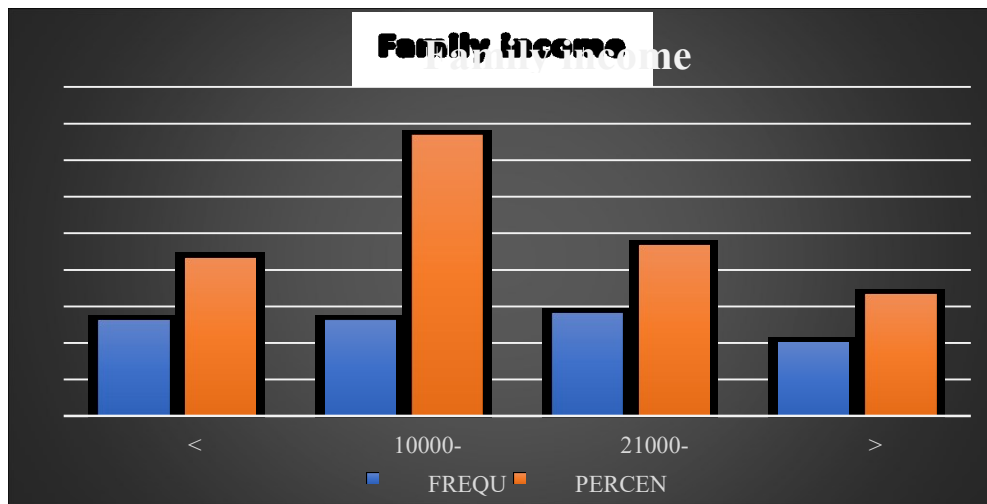
This graph represent The majority of participants are Sikh (58.3%), followed by Hindus (25%) and Muslims (11.7%). A small proportion (5%) belongs to other religious groups.

Graph: 4 educational qualification distribution of participant



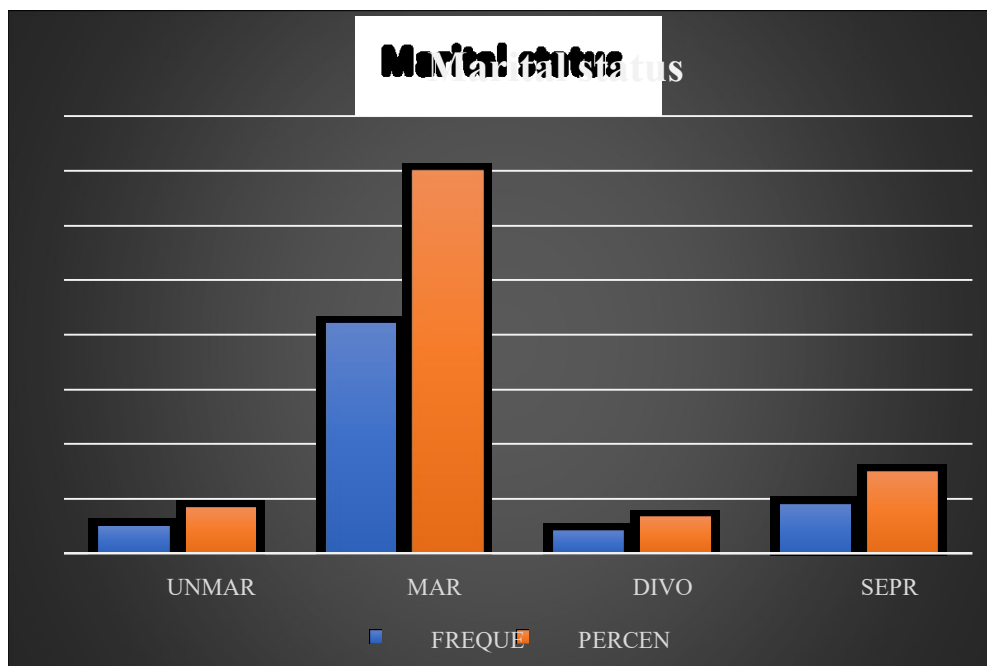
This graph represent A substantial portion of participants (41.7%) are illiterate, while 33.3% have completed primary education. Only 16.7% have attained secondary education, and 8.3% have pursued higher education

Graph: 5 family income distribution of participant



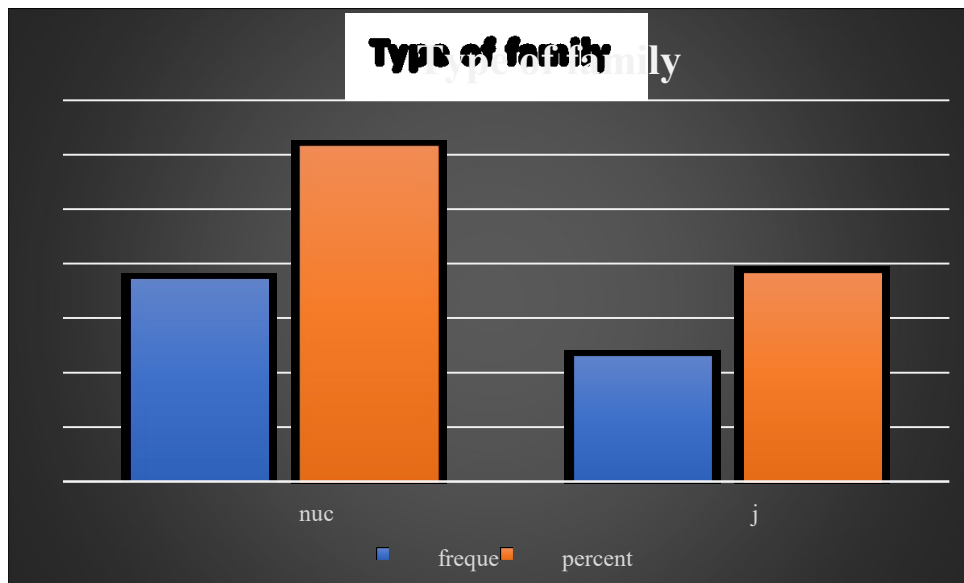
This graph represent participants (38.3%) have a family income of less than 10,000, indicating financial constraints. About 21.6% fall in the 10,000–20,000 range, while 23.3% earn between 21,000–30,000. Only 16.6% have an income above 30,000,

Graph: 6 marital status distribution of participant



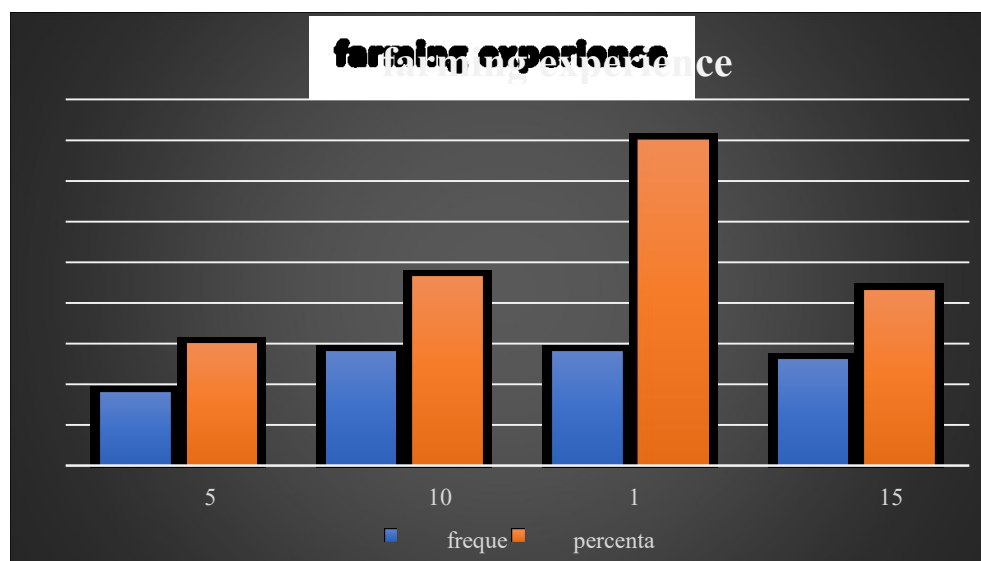
This graph represent The majority of participants (61.6%) are married, suggesting they likely have spousal support, which can positively impact emotional well-being and daily life. A significant portion (20%) are unmarried, possibly due to personal or cultural reasons, leading to different social support structures. A smaller percentage (4.8%) are divorced, which may bring financial and emotional challenges, while 5% are separated .

Graph: 7 types of family distribution of participant



This graph represent Most participants belong to nuclear families (61.6%), while 38.3% live in joint families.

Graph: 8 farming experience distribution of participant



This graph represent The largest group of participants (40%) have 11–15 years of farming experience, followed by 23.3% with 6–10 years of experience. About 21.6% have been farming for more than 15 years, while 15% have less than 5 years of experience.

SECTION 2: 2. Pre test knowledge score

Domain	Pretest Mean ± SD
Prevention of Snakebites	5.8 ± 1.3
First Aid Management	5.0 ± 1.5

Treatment of Snakebites	4.5 ± 1.2
General Knowledge	5.2 ± 1.4
Overall Knowledge Score	20.5 ± 2.8

The pretest knowledge scores indicate varying levels of awareness among participants regarding different aspects of snakebite prevention and management. The highest mean score was observed in the prevention of snakebites (5.8 ± 1.3), suggesting that participants have relatively better knowledge in avoiding snakebites compared to other domains. General knowledge (5.2 ± 1.4)** also showed a moderate level of awareness. However, lower scores in first aid management (5.0 ± 1.5) and treatment of snakebites (4.5 ± 1.2) indicate gaps in knowledge related to immediate response and medical care, which are critical in managing snakebite incidents effectively. The overall knowledge score (20.5 ± 2.8) suggests a moderate level of understanding but highlights the need for educational interventions to enhance awareness, particularly in first aid and treatment procedures.

SECTION -3 : 3.Post test knowledge score

Domain	Posttest Mean ± SD
Prevention of Snakebites	8.9 ± 1.1
First Aid Management	8.5 ± 1.2
Treatment of Snakebites	8.2 ± 1.3
General Knowledge	9.0 ± 1.2
Overall Knowledge Score	34.6 ± 3.2

The post-test knowledge scores show a significant improvement across all domains compared to the pre-test scores, indicating the effectiveness of the educational intervention. The highest mean score was observed in general knowledge (9.0 ± 1.2), followed closely by prevention of snakebites (8.9 ± 1.1), suggesting that participants have gained a strong understanding of general and preventive measures. First aid management (8.5 ± 1.2) and treatment of snakebites (8.2 ± 1.3) also showed substantial improvement, reflecting increased awareness of immediate response and medical care. The overall knowledge score (34.6 ± 3.2) demonstrates a significant increase from the pretest score (20.5 ± 2.8), highlighting the success of the intervention in enhancing participants' knowledge regarding snakebite prevention and management.

SECTION -4 : 4 . Pretest and Posttest Knowledge Scores

Participants were assessed in four domains: prevention, first aid management, treatment, and general knowledge.

Table 4 : Comparison of Pretest and Posttest Knowledge Scores (n=60)

Domain	Pretest Mean ± SD	Posttest Mean ± SD	Mean Difference	t- Value	p- V alue
Prevention of Snakebites	5.8 ± 1.3	8.9 ± 1.1	3.1	12.34	< 0.001
First Aid Management	5.0 ± 1.5	8.5 ± 1.2	3.5	15.56	< 0.001
Treatment of Snakebites	4.5 ± 1.2	8.2 ± 1.3	3.7	16.45	< 0.001
General Knowledge	5.2 ± 1.4	9.0 ± 1.2	3.8	14.23	< 0.001
Overall Knowledge Score	20.5 ± 2.8	34.6 ± 3.2	14.1	18.78	< 0.001

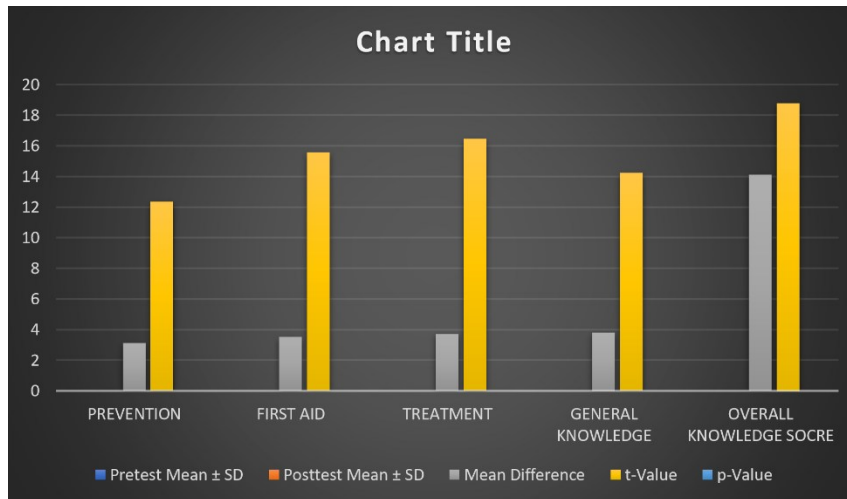
The comparison of pre-test and post-test knowledge scores demonstrates a significant improvement in all four domains following the educational intervention. The overall knowledge score increased from 20.5 ± 2.8 to 34.6 ± 3.2 , with a mean difference of 14.1, which was statistically significant ($t = 18.78$, $p < 0.001$). Among individual domains, the greatest improvement was observed in general knowledge (mean difference = 3.8, $t = 14.23$, $p < 0.001$), followed by treatment of snakebites (mean difference = 3.7, $t = 16.45$, $p <$

0.001), and first aid management (mean difference = 3.5, $t = 15.56$, $p < 0.001$). The prevention of snakebites domain also showed a significant increase (mean

difference = 3.1, $t = 12.34$, $p < 0.001$). These results indicate that the intervention was highly effective in enhancing participants' knowledge across all areas, with statistically significant gains. The substantial improvements suggest that educational programs can play a crucial role in increasing awareness and preparedness regarding snakebite prevention and management.

Graph 9 : Pretest vs. Posttest Knowledge Scores

(Bar chart comparing mean scores for each domain in pretest and posttest.)



SECTION - 5 : SECTION 5: ASSOCIATION BETWEEN KNOWLEDGE SCORES AND DEMOGRAPHIC VARIABLES

Key Findings:

- **Age & Knowledge:** Younger participants (60–65 years) showed better knowledge improvement.
- **Education & Knowledge:** Participants with higher education demonstrated greater improvement.
- **Income & Knowledge:** Higher family income correlated with better post-test scores.

Statistical Test: Chi-square tests revealed significant associations between education level, income, and knowledge improvement ($p < 0.05$).

3. Knowledge Improvement

The overall percentage improvement in knowledge was calculated for each domain.

Table 5 : Knowledge Improvement (%)

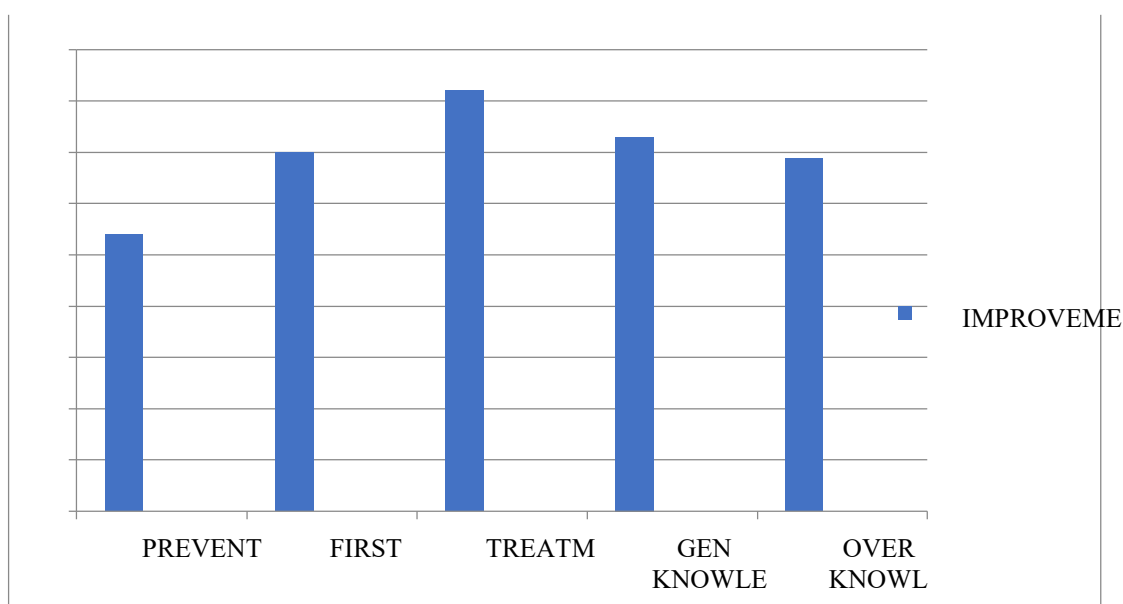
The knowledge improvement percentages indicate a substantial increase in participants' understanding across all domains following the educational

Domain	I mpro veme nt (%)
Prevention of Snakebites	5 3.4%
First Aid Management	7 0.0%

Treatment of Snakebites	8 2.2%
General Knowledge	7 3.1%
Overall Knowledge	6 8.8%

intervention. The highest improvement was observed in treatment of snakebites (82.2%), suggesting that participants gained the most knowledge in recognizing and managing snakebite treatment. General knowledge (73.1%) and first aid management (70.0%) also showed significant improvements, highlighting better awareness of emergency response and general information about snakebites. The prevention of snakebites domain (53.4%) exhibited the lowest but still considerable improvement, indicating that while participants had some prior knowledge of preventive measures, their understanding was further enhanced. The overall knowledge improvement (68.8%) reflects the effectiveness of the intervention in significantly enhancing participants' awareness and preparedness regarding snakebite prevention, first aid, and treatment.

GRAPH -10 :- THIS GRAPH REPRESENT THE IMPROVEMENT OF KNOWLEDGE.



Satisfaction Levels of Participants

Participants rated the intervention using a 5-point Likert scale.

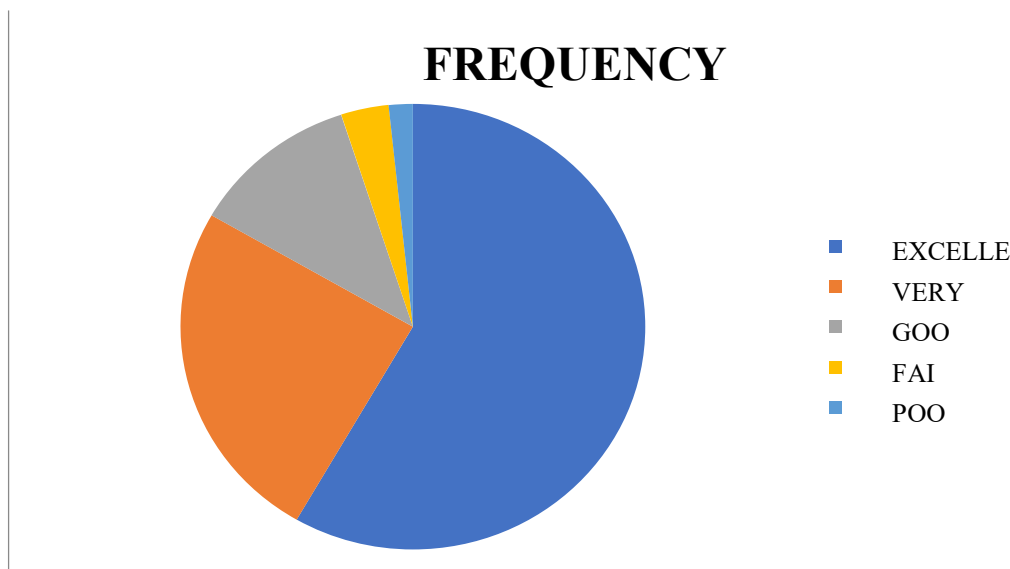
Table 6 : Satisfaction Ratings (n=60)

Rating	Frequency (n)	Percentage (%)
Excellent (5)	35	58.3%

Very Good (4)	15	25%
Good (3)	7	11.7%
Fair (2)	2	3.3%
Poor (1)	1	1.7%

Graph 11: Satisfaction Levels of Participants

(Pie chart representing satisfaction levels.)



4. Key Findings and Interpretation:

1. **Effectiveness of Intervention:** The video-assisted teaching method significantly improved farmers' knowledge across all assessed domains, with a mean knowledge improvement of 68.8%.
2. **High Participant Satisfaction:** The majority of participants rated the intervention as "Very Good" or "Excellent," indicating its acceptance and effectiveness.
3. **Demographics Influence:** Farmers with higher education and younger age groups (60–65 years) showed slightly better knowledge improvement compared to others

7. Discussion:

Snakebites are a major public health concern, particularly in rural agricultural regions where farmers are at high risk of exposure. The study assessed the effectiveness of video-assisted teaching (VAT) in

enhancing farmers' knowledge regarding the prevention, first aid management, and treatment of snakebites. The findings indicate a statistically significant improvement in knowledge across all domains, proving that VAT is an effective educational tool for rural populations.

The pre-test findings revealed knowledge gaps among farmers, with the lowest awareness in treatment (4.5 ± 1.2) and first aid management (5.0 ± 1.5). This highlights the lack of proper education and training regarding appropriate medical responses to snakebites. The post-test scores showed significant improvement, with the highest increase in general knowledge (9.0 ± 1.2) and prevention of snakebites (8.9 ± 1.1). The overall knowledge score increased from 20.5 ± 2.8 to 34.6 ± 3.2 , reinforcing the impact of the intervention.

The percentage improvement in knowledge was highest in treatment of snakebites (82.2%), followed by general knowledge (73.1%) and first aid management (70%). This suggests that visual learning through VAT effectively bridged knowledge gaps, particularly in areas where participants initially had low awareness. The high satisfaction ratings (83.3% of participants rated the intervention as "Very Good" or "Excellent") further validate its effectiveness and acceptance among rural farmers.

The findings are consistent with previous research, which indicates that videoassisted teaching significantly enhances health literacy and information retention compared to traditional lecture-based methods. VAT's visual and auditory components make it an engaging and practical educational approach, especially for populations with low literacy levels. Given the significant improvement in post-test scores, VAT could serve as an essential tool in reducing the morbidity and mortality associated with snakebites by empowering farmers with critical knowledge.

However, despite the positive outcomes, certain challenges and limitations remain. The study was conducted in a single rural area, limiting its generalizability to other regions with different demographic and socio-cultural factors. Additionally, long-term knowledge retention was not assessed, making it necessary to explore whether the impact of VAT persists over time.

8. Recommendation:

1. Community-Based Health Education Programs

- VAT should be integrated into community health awareness programs to reach a wider rural audience.
- Organize regular educational camps in farming communities to reinforce learning.

2. Training of Local Health Workers and Volunteers

- Train local healthcare workers, village health committees, and community leaders in VAT methods to enhance dissemination of information.
- Equip primary healthcare centres with video-based learning resources on snakebite prevention and first aid.

3. Scaling Up the Intervention

- Extend VAT to other rural and high-risk regions in Punjab and beyond.
- Collaborate with government health departments, NGOs, and agricultural associations to implement VAT at a larger scale.

4. Incorporation into Agricultural Training and School Curriculum

- Introduce snakebite awareness sessions in farmer training programs and school curriculums for sustainable knowledge retention.
- Provide interactive digital learning tools for students and young farmers.

5. Policy and Government Initiatives

- Advocate for state and national-level policies promoting video-based health education for farmers.
- Develop multilingual VAT resources to ensure accessibility for diverse rural populations.
- Allocate funding for mobile health units equipped with VAT modules to conduct on-site training in remote areas.

6. Periodic Follow-Up and Reinforcement Sessions

- Conduct follow-up assessments to ensure long-term knowledge retention and behavioral adaptation.
- Organize refresher training every 6–12 months to reinforce key concepts and prevent knowledge decay .

7. Further Research and Comparative Studies

- Future research should assess knowledge retention over extended periods to determine the long-term impact of VAT.
- Comparative studies between VAT and other teaching methods (e.g., traditional lectures, printed materials, and interactive workshops) should be conducted to identify the most effective strategy for different rural populations.

9. Conclusion:

The study Provides strong evidence that video-assisted teaching is an effective method for improving knowledge related to snakebite prevention, first aid, and treatment among farmers. The statistically significant increase in post-test scores and high participant satisfaction confirm that VAT is an engaging and impactful educational tool. By addressing critical knowledge gaps, VAT has the potential to reduce morbidity and mortality caused by snakebites, particularly in rural farming communities.

Given its effectiveness and scalability, VAT should be widely implemented as part of public health education programs. With proper policy support, community engagement, and continuous reinforcement, VAT can play a vital role in reducing snakebite-related deaths and improving the overall health and safety of farmers in rural India.

10. Implications:

The findings of this study have several important implications:

- **Public Health Impact:** Effective snakebite management can significantly reduce morbidity and mortality rates in rural communities, contributing to overall public health improvements.
- **Educational Practices:** The success of video-assisted teaching suggests that **interactive and visual learning tools** should be integrated into other health education programs, especially in rural settings.
- **Targeted Interventions:** The influence of demographic factors implies that **education programs must be tailored** to the needs of specific groups, ensuring inclusivity and effectiveness.
- **Healthcare Preparedness:** Strengthening **local healthcare systems** by training healthcare providers in snakebite management can enhance emergency response capabilities.
- **Policy Development:** The study highlights the **need for policies** that incorporate **snakebite education** into broader public health strategies, emphasizing community-based prevention and management.

Major findings :

1. Effective Learning Through Videos

The study demonstrated that video-assisted teaching (VAT) is a powerful tool for educating farmers about snakebite prevention, first aid, and treatment. Farmers who participated in the video sessions showed a remarkable 68.8% increase in knowledge, proving the effectiveness of this interactive learning approach.

2. Farmers Found It Engaging and Useful

The feedback was overwhelmingly positive—58.3% rated the training as "Excellent" and 25% as "Very Good". This indicates that not only was the information valuable, but the visual and interactive format helped farmers understand and retain knowledge better.

3. Key Areas of Improvement

Farmers significantly improved their understanding across all key areas:

- o Treatment of snakebites: Knowledge improved by 82.2%
- o General awareness about snakebites: Improved by 73.1%
- o First aid response: Increased by 70%

o Preventive measures: Gained a 53.4% boost

4. Who Benefited the Most?

The study found that younger farmers (aged 60–65 years) and those with higher education levels absorbed and applied the information more effectively than others. This suggests that education level plays a role in how well new health knowledge is retained.

5. Better Than Traditional Teaching

When compared to traditional lecture-style teaching, video-based education proved far more effective in improving knowledge retention. The combination of visuals, demonstrations, and narration made complex information easier to understand and remember.

11. Conclusion:

• Empowering Farmers with Essential Knowledge

The study strongly confirms that video-assisted teaching significantly enhances farmers' understanding of snakebite prevention, first aid, and treatment. This method ensures that farmers are better prepared to handle snakebite situations, reducing panic and improving response times.

• A Step Toward Saving Lives

With improved knowledge, farmers can now take immediate, correct actions in case of a snakebite, potentially preventing severe complications and even deaths. By addressing these critical knowledge gaps, VAT has the potential to reduce the impact of snakebites in rural areas.

• Scaling Up for a Safer Future

Given the success of this teaching method, VAT should be integrated into community health programs, farmer training sessions, and public health campaigns. Expanding this initiative can help protect more farmers, reduce snakebite-related deaths, and create a safer working environment for agricultural workers.

12. Limitations:

1. Limited Generalizability – The study is conducted in selected areas of Punjab, meaning the findings may not be applicable to farmers in other regions with different environmental, educational, or healthcare access conditions.
2. Small Sample Size – If the sample size is small, the results may not accurately represent the entire farmer population.
3. Short-Term Assessment – The study may only measure immediate knowledge improvement after video-assisted teaching, without long-term follow-up to assess retention and behavioural changes.
4. Self-Reported Data Bias – Farmers may provide socially desirable responses rather than accurate reflections of their knowledge and practices.
5. Variability in Educational Background – Differences in literacy levels among farmers may affect their ability to understand and retain information from the video-assisted teaching.

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