

**ASSESSMENT OF KNOWLEDGE AND PERCEPTIONS
ABOUT SNAKEBITES AMONG FARMERS IN PALAKKAD
DISTRICT**

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requirements for the award of
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DECLARATION

I hereby declare that this dissertation titled “Assessment of Knowledge and Perceptions about Snakebites among Farmers in Palakkad District, Kerala” is the bonafide record of my original research. It has not been submitted to any other University or Institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

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CERTIFICATE

Certified that the dissertation titled “Assessment of Knowledge and Perceptions about Snakebites among Farmers in Palakkad District, Kerala” is a record of the research work undertaken by Amritha S in partial fulfilment of the requirements for the award of the degree of Master of Public Health under my guidance and supervision.

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Glossary of Abbreviations

WHO	World Health Organization
SBE	Snakebite Envenomation
NTD	Neglected Tropical Diseases
SBE-WG	Snakebite Envenomation Working Group
ASV	Anti-Snake Venom
APL	Above Poverty Line
BPL	Below Poverty Line

Abstract

Background: Snakebite is considered a neglected tropical disease, leading to approximately 2.7 million envenomation, 138,000 fatalities, and 400,000 disabilities reported globally each year. India contributes to nearly 50 percent of the global snakebite deaths. It commonly affects the people of rural communities, especially groups like farmers, agricultural workers, hunters, and herders. This study was conducted to explore the knowledge, perceptions, and practices regarding identifying snakes, differentiating venomous and non-venomous snakes, first aid, symptoms and signs, and preventive measures of snakebite among the farmers of Palakkad district.

Methods: A cross-sectional study was carried out involving 260 participants from two Krishi-bhavans in the Palakkad district of Kerala. A self-designed questionnaire was utilized for data collection, and analysis was performed using SPSS version 28.

Results: The median age of the study participants was 59 years, with a range of 28-87 years. Only 35 percent of participants could differentiate between venomous and non-venomous snakes, and 41.9 percent could identify the names of snakes correctly. More than 80 percent of participants had adequate knowledge of signs and symptoms and preventive measures of snakebite envenomation. Individuals living in areas without overgrown vegetation had higher odds of having inadequate knowledge of signs and symptoms [OR= 2.59 (95% C.I: 1.285-5.218)] and first-aid measures [OR=1.9 (95% C.I: 1.137- 3.137)] of snakebite envenomation compared to individuals living in areas with overgrown vegetation. Participants with up to primary level of education [OR=0.2 (95% C.I:0.080-

0.502)] and education above secondary school [OR=0.37 (95% C.I: 0.136-1.007)] had lower odds of having inadequate knowledge about preventive measures of snakebite envenomation compared to those with no formal education. Participants who were engaged in multiple seasons of cultivation had higher odds of having inadequate knowledge of preventive measures of snakebite envenomation [OR=2.45 (95% C.I: 1.110-5.429)] compared to those involved in single crop cultivation. Nearly 50 percent of the participants believed in “sarpadosham”.

Conclusion: Knowledge of snake identification and differentiating venomous and non-venomous snakes was comparatively less when compared to other knowledge components. Also, there was a higher proportion of participants who believed in religious practices related to snakes. So, there is a serious need to enhance knowledge and awareness to reduce the burden of snakebite-related morbidity and mortality among farmers.

CHAPTER- 1

INTRODUCTION

1.1 Background

Snakebite is a common, life-threatening condition that affects the lives of many people worldwide, especially in tropical and sub-tropical countries- most affected in Asia, Africa, and Latin America (WHO, 2023). India contributes half the number of global snakebite deaths, averaging 58,000 deaths annually (Mohapatra et al., 2011). It is a neglected health condition that requires serious public health attention. In 2017, the World Health Organization included snakebite envenomation in the list of neglected tropical diseases (WHO, 2023).

Snakebite envenomation is caused by the injection of toxins by the venomous snakes. The consequences of snakebite envenomation can range from mild discomfort to disability or even death.

The most affected communities are those who are involved in activities like agriculture, fishing, and hunting or those who live in poorly constructed houses (Martins et al., 2019). Human-snake interactions are more common in rural communities, and unfortunately, proper health facilities for snakebite envenomation are lacking in such areas (Maciel Salazar et al., 2021).

In addition to that, a large proportion of snakebites are under-reported in health facilities, as most of the victims either go to traditional healers or treat the envenomation with home-remedies until severe envenomation effects start to show (Chippaux, 2017). Many of them often do wrong first-aid methods, such as applying tight tourniquets, cutting the wound,

and sucking out the venom, which can lead to harmful effects, and further delays in getting the treatment (Schurer et al., 2022).

Even though snakebite is one of the serious occupational hazards among farmers, it is largely neglected. The limited access and practical difficulty in using protective measures against snakebites further add to the risk of envenomation.

Proper knowledge and awareness are thus required so that the morbidity and mortality associated with snakebites can be substantially reduced among farm workers.

1.2 REVIEW OF LITERATURE

The literature review was done through a broad search on PubMed, Google Scholar, PLOS Neglected Tropical Diseases, and the other documents cited in the text.

Keywords

Knowledge, perceptions, snakebite, farmers, snakebite beliefs, snakebite envenomation, India, Kerala.

1.2.1 Snakebite Envenomation

According to the World Health Organisation (WHO), “snakebite envenoming is a potentially life-threatening neglected tropical disease caused by toxins in the bite of a venomous snake. Envenoming can also be caused by having venom sprayed into the eyes by certain species of snakes that can spit venom as a defensive measure” (WHO, 2023). Envenomation is the development of signs and symptoms following the snakebite.

A study conducted in Ghana found that snakebite envenoming can lead to complications like hematoma, impairment and even loss of vision, intracerebral haemorrhage, compartment syndrome, and amputations (Aglanu et al., 2022). Venomous snake bites can trigger critical medical emergencies, including shock, paralysis, bleeding, kidney issues, and extensive tissue damage. Failure to promptly address these complications could potentially lead to fatalities or permanent disabilities (Bhalla et al., 2014). Access to appropriate antivenom can prevent most deaths and severe outcomes from snakebites. Venomous snake bites can lead to serious medical situations like shock, paralysis, bleeding, kidney problems, and severe tissue damage, which can result in death or permanent disability if not treated promptly. Access to appropriate antivenom can prevent most deaths and severe outcomes from snakebites (Waiddyanatha et al., 2022).

In India, four species of venomous snakes are responsible for the deaths and disabilities of human beings. They are referred to as “the big four”- spectacled cobra (*Naja naja*), common krait (*Bungarus caeruleus*), saw-scaled viper (*Echis carinatus*) and Russell’s viper (*Daboia russelii*). Common krait is the most poisonous among them. Viper bites, which are vasculotoxic is responsible for severe morbidity and mortality (Redewad et al., 2014).

Most snakebite deaths happen because patients are far from a health facility, unavailability of anti-venom, poor quality of health care, and usage of traditional treatments, and patients aren't referred to a hospital in time (Salve et al., 2020).

1.2.2 Global Context

Every year, approximately 5.4 million people worldwide suffer snake bites, resulting in 1.8 to 2.7 million cases of venom poisoning. About 81,410 to 137,880 people die annually from snake bites, and roughly three times as many individuals experience amputations or other permanent disabilities due to snakebite envenomation (WHO, 2023). Southeast Asia, Sub-Saharan Africa, South Asia, South East Asia and Latin America are the most affected parts of the world. The highest number of envenomings was estimated for South Asia (121,000), followed by Southeast Asia (111,000), and East Sub-Saharan Africa (43,000). The lowest numbers were estimated for Central Europe and Central Asia (Kasturiratne et al., 2008).

In 2017, the World Health Organization (WHO) classified snakebite as a significant neglected tropical disease (NTD), and in 2020, it established a goal to cut snakebite-related illnesses and deaths by 50 percent by 2030 (WHO, 2022).

The inclusion of snakebite envenoming (SBE) in its portfolio of neglected tropical diseases (NTDs) by the World Health Organization (WHO) has brought significant attention to this

issue. To address SBE, the WHO's Department of the Control of Neglected Tropical Diseases formed a 28-member SBE Working Group (SBE-WG) (Bhaumik et al., 2023). This group aims to assist the WHO in creating a roadmap to prevent, reduce, and manage the burden of snakebites and implement an integrated program in regions affected by snakebites. Rather than treating snakebite envenoming as a separate problem, the SBE-WG believes it should be integrated into national and regional health plans and aligned with global commitments like universal health coverage and the Sustainable Development Goals (Gutiérrez et al., 2013).

1.2.3 Indian Context

India, with more than a billion people, had the most snakebites and deaths compared to any other country. The country witnessed a shocking 1.2 million snakebite deaths between 2000 and 2019, averaging 58,000 deaths annually (Suraweera et al., 2020). Despite this, snakebite remains underestimated as a cause of accidental death in modern India because many snakebite victims seek treatment from traditional village healers, and most fatalities occur outside government hospitals, resulting in underreporting of cases (Thapar et al., 2015). In rural India, most deaths happen at home without prior attention from qualified healthcare workers, so the causes are often not medically reported. A community-based study in India reported 40,900 to 50,900 snakebites in 2005, which was 30 times higher than the official reports published by the government (Mohapatra et al., 2011).

According to government records, approximately 1,123 deaths from snakebites were reported in India in 2013, and 1,008 deaths were reported in 2014, but studies have suggested that the actual number of deaths is much higher, estimated to be between 45,900 and 50,900 annually in India, with nearly 97 percent of these deaths occurring in rural areas,

with the highest number of snakebite deaths reported in West Bengal, Uttar Pradesh, Andhra Pradesh, Tamil Nadu, Bihar, and Maharashtra (Salve et al., 2020).

1.2.4 Kerala Context

Kerala, located in southern India, comprises 14 districts, with Malabar being its northern region consisting of six districts: Kozhikode, Malappuram, Kannur, Kasaragod, Palakkad, and Wayanad, where the incidence of snakebites is higher (Kumar et al., 2018). The state is home to around 37 species of venomous snakes. Besides the "Big 4" species (common cobra, common krait, Russell's viper, and saw-scaled viper), other prominent species found here include the hump-nosed pit viper, Malabar pit viper, bamboo pit viper, and banded krait (Simpson and Norris, 2007).

Snakebite envenomation continues to be a significant health concern in Kerala, which is known for high snake activity. Over five years, from 2015 to 2019, Kerala witnessed nearly 25,000 snakebite cases and 55 fatalities (Pillay et al., 2021).

In 2019, the highest number of snakebite cases were reported in Kozhikode (1,125), followed by Kannur (695) and Palakkad (639). However, there has been a decreasing trend in the mortality rate due to snakebites, with 20 deaths reported in 2015, 12 in 2016, 13 in 2017, and only three in 2018 (Kumar, 2019).

Kerala is a largely agricultural-dependent economy (Economic review, 2017). Kerala grows most of India's pepper and has many natural rubber fields. They also grow coconut, tea, coffee, cashews, and spices like cardamom, vanilla, cinnamon, and nutmeg, all important cash crops. Rice is a big part of farming, too, with about six hundred varieties of paddy grown in Kerala's big rice fields. Plus, lots of people have their gardens, which also adds to farming in Kerala (Agri farming, 2022).

Given the significant agricultural activities in Kerala, where farmers are highly engaged in various farming practices, understanding their awareness and attitudes towards snakebites is essential for effectively preventing and managing snakebite incidents.

1.2.5 Knowledge and Perceptions of Snakebites

Knowledge

Knowledge of prevention and appropriate first aid measures for snakebite are essential public health measures to reduce the incidence and severity of snakebite envenoming. It's important to provide quick and proper first aid and treatment for snakebite victims to lower the risk of death and complications (Michael et al., 2018). According to the WHO, suitable first aid includes moving the person away from where they were bitten, taking off tight clothing and jewelry, keeping them still, and securing the bitten limb to prevent it from moving too much. It's also important to reassure the person and keep a close eye on them while taking them to the nearest health facility (Afroz et al., 2023).

Many people in rural areas practice first-aid methods like applying tight tourniquets, cutting the bitten wound with sharp instruments, sucking out the blood, believing that it will emit venom from the body, and using locally available herbs. These activities delay the hospital treatments and exacerbate the snakebite-induced complications (Samuel et al., 2020).

The most common first-aid measure most people follow is applying tight tourniquets above the bitten site. This gives the victims a feeling that the venom flow is inhibited. This is a very harmful method, as it can cause severe health impacts like necrosis, embolism, ischemia, and even loss of the affected parts, mostly the limbs (Centers for Disease Control and Prevention (CDC)., 2021).

The absence of skills to identify snakes and knowledge about preventing snakebites makes people living in agricultural areas more likely to get bitten by snakes. Many people often

mistake non-venomous snakes for venomous ones, which raises the risk of snakebites in rural areas (Pandey et al., 2016). It's important to know which snakes are venomous and which are not. Correctly identifying snake species not only helps prevent snakebites but also reduces the likelihood of multiple bites to a victim or those providing first aid (Jayathilaka and Weeratunga, 2024).

Perceptions

In communities where farming is prevalent, snakes can be helpful by keeping rodents away from crops, which helps farmers. For example, Luo communities in western Kenya see some snakes as symbols of fertility and good harvests, which affects how they see these snakes and also some misunderstandings and stories get passed around, especially in places where snakes are common and snakebites happen a lot (Wood et al., 2022).

In India, snakes are considered as deities, with a belief that failing to worship or show disrespect to them may result in snake bites. In South Asia, traditional treatments for snakebites included chanting, cutting the bite area, trying to suck out the venom, and using herbal medicine or snake stones (Thomas Beeson, 2021).

1.2.6 Beliefs about Snakebites

Snakes have been devoted for ages in Indian culture and are also part of many Hindu mythology. Therefore, harming snakes is believed to bring bad luck to the people. This is believed to be “sarpadosham”. There are numerous temples devoted to snake worship in Kerala, and a lot of people visit those and perform variety of rituals to please the snake god (Das and Balasubramanian, 2017).

In a study done in the Palghar district of Maharashtra, the tribal community believed that God sent snakes living in agricultural fields to protect their farms. They worshiped the Snake God (Nagdevta) by offering coconut fruit and milk to the Snake idol in the Temple.

So, they don't harm these snakes. However, in residential areas, snakes were either caught by snake rescuers or killed by the local people. These were the two different beliefs found in the same place. The community also believed that a female snake would seek revenge if someone killed a male snake (Chaaithanya et al., 2021).

There have been reports of snake stones (black stones) being used to treat snakebites since ancient times, but there is very little scientific evidence about whether or not it works. Many countries, including India, still use alternative and unproven methods to treat snakebites. However, using these methods has been linked to higher risks of wound infections and more extended hospital stays for snakebite victims. That's why it's essential to educate the community to stop using these practices and unproven methods for treating snakebites (Steinhorst et al., 2021).

1.2.7 Traditional Healers

Studies have shown that only half of snakebite victims manage to get to medical facilities, and many have already tried traditional treatments, which often don't work. As a result, there's not much information about victims who only used traditional remedies, didn't use any treatment, or died before reaching the hospital (Schurer et al., 2022). Traditional healers usually do not keep any records of the patients who approach them, nor do they reveal any of their treatments and medicines (Nann, 2021). In Myanmar, a study found that traditional healers had a 95 percent success rate, but this could be probably due to the reason that snakebites they treated might have been from non-venomous snakes or due to the dry bites by the venomous snakes (Mahmood et al., 2019).

Another study shows that one of the main reasons why snakebite victims and their families don't seek proper treatment quickly is because of traditional beliefs about snakes and snakebites. They feel more comfortable choosing cheaper and more available traditional

treatments first, even though they might not get to the hospital until it's an emergency. Another reason is that they worry about the cost of treatment in private hospitals, even though government hospitals offer free therapy for snakebites (Samuel et al., 2020).

1.2.8 Vulnerable Groups

Snakebites are often seen as an occupational disease for people who work on farms, raise cattle, rubber tappers, tea/coffee estate workers, or do other jobs in rural areas. Around the world, the number of deaths from snakebites is closely related to the proportion of people working in agriculture (Goldstein et al., 2021). Some features of farming systems determine how often people, livestock, and snakes come into contact, and specific farming methods can make snakebites more likely. For instance, as large palm oil, sugar cane, banana, or rubber plantations expand in tropical regions, they create new habitats where certain snake species can survive (Martins et al., 2019). Most bites happen while people are walking, working in fields, hunting, or sleeping outdoors (Nann, 2021).

In a modeling study done to explore the distribution of venomous snakes, access to health care, and anti-venom availability, it was found that 146.70 million people live in snakebite-prone areas lacking the basic healthcare facilities (Longbottom et al., 2018).

1.2.9 Farmers: vulnerable group prone to snakebites

The human-snakebite interactions are higher in rural tropical regions because of the overlapping of natural habitats of snakes and the high degree of labor-intensive agrarian economic activities (Aglanu et al., 2022).

One of the significant reason for snakebites in farmers is the intersection of the farming season with the breeding season of the prey of the snakes and also when the natural habitats of snakes get flooded in the rainy season (Metkar et al., 2023).

Rodents feed on grains, agricultural products, and other household goods, thus reducing the productivity in agriculture. These rodents are the prey of snakes. Considering this context, snakes are helpful for farmers, but at the same time, it also increase the risk of snakebites, as there is high chance that snakes come inside house and storage spaces to find their prey (Pandey et al., 2016)

Factors that influence the behaviors of both the farmers and snakes determine the risk of being bitten by snakes, that includes landcover, precipitation, and the interaction between humans and snakes. The changing climatic conditions when snakes and farmers are active, which impacts increased snakebites. Different crops require different work schedules, changing how likely snakebites occur during the rainy season and throughout the day. Also, the types of snakes vary depending on the crops and regions, which makes the human snake interactions more complicated and increases the risk of snakebites (Goldstein et al., 2021).

Many man-made environments for agricultural purposes, like rice fields, piles of rubbles, firewood, crop residues, and haystacks, make it ideal for the snakes to thrive (Whitaker, 2006).

1.2.10 Importance of Knowledge and Awareness in Preventing Snakebites

In a study from Tamil Nadu, interviews from snakebite victims from rural areas show that they suffer from a high socio-economic burden. Lack of awareness about snakebites was identified as the most critical contributing factor, resulting in complications, disabilities, deaths, and increases treatment costs (Samuel et al., 2020).

The limited knowledge among the public about the dangers of snakebite envenomation (SBE) is a significant factor leading to complications and increasing the number of deaths and disabilities caused by SBE, particularly among farmers (Sinha et al., 2023)

In Ghana, a program aimed at making sure medical teams can handle snakebites well and follow the proper steps led to much better care and a considerable decrease in the number of people dying from snakebites when they looked at the findings before and after the intervention (Le et al., 2004).

Involving the community is the simplest method to reduce the incidence of snakebites, as prevention is easier than treating them later (Aglanu et al., 2023). Unfortunately, only a handful of initiatives or organizations are working toward this goal. One such effort is the Snakebite Healing & Education Society of India (SHE-India). It began as a personal project to support snakebite victims in India and has now become a nationwide organization with various grassroots activities. SHE-India advocates for better healthcare and education and works to decrease conflicts between humans and snakes (Kadam et al., 2021)

1.2.11 Palakkad: Kerala's granary

Palakkad constitutes one of Kerala's fourteen districts. The word Palakkad is derived from two Malayalam words, "Pala," meaning barren land, and "kadu," meaning forest. Agriculture is vital to the district's economy, with over half its population depending on it for their livelihoods (Govt. of Kerala, 2024). The main agricultural products include groundnut, tamarind, turmeric, various vegetables and pulses, mangoes, bananas, cotton, rubber, coconut, areca nut, and black pepper. These products generate significant revenue for the district each year, contributing greatly to its economy. The district is often called "the granary of Kerala" and "the Rice bowl of Kerala," due to its substantial annual rice production (Govt. of Kerala, 2016).

In Palakkad district, the land utilized for cultivation constitutes 11 percent of the total area under crops in Kerala (Govt. of Kerala, 2024).

It was found in a study conducted in estimating the district-wise snakebite envenomings in India, 1300 cases were reported alone from the Palakkad district of Kerala in the year 2018-2019 (Salve et al., 2020).

Considering the more significant proportion of people engaged in agriculture in Palakkad district, the risk of being bitten by snake is higher. Palakkad district is known for its rich biodiversity and diverse snake species. With such diversity comes an increased risk of snakebite incidents. Thus, it is important to understand how farmers perceive and respond to these risks. Overall, conducting a study on this topic will help in understanding the factors contributing to snakebite incidents among farmers in Palakkad district. This information can aid in implementing focused interventions and educational initiatives designed to decrease snakebite-related illnesses and fatalities while also enhancing the overall health and welfare of the farming community.

1.3 Rationale

India is a tropical country that experiences a significant number of snakebites. Since a large number of farmers are involved in agricultural activities, they spend most of the time in the farms, fields, forests a large number of farmers are engaged in agricultural activities; they spend most of their time in farms, fields, forests, and other rural environments. This increases the risk of being exposed to snakebites (Kasturiratne et al., 2008).

Agriculture remains the main livelihood for the majority of the population in Kerala. Considering this large population group, it is very important to study the knowledge, practices, and behaviors towards snakebites. There are many traditional beliefs and practices pertaining to snakebites. Identifying the misconceptions and wrong practices, will aid in bringing up the importance for awareness and training initiatives.

Even though people in living in the rural areas are affected by snakebites the most, they often face the challenge of traveling significant distances to access healthcare facilities where anti-venom is available. This time delay is an important cause for the morbidities and mortalities associated with snakebites.

The issue also failed to gain political attention, as the affected are mostly from marginal communities, urging public health attention, so that policies and interventions can be made to decrease the burden of snakebites (Kadam et al., 2021).

1.4 Research Question

- What is the level of knowledge and prevailing perceptions regarding snakebites among farmers in Palakkad district?
- What are the behaviors and practices related to snakebite prevention and management among farmers in Palakkad district?

1.5 Objectives

- To determine the levels of knowledge and perceptions about snakebites among the farmers of Palakkad district.
- To identify the behaviors and practices related to snakebite prevention and management among farmers in Palakkad district.

CHAPTER-2

METHODOLOGY

2.1 Study Design

The design of choice for the study was a cross-sectional survey among farmers and farm labourers of Palakkad district to assess the knowledge and perceptions about snakebites.

2.2 Study Type

The study used a quantitative approach.

2.3 Study Setting

The study area selected is the Palakkad district of Kerala, as it is known for cultivating a wide range of crops, including paddy. A majority of people in the district are involved in farming, and a high number of snakebite envenomation are reported from the district.

2.4 Study Population

The study population includes farmers and farm labourers involved in farming activities in the Palakkad district.

2.5 Inclusion Criteria

Farmers and farm labourers aged 18 years and older are actively engaged in farming.

2.6 Exclusion Criteria

Farmers and farm labourers who are not actively involved in farming activities, bedridden, and unwilling to participate in the study.

2.7 Sample Size Estimation

Estimation of sample size was done using open epi version 3.01 updated 2013/04/06, based on a systematic review and meta-analysis entitled “Assessing knowledge and awareness regarding snakebite and management of snakebite envenoming in healthcare workers and the general population” (Afsana Afroz *et al* ,2023), the proportion of people having good knowledge about identification of snakes, signs & symptoms of snakebites, first-aid, prevention, and management of snakebites was 60 percent. Taking the absolute precision as 10 percent and considering the desired confidence level as 95 percent, the estimated sample size was 92.

Assuming the intra-class correlation (ρ) =0.05 and an average cluster size of 30,

Design effect = $1 + 0.05 \times (30 - 1) \sim 2.5$

Sample size after applying the design effect = $92 \times 2.5 = 230$

Assuming a 10 percent non-response rate, 30 samples were added to the calculated sample size. Thus, the final sample size calculated was **260**.

2.8 Sample Selection Procedure

Multistage random sampling was used for the study. The sample selection procedure used for the present study is shown in Figure 1. Palakkad district has a total of ninety-five Krishi Bhavans, managed by the Department of Agriculture across different states in India, and serves as government institutions dedicated to agricultural affairs. Krishi Bhavan deals with formulating and implementing various state government programmes to augment production of food crops and cash crops in the state” (Wikipedia, 2023).

Two Krishi-bhavans were selected conveniently- namely Kannadi and Kollengode. Each Krishi-bhavan was subdivided into smaller groups called “Padashekaram”.

“ Padashekarams” are a collection of fields or other areas of lands, with or without a common outer bund, which is suitable for the adoption of a common cultivation programme or common agricultural operations including dewatering and irrigation” (Govt of Kerala, 2020). Five Padashekaram were randomly selected from each Krishi-bhavan, constituting ten Padashekarams from two Krishibhavans. From each of the Padashekarams, thirteen farmers and thirteen labourers were chosen randomly. The randomization was done in the R statistical software version 4.3.1.

Two-sixty participants were selected from two Krishi-bhavans, and one-thirty were selected from each Krishi-bhavan. To ensure equal representativeness, an equal number of farmers and farm labourers were chosen randomly: one-thirty farmers and one-thirty labourers.

Thirteen farmers and thirteen farm labourers were randomly selected, including twenty-six participants from each padashekarams.

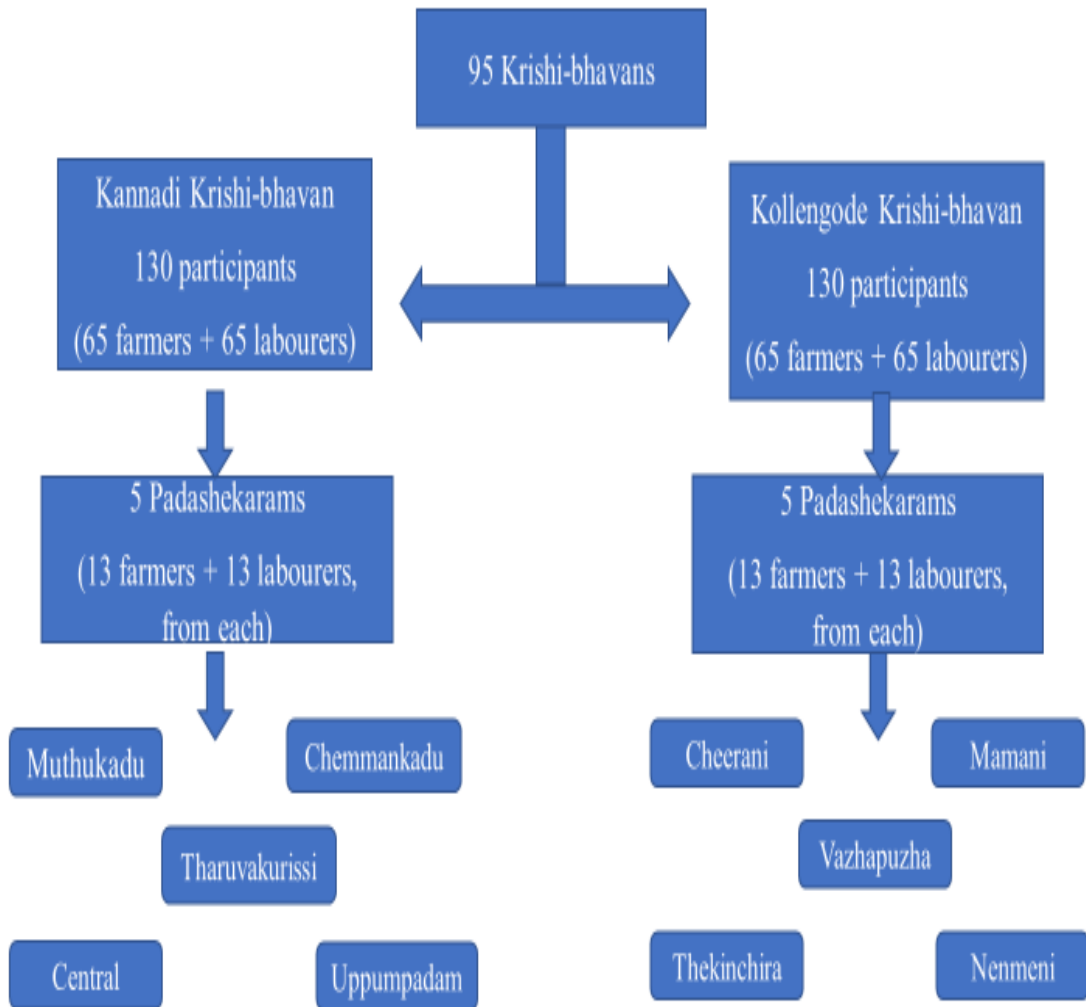


Figure 1 Flowchart showing multistage random sampling

2.9 Data Collection Procedure

The principal investigator conducted data collection using a structured questionnaire, which is provided in the appendix. Verbal permission was obtained from the respective Krishi-bhavan officers. The Padashekaram secretaries were contacted and informed about the study before going to the field. The principal investigator approached all the participants with the help of the respective Padashekaram secretaries.

Before the interview, participants received an information sheet detailing the study, and their consent was obtained before proceeding.

2.10 Data Collection Tool

A semi-structured questionnaire was prepared for the study. It was then translated to the local Malayalam language and then back-translated until it matched the English version. Each participant was interviewed for about 20 to 30 minutes. The questionnaires were filled out by the principal investigator using a hard copy of the form.

The components for assessing knowledge about snakebites included five parts, which were identification of snake (names), differentiating venomous and non-venomous snakes, signs and symptoms of the snakebite, first-aid measures during snakebite, and preventive methods of snakebites. All the components of the questionnaire were derived from a recent meta-analysis entitled "Assessing knowledge and awareness regarding snakebite and management of snakebite envenoming in healthcare workers and the general population" (Afroz et al., 2023).

The questionnaire was divided into ten sections consisting of the following components:

1. Socio-demographic details- includes the basic demographic features of the participant, like age, gender, and occupation. The participants' socioeconomic

status was evaluated using their ration cards, which were divided into below the poverty line (BPL) and above the poverty line (APL).

2. Farming practices- includes questions on the crops cultivated by the participants, the season in which they are engaged in farming, storage of crops, firewood, and harvest residues.
3. Knowledge of the identification of snakes- The identification of snakes was done by showing the photographs of commonly found snakes in the study area. There were pictures of 11 snakes- five venomous and six non-venomous snakes. One sheet had two colored pictures of the same snake species. Apart from the snake identification, the participants were also asked whether the snakes shown were venomous or non-venomous.

The list of snakes to be shown to the participants was prepared in discussion with experts of Snake Park, Malampuzha, Palakkad. Five venomous and six non-venomous snakes, constituting eleven snakes commonly found in the study area, were chosen. The local names of selected snake species were included in the tool.

4. Knowledge of symptoms of snakebite envenomation- A vignette was provided to the study participants, and questions on signs and symptoms of venomous snakebite were asked based on that.
5. Knowledge of first-aid measures- A vignette was used in this section also for a better understanding of the questions and also to ensure everyone is evaluating the same scenario, to assess the knowledge of the first-aid measures that are used by common people, such as tying a tourniquet, cutting the bite wound.
6. Knowledge of preventive measures- this section covered questions on the commonly practiced preventive measures against snakebites, such as using

protective wear while working in the field and clearing bushes around home or farms.

7. Treatment-seeking behavior- the type of treatment for snakebite that participants prefer.
8. Previous history of snakebites- this section had questions for those who had a history of snakebite, including the type of snake bite (venomous or non-venomous), site of the bite, time of the bite, type of snake bitten, and the type of treatment they have chosen.
9. Awareness programs included whether the participants had ever attended any awareness programs on snakebites.
10. Perceptions about snakebites- included questions on various perceptions and common beliefs about snakes and snakebites. Fear of encountering snakes and religious beliefs are some of the questions covered in the section.

2.11 Data Cleaning and Storage

The data collected in the hard copies were coded, entered, and cleaned in Microsoft Excel. The hard copies of the interview schedule are stored by the principal investigator. The privacy and confidentiality of subjects are ensured by analyzing the data and reporting the results without the identifiers of the applicators and their respective areas. Further, the data is securely stored by the principal investigator in an encrypted folder on the computer to prevent any loss of personal information.

2.12 Data Analysis and Statistical Methods

Data were analyzed using SPSS software version 28.

Descriptive statistics were represented as frequencies, percentages, mean, and medians.

The overall knowledge about snakebites was assessed based on five components- knowledge of snakes, identification of venomous snakes and non-venomous snakes, knowledge of symptoms, knowledge of first-aid measures, and knowledge of preventive measures of snakebite envenomation. The first two components were assessed by showing the pictures of eleven commonly found snakes in the study area. The participants had to identify the correct snake names and then tell whether it was a venomous or non-venomous snake. Each correct answer, one mark was allotted and zero mark were allotted for the wrong answer. Thus, eleven and zero were the maximum and minimum scores for each of the questionnaires on snake identification and the venomous nature of snakes respectively. After adding the individual scores, the mean score was computed. All participants with scores above the mean were categorized as having adequate knowledge, and those who scored mean and below mean were categorized as having inadequate knowledge.

Out of the 260 participants, 7 had ophidiophobia (fear of snakes), so they were reluctant to see the pictures of snakes. Taking this into consideration, the above-mentioned two components were assessed only for 253 participants, excluding the participants who were ophidiophobic.

The following three components, namely- knowledge of signs and symptoms, first-aid measures, and preventive measures of snakebite envenomation, consisted of five questions each, with five and zero as maximum and minimum scores, respectively. All the participants who scored five marks, were categorized as having adequate knowledge and those having below five marks as having inadequate knowledge. Considering that each component contributes to the overall assessment of knowledge about snakebites, it is important that lacking knowledge in any one component can significantly impact the overall expertise. This is because snakebite management requires a comprehensive

understanding of various aspects, recognizing symptoms, administering first aid, and practicing preventive measures.

Bivariate analysis was done to explore the associations between each of the five individual components of knowledge on snakebite envenomation with socio-demographic factors and farming practices, using the Chi-square test. A p-value less than 0.05 was considered for assessing statistically significant associations. Further, binary logistic regression was done to compute the odds ratio with 95 percent confidence intervals for the associations. The proportions and frequencies were computed for questions on the previous history of snakebite envenomation, perceptions, beliefs, and practices about snakebite envenomation.

The study's exposure variables included the questions mentioned above on five knowledge components of snakebite envenomation.

The expected outcomes are to assess how many participants have adequate knowledge about snakebite envenomation and to understand the perceptions, behaviors, and practices related to snakebite followed by the participants. It also includes proportions of participants having adequate and inadequate knowledge about individual components- knowledge of the identification of snakes, identification of venomous snakes and non-venomous snakes, knowledge of signs and symptoms, knowledge of first-aid measures, and knowledge of preventive measures of snakebite envenomation.

2.13 Ethical considerations

Ethical clearance was obtained from the Technical Advisory Committee (TAC) and Institute Ethics Committee (IEC) of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram (SCT/IEC/2167) Before the commencement of the study, informed consent was obtained from all participants. The privacy and confidentiality

of every participant were maintained, and the identity of participants was kept confidential by using participant IDs.

Participants who experienced ophidiophobia were excluded from viewing pictures of snakes while assessing commonly found snake identification in the study area.

CHAPTER-3

RESULTS

This section describes the findings of the study. The first two sections describe the study participants' socio-demographic features and farming practices. This is followed by the results of bivariate analyses.

3.1 Socio-Demographic Details of The Study Participants

The sociodemographic features of the study participants are shown in Table 1. The study included a total of 260 participants selected from two Krishi-bhavans of the Palakkad district. The median age of the study participants was 59 years, with a range of 28-87 years. The study included almost equal proportion of females (51.9) and males (48.1). The results show that 30.4 percent of the participants had informal education and 27.3 percent education up to primary level. The rest had attained education up to secondary education level or above (42.3%). An equal number of farmers and farm labourers were included in the study to ensure equal representativeness. The proportions of participants in the BPL and APL categories were almost similar at 47.7 percent and 52.3 percent respectively.

Table 1- Sociodemographic Characteristics of the Study Participants (N=260)

Variables	Categories	Frequency (%)
Gender	Males	125 (48.1)
	Females	135 (51.9)
Age (in years)	≤59	136(52.3)
	>59	124(47.7)
Education status	Informal	79(30.4)
	Primary	71(27.3)
	Secondary and above	110(42.3)
Occupation	Farmer	130(50)
	Labourer	130(50)
Ration card	BPL	124(47.7)
	APL	136(52.3)

3.2 Details of Farming Practices

The details of farming practices employed by the study participants are shown in Table 2. This section briefly details farming practices that are common in the study area and may influence the risk of snakebite or the presence of snakes in agricultural settings. Nearly 60 percent of participants were farming throughout the year (all seasons), whereas about 40 percent were in short-season farming. About two-thirds (63.8%) of participants reported not storing crops, while the rest (36.2%) did store crops in the residential premises. Among those who stored crops (n=94), more than 60 percent stored them outside the house in the storage house, while a smaller percentage (35.5%) stored them inside the house. More than 60 percent of the participants reported the presence of overgrown vegetation near their

house or farm. Almost all of the total participants (n= 248) stored firewood in the residential premises, whereas only a few (n= 47) of them stored crop residues in their housing or farm premises.

Table 2 Farming Practices of the Study Participants (N=260)

Variables	Categories	Frequency (%)
Experience in farming (in years)	<=30	135(51.9)
	>30	125(48.1)
Season of farming	Short	105(40.4)
	Multiple	155(59.6)
Storing crops in residential premises	Yes	94(36.2)
	No	166(63.8)
Storing crops inside the house	Yes	33 (35.1)
	No	61 (64.9)
Presence of overgrown vegetation near the house/farm	Yes	161(61.9)
	No	99(38.1)
Storing firewood in the residential premises	Yes	248(95.4)
	No	12(4.6)
Storing crop residues near the house/ farm	Yes	47(18.1)
	No	213(81.9)

3.3 Composite Knowledge of Snakebite Among Study Participants

The knowledge about snakebite was assessed among five components, namely,

1. Snake name identification
2. Identification of venomous and non-venomous snakes
3. Signs and symptoms of snakebite envenomation
4. First-aid measures of snakebite envenomation
5. Preventive measures of snakebite

It was found that 116 (44.6%) participants had adequate composite knowledge about snakebite, while 144 (55.4%) participants had inadequate composite knowledge about snakebite among study participants. The frequency distribution of individual components of the composite knowledge about snakebite in study participants is shown in Figure 2.

More than 80 percent of the participants had adequate knowledge of signs and symptoms and preventive measures of snakebite envenomation, whereas only 35 percent of the participants had adequate knowledge of identifying venomous and non-venomous snakes.

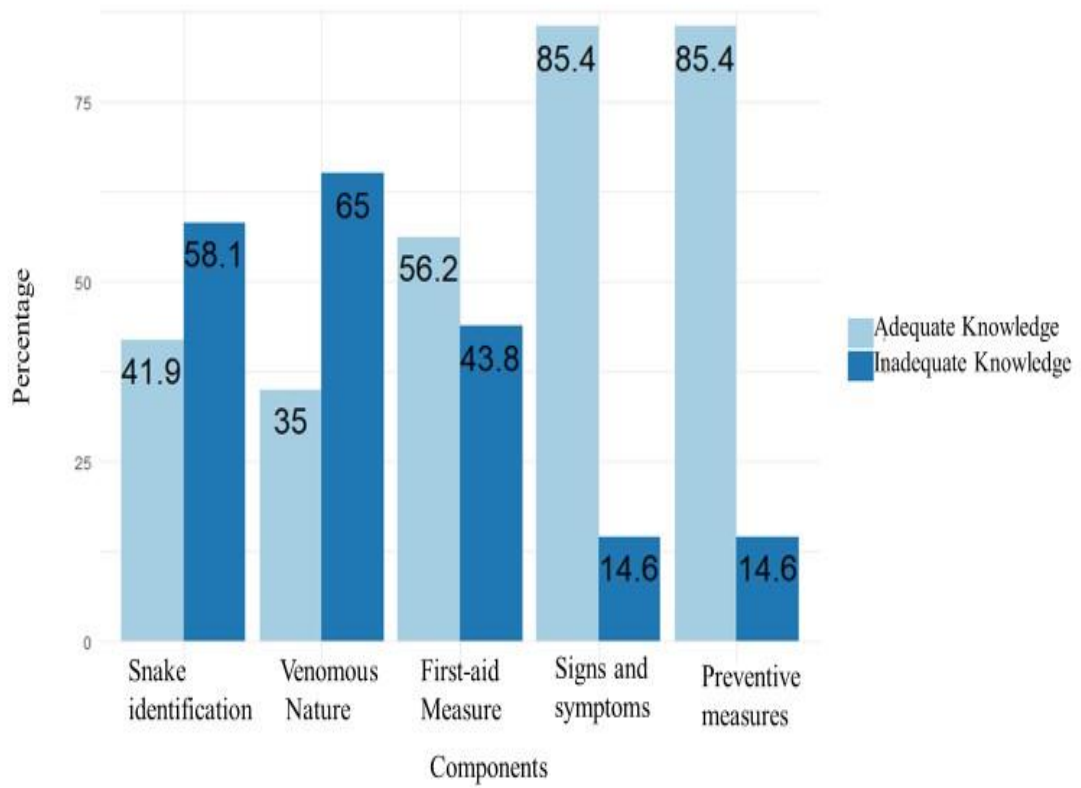


Figure 2- Bar plot showing the frequency distribution of knowledge components of snakebite

3.4 Association of Knowledge Scores on Identification of Snakes with Socio-demographic Factors and Farming Practices

The association of knowledge score on the identification of snakes with sociodemographic factors and farming practices is shown in Table 3 and Table 4, respectively. None of the socio-demographic characteristics and farming practices were found to be associated with knowledge of identifying snake names.

Table 3 Association of Knowledge Scores for Identification of Snakes with Socio-demographic Factors (N=253)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% CI)
Gender	Males	59(48)	64(52)	2.329 (0.127)	Reference
	Females	50(38.5)	80(61.5)		1.47 (0.895-2.432)
Age Categorization (in years)	<=59	58(43.3)	76(56.7)	0.005 (0.945)	Reference
	>59	51(42.9)	68(57.1)		1.02 (0.618-1.675)
Level of Education	Informal	31(40.8)	45(59.2)	1.818 (0.403)	Reference
	Primary	34(50)	34(50)		1.02(0.561-1.848)
	Secondary and above	44(40.4)	65(59.6)		1.48(0.802-2.719)
Type of Ration card	BPL	54(45.4)	65(54.6)	0.483 (0.487)	Reference
	APL	55(41)	79(59)		1.19 (0.725-1.965)
Employment in Farm	Farmers	54(41.9)	75(58.1)	0.160 (0.689)	Reference
	Labourers	55(44.4)	69(55.6)		1.10 (0.673-1.821)

Table 4 Association of Knowledge Scores for Identification of Snakes with Farming Practices (N=253)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% CI)
Season of cultivation	Short	40(38.8)	63 (61.2)	1.873 (0.302)	Reference
	Multiple	69(46.0)	81(54.0)		0.74 (0.448-1.241)
Farming experience (in years)	<=30	57(43.2)	75(56.8)	0.001 (0.974)	Reference
	>30	52(43)	69(57)		1.00 (0.613-1.660)
Storing harvested crops	Yes	42(45.2)	51(54.8)	0.259 (0.611)	Reference
	No	67(41.9)	93(58.1)		1.14 (0.683-1.914)
Storing crops in residential premises	Yes	14 (42.4)	19 (57.6)	0.216 (0.642)	Reference
	No	28 (47.5)	31 (52.5)		0.816 (0.346-1.926)
Presence of overgrown vegetation near house or farm	Yes	63(40.1)	94(59.9)	1.474 (0.225)	Reference
	No	46(47.9)	50(52.1)		0.728 (0.437-1.216)
Storing firewood in the residential premises	Yes	105(43.6)	136(56.4)	0.488 (0.562)	Reference
	No	4(33.3)	8(66.7)		1.54 (0.453-5.267)
Storing crop residues near the house / farm	Yes	19(40.4)	28(59.6)	0.166 (0.683)	Reference
	No	90(43.7)	116(56.3)		0.87 (0.459-1.666)

3.5 Association of Knowledge Scores on Identification of Venomous and Non-Venomous Snakes with Socio-demographic Factors and Farming Practices

The association of knowledge scores on identifying venomous and non-venomous snakes with sociodemographic factors and farming practices is shown in Table 5 and 6, respectively. None of the socio-demographic characteristics and farming practices were associated with knowledge of the identification of venomous and non-venomous Snakes.

Table 5 Association of Knowledge Scores for Identification of Venomous and Non-Venomous Snakes with Socio-demographic Factors (N=253)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% CI)
Gender	Males	51(41.5)	72(58.5)	3.138 (0.076)	Reference
	Females	40(30.8)	90(69.2)		1.60 (0.950-2.637)
Age (in years)	<=59	46(34.3)	88(65.7)	0.333 (0.564)	Reference
	>59	45(37.8)	74(62.2)		0.564 (0.514-1.438)
Education	Informal	24(31.6)	52(68.4)	2.790 (0.248)	Reference
	Primary	30(44.1)	38(55.9)		0.89 (0.481-1.679)
	Secondary and above	37(33.9)	72(66.1)		1.54 (0.825-2.860)
Ration card	BPL	39(32.8)	80(67.2)	0.996 (0.318)	Reference
	APL	52(38.8)	82(61.2)		0.77 (0.458-1.289)
Occupation	Farmers	49(38)	80(62)	0.465 (0.496)	Reference
	Labourers	42(33.9)	82(66.1)		0.84 (0.500-1.399)

Table 6 Association of Knowledge Scores for Identification of Venomous and Non-Venomous Snakes with Farming Practices (N=253)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% C.I)
Season of cultivation	Short	37(35.9)	66(64.1)	0.003 (0.990)	Reference
	Multiple	54(36)	96(64)		0.99 (0.591-1.681)
Farming experience (in years)	≤ 30	47(35.6)	85(64.4)	0.016 (0.900)	Reference
	> 30	44(36.4)	77(63.6)		0.97 (0.579-1.618)
Storing harvested crops	Yes	36(38.7)	57(61.3)	0.480 (0.489)	Reference
	No	55(34.4)	105(65.6)		1.20 (0.710-2.048)
Storing crops inside the house	Yes	14(42.4)	19(57.6)	0.216 (0.642)	Reference
	No	28 (47.5)	31(52.5)		1.21 (0.710-2.048)
Presence of overgrown vegetation near house / farm	Yes	57(36.3)	100(63.7)	0.020 (0.886)	Reference
	No	34(35.4)	62(64.6)		1.04 (0.612-1.766)
Storing firewood in the residential premises	Yes	89(36.9)	152(63.1)	2.038 (0.153)	Reference
	No	2(16.7)	10(83.3)		2.93 (0.627-13.664)
Storing crop residues near the house / farm	Yes	15(31.9)	32(68.1)	0.412 (0.521)	Reference
	No	76(36.9)	130(63.1)		0.52 (0.408-1.575)

3.6 Association of Knowledge Scores on Signs and Symptoms of Snakebite Envenomation with Socio-demographic Factors and Farming Practices

The association of knowledge scores on the signs and symptoms of snakebite envenomation with sociodemographic factors and farming practices is shown in Table 7 and 8, respectively. There was an association of signs and symptoms of snakebite envenomation with the presence of vegetation near the house or farm, as shown in Table 8. Participants living in the areas without nearby vegetation have 2.59 higher odds of having inadequate knowledge about signs and symptoms of snakebite envenomation compared to those living in areas with vegetation near houses or farms (Table 8).

Table 7 Association of Knowledge Scores for Signs and Symptoms of Snakebite with Socio-demographic Factors (N=260)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% C.I)
Gender	Males	102(81.6)	23(18.4)	2.763 (0.096)	Reference
	Females	120(88.9)	15(11.1)		0.554 (0.275- 1.119)
Age (in years)	<=59	113(83.1)	23(16.9)	1.205 (0.272)	Reference
	>59	109(87.9)	15(12.1)		0.676 (0.335- 1.364)
Education	Informal	69(87.3)	10(12.7)	0.528 (0.768)	Reference
	Primary	61(85.9)	10(14.1)		1.35 (0.587- 1.107)
	Secondary and above	92(83.6)	18(16.4)		1.19 (0.516- 2.759)
Ration card	BPL	111(89.5)	13(10.5)	3.243 (0.072)	Reference
	APL	111(81.6)	25(18.4)		1.92 (0.936- 3.951)
Occupation	Farmers	107(88.5)	15(11.5)	1.972 (0.160)	Reference
	Labourers	115(82.3)	23(17.7)		1.65 (0.817- 3.324)

Table 8 Association of Knowledge Scores for Signs and Symptoms of Snakebite with Farming Practices(N=260)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% C.I)
Season of cultivation	Short	17(16.2)	88(83.8)	0.350 (0.554)	Reference
	Multiple	21(13.5)	134(86.5)		0.554 (0.405-1.623)
Farming experience (in years)	<=30	110(81.5)	25(18.5)	3.428 (0.064)	Reference
	>30	112(89.6)	13(10.4)		0.51 (0.249-1.049)
Storing harvested crops	Yes	80(85.1)	14(14.9)	0.009 (0.924)	Reference
	No	142(85.5)	24(14.5)		0.97 (0.473-1.972)
Storing crops inside the house	Yes	30(90.9)	3(9.1)	1.422 (0.233)	Reference
	No	49(81.7)	11(18.3)		2.24 (0.579-8.703)
Presence of overgrown vegetation near house or farm	Yes	145(90.1)	16(9.9)	7.413 (0.006)	Reference
	No	77(77.8)	22(22.2)		2.59 (1.285-5.218)
Storing firewood in the residential premises	Yes	212(85.5)	36(14.5)	0.042 (0.690) (F)	Reference
	No	10(83.3)	2(16.7)		1.18 (0.248-5.598)
Storing crop residues near the house / farm	Yes	43(91.5)	4(8.5)	1.713 (0.255) (F)	Reference
	No	179(84)	34(16)		2.04 (0.688-6.062)

3.7 Association of Knowledge Scores on First-Aid Measures of Snakebite Envenomation with Socio-demographic Factors and Farming Practices

The association of knowledge scores on first-aid measures of snakebite envenomation with sociodemographic factors and farming practices is shown in Table 9 and 10, respectively. The presence of vegetation near the house or farm was associated with knowledge of signs and symptoms of snakebite envenomation, as shown in Table 10. The individuals living in areas without nearby vegetation had 1.9 higher odds of having inadequate knowledge about signs and symptoms of snakebite envenomation compared to those living in areas with nearby vegetation (Table 10).

Table 9 Association of Knowledge Scores for First-Aid Measures of Snakebite Envenomation with Socio-demographic Factors (N=260)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% C.I)
Gender	Males	63(50.4)	62(49.6)	3.273 (0.072)	Reference
	Females	83(61.5)	52(38.5)		0.64 (0.389-1.042)
Age (in years)	<=59	81(59.6)	55(40.4)	1.343 (0.247)	Reference
	>59	65(52.4)	59(47.6)		1.33 (0.818-2.185)
Education	Informal	40(50.6)	39(49.4)	3.244 (0.198)	Reference
	Primary	46(64.8)	25(35.2)		0.86 (0.479-1.525)
	Secondary and above	60(54.5)	50(45.5)		1.54 (0.829-2.836)
Ration card	BPL	77(62.1)	47(37.9)	3.401 (0.065)	Reference
	APL	69(50.7)	67(49.3)		1.60 (0.970-2.609)
Occupation	Farmers	66(50.8)	64(49.2)	3.062 (0.080)	Reference
	Labourers	80(61.5)	50(38.5)		1.56 (0.948-2.540)

Table 10 Association of Knowledge Scores for First-Aid Measures of Snakebite Envenomation with Farming Practices(N=260)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% C.I)
Season of cultivation	Short	61(58.1)	44(41.9)	0.270 (0.604)	Reference
	Multiple	85(54.8)	70(45.2)		1.14 (0.692-1.883)
Experience of farming (in years)	<=30	80(59.3)	55(40.7)	1.100 (0.294)	Reference
	>30	66(52.8)	59(47.2)		1.30 90.769-2.125)
Storing harvested crops	Yes	49(52.1)	45(47.9)	0.969 (0.325)	Reference
	No	97(58.4)	69(41.6)		0.78 (0.466-1.289)
Storing crops inside the house	Yes	17(51.5)	16 (48.5)	0.000 (0.989)	Reference
	No	31 (51.7)	29 (48.3)		0.99 (0.425-2.325)
Presence of overgrown vegetation near the house or farm	Yes	100(62.1)	61(37.9)	6.096 (0.014)	Reference
	No	46(46.5)	53(53.5)		1.89 (1.137-3.137)
Storing firewood in the residential premises	Yes	140(56.5)	108(43.5)	0.194 (0.660)	Reference
	No	6(50)	6(50)		1.30 (0.407-4.131)
Storing crop residues near the house / farm	Yes	28(59.6)	19(40.4)	0.273 (0.602)	Reference
	No	118(55.4)	95(44.6)		1.19 (0.624-2.255)

3.8 Association of Knowledge Scores on Preventive Measures of Snakebite Envenomation with Socio-demographic Factors and Farming Practices

The sociodemographic factors and farm practices associated with knowledge scores on preventive measures of snakebite envenomation are shown in Table 11 and Table 12, respectively. Participants with up to primary level of education and education above secondary school had 0.2 times and 0.37 times lower odds of having inadequate knowledge about preventive measures of snakebite envenomation compared to those with informal education as shown in Table 11. On the other hand, participants who were engaged in multiple seasons of cultivation had 2.45 higher odds of having inadequate knowledge on preventive measures of snakebite envenomation as shown in Table 12.

Table 11 Association of Knowledge Scores for Preventive Measures on Snakebite Envenomation with Socio-Demographic Factors (N=260)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% C.I)
Gender	Males	109(87.2)	16(12.8)	0.636 (0.425)	Reference
	Females	113(83.7)	22(16.3)		1.32 (0.662-2.659)
Age (in years)	<=59	120(88.2)	16(11.8)	1.875 (0.173)	Reference
	>59	102(82.3)	22(17.7)		1.61 (0.807-3.244)
Education	Informal	59(74.7)	20(25.3)	13.295 (0.001)	Reference
	Primary	60(84.5)	11(15.5)		0.20 (0.080-0.502)
	Secondary and above	103(93.6)	7(6.4)		0.37 (0.136-1.007)
Ration card	BPL	104(83.9)	20(16.1)	0.435 (0.509)	Reference
	APL	118(86.8)	18(13.2)		0.80 (0.398-1.580)
Occupation	Farmers	110(84.6)	20(15.4)	0.123 (0.726)	Reference
	Labourers	112(86.2)	18(13.8)		0.88 (0.444-1.761)

Table 12 Association of Knowledge Scores for Preventive Measures on Snakebite with Farming Practices (N=260)

Variables	Categories	Adequate knowledge	Inadequate knowledge	χ^2 (p-value)	Odds ratio (95% C.I)
Season of cultivation	Short	96(91.4)	9(8.6)	5.156 (0.023)	Reference
	Multiple	126(81.3)	29(18.7)		2.45 (1.110-5.429)
Farming experience (in years)	<=30	120(88.9)	15(11.1)	2.763 (0.096)	Reference
	>30	102(81.6)	23(18.4)		1.80 (0.894-3.640)
Storing harvested crops	Yes	78(83)	16(17)	0.683 (0.409)	Reference
	No	144(86.7)	22(13.3)		0.74 (0.370-1.501)
Storing crops inside the house	Yes	27 (81.8)	6 (18.2)	0.034 (0.853)	Reference
	No	50 (83.3)	10 (16.7)		0.90 (0.295-2.745)
Presence of overgrown vegetation near house or farm	Yes	136(84.5)	25(15.5)	0.282 (0.595)	Reference
	No	86(86.9)	13(13.1)		0.82 (0.399-1.694)
Storing firewood in the residential premises	Yes	212(85.5)	36(14.5)	0.042 (0.837)	Reference
	No	10(83.3)	2(16.7)		0.85 (0.179-4.035)
Storing crop residues near the house	Yes	44(93.6)	3(6.4)	3.116 (0.108)	Reference
	No	178(83.6)	35(16.4)		2.89 (0.848-9.811)

3.9 Previous history of snakebite

The frequency distribution of details regarding participants who experienced snakebite envenomation previously is shown in Table 13. Out of 260 participants, 80 (38.3%) were bitten by snakes previously. Nearly 40 percent snakebite victims were bitten while working in the fields and involved in agriculture. Nearly 75 percent of the bites were by non-venomous snakes. Out of the 20 participants bitten by venomous snakes, 15 went to the hospital with ASV, only four went to a traditional healer, and one went to a hospital without ASV to seek treatment in the first instance. More than 40 percent of the victims did not go to any facility since they assumed that it had been a non-venomous bite.

Table 13 - Frequency Distribution of Details Regarding History of Snakebite Envenomation (N=80)

Variables	Categories	Frequency (%)
Place of snakebite envenomation	Inside the house	7(8.8)
	Roadside	8(10)
	House premises	11(13.8)
	Other places	15(18.8)
	Fields	39(48.6)
Type of snake causing snakebite	Venomous	20(25)
	Non-venomous	60(75)
Body site of snake envenomation	Upper body	12(14.5)
	Lower body	68(85.5)
First treatment sought	Hospital with ASV	29(36.3)
	Hospital without ASV	2(2.5)
	Traditional healer	9(11.2)
	Not went to any of the health facility	40(50)

3.10 Perceptions Related to Snakebite Envenomation

The perceptions related to snakebite envenomation are shown in Table 14. More than 70 percent of the participants were concerned about the risk of getting snakebite envenomation while working in the fields.

Nearly 90 percent of the participants reported that capturing the snakes are essential while going for the treatment so that the snake can be correctly identified by the health professionals, which may be helpful for the treatment.

Table 14- Frequency Distribution of Perceptions about Snakebite Envenomation (N=260)

Perceptions	Categories	Frequency (%)
Concerned about risk of getting snakebite	Agree	195(75)
	Disagree	65(25)
Fear of encountering a snake	Agree	198(76.2)
	Disagree	62(23.8)
Capturing the snake that bit is essential for treatment	Agree	227(87.3)
	Disagree	33(12.7)
Bite marks help in differentiating between venomous nature of snakes	Agree	142(54.6)
	Disagree	118 (45.4)
Awareness and training are needed regarding first-aid measures of snakebite	Agree	208(80)
	Disagree	52(20)

3.11 Beliefs related to Snakebite Envenomation

The frequency distribution of various beliefs related to snakebite envenomation is shown in Table 15. Nearly 50 percent of the participants believed that “sarpadosham” still exists, and also if they harm the snakes, it will take revenge by biting people (37.3%).

Table 15- Frequency Distribution of Beliefs Related to Snakebite Envenomation (N=260)

Beliefs	Categories	Frequency (%)
Harming snakes will take revenge by biting	Agree	97(37.3)
	Disagree	163(62.7)
“Sarpadosham” *	Agree	122(46.9)
	Disagree	138(53.1)
Making the snake bite twice will remove the venom	Agree	11(4.2)
	Disagree	249(95.8)

*Sarpadosham- Known as the curse of Naga (Snake Gods), refers to a belief that harming snakes or sacred objects associated with snake worship can bring about negative consequences or misfortune

3.12 Practices Related to Snakebite Envenomation

Practices related to snakebite envenomation and their frequencies are shown in Table 16. More than 90 percent of the participants reported that the most commonly used first-aid practice for snakebite envenomation is tying a tight tourniquet above the bitten wound,

which is considered the wrong first-aid method in snakebite envenomation. Also, another harmful common practice (58.5%) is cutting the bitten wound with any sharp object to eject the venom out.

However, more than 90 percent of the participants agreed that sucking the venom out of the bitten wound is not a recommended first-aid practice.

Table 16- Practices Related to Snakebite Envenomation

Practices	Categories	Frequency (%)
Applying a tight Tourniquet at the site of envenomation	Agree	242 (93.1)
	Disagree	18 (6.9)
Excising the bitten site	Agree	152 (58.5)
	Disagree	108 (41.5)
Sucking the bitten wound to remove the venom	Agree	18(6.9)
	Disagree	242(93.1)
Applying herbs to remove the venom	Agree	38(14.6)
	Disagree	222(85.4)
Action to be taken, if encountered with a snake	Get panic and let the snake go	124(47.7)
	Kill the snake, if felt venomous	99(38.1)
	Call for help	37(14.2)

CHAPTER-4

DISCUSSION AND CONCLUSION

4.1 Discussion

The present cross-sectional community-based study was aimed to evaluate the level of knowledge about snakebite envenomation among the farmers of Palakkad district, Kerala. In doing so, we aimed to find the association between the level of knowledge about components of snakebite envenomation with socio-demographic and farming practices.

The present study included both men and women. However, the number of women participants slightly outnumbered the number of men in our study. This is contrary to a study conducted in Sri Lanka, where more than 50 percent of the study participants were men (Silva et al., 2014). This may be because of the higher proportion of females in the farm labourer group, when compared to the farmer group.

When considering the composite knowledge scores, 44.6 percent of participants had adequate, and 55.4 percent of participants had inadequate knowledge about snakebite envenomation respectively. However, a meta-analysis by Afroz *et al.* revealed that 56 percent of participants had adequate knowledge in all five domains of knowledge on snakebite envenomation. This difference may be due to the study participants included in the study by Afroz *et al.* were healthcare workers and the general population (Afroz *et al.*, 2023). The higher knowledge levels of the healthcare workers may have increased the overall knowledge level of the participants.

Among the five knowledge components on snakebite envenomation, we observed that more than half of the study participants had inadequate knowledge about the identification of venomous nature of the snakes. This may be because they assume most snakes are

venomous. This is in line with a knowledge, attitude, and practice about snakes and snakebite study conducted in Karnataka (Pathak and Metgud, 2017).

In a recent scoping review conducted on identifying snakes across the world, it was found that misidentifications of snakes lead to improper management of snakebite victims (Bolon et al., 2020). Therefore, having inadequate knowledge of snake identification and identification of venomous and non-venomous snakes can have a serious impact on the treatment and care received by the victim. Firstly, misidentification of venomous and non-venomous snakes can unnecessarily add to the anxiety of the snakebite victim, which may complicate the outcomes. Secondly, it may also lead to underestimation of the potential danger of being bitten by a venomous snake.

In our present study, the individuals living in areas without nearby vegetation had higher odds of having inadequate knowledge about first-aid measures and signs and symptoms of snakebite envenomation compared to those living in areas with nearby vegetation. The reason may be due to the fact that, people who are living nearby to vegetations, may be more exposed to snake encounters, and thus had a better experience and knowledge on the first-aid measures and signs and symptoms.

Participants who were engaged in multiple seasons of cultivation had higher odds of having inadequate knowledge on preventive measures of snakebite envenomation. This is in line with a study conducted in Ethiopia (Abdullahi *et al.*, 2022). This may be because of the fact that, farmers engaged in multiple seasons of cultivation may have limited time available for acquiring knowledge on snakebite prevention due to their busy schedules. They also might be relying on traditional methods of prevention, rather than the scientific methods.

Participants with up to primary level of education and education above secondary school had lower odds of having inadequate knowledge about preventive measures of snakebite envenomation compared to those with informal education. This is in line with a study conducted among health students of Saudi Arabia (Alqahtani *et al.*, 2022). As people are more educated, they understand the importance of using preventive measures, to reduce the snakebite envenomings, and take them into serious considerations.

About three-fourths of the participants feared snake encounters while working in the fields. This proportion was higher than in a study conducted in Nepal, where only 43 percent of the participants had a fear of snakes; the rest of them had a positive attitude toward snake (Pandey *et al.*, 2016). Nearly 40 percent of the participants reported they would kill or harm snakes on encountering them, as they consider snakes a dangerous species and should be killed if they are seen in the residential premises. About 85-90 percent of snake species worldwide are non-venomous. But still, people kill snakes either due to misidentification or due to fear of being bitten. Similar practices were done in Australia, where the farmers often kill venomous snakes. Though they are doing this out of fear, the fact is that snakes play an important role in controlling rodent population, especially mice (Shine *et al.*, 2023). Also, excessive killing of snakes can disrupt the agricultural ecosystem, leading to increased rodent populations, which in turn causes crop damage, subsequently causing economic loss to the farmers. Many zoonotic diseases are transmitted by rodents, affecting the lives of both humans and domestic animals. By feeding on rodents, snakes indirectly control the transmission of diseases (Bhaumik S, 2021).

Our study reported that 80 participants had a history of snakebite envenomation. Among them, the most affected were males (55%). This is sync with a study conducted in Sikkim which also shows men being the most affected. The reason may be attributed to men are engaged in outdoor activities than females (Rai *et al.*, 2021). Of the 20 participants

experiencing snakebite envenomation due to venomous snakes, only 39 percent of the snakebite victims went to a health facility with ASV. A higher proportion (54.8%) of victims sought treatment from hospitals with ASV in a study conducted to explore the treatment-seeking behaviour of snakebite victims in Sri Lanka (Ediriweera *et al.*, 2017). In our study, more than 45 percent of the snakebite victims have not gone to any facility, as they assumed the snakebite to be non-venomous. These kinds of assumptions may be dangerous, in light of poor identification and not knowing the venomous nature of the snake. This reinstates the importance of the knowledge on identifying the venomous and non-venomous snakes.

Snakes have been part of religious beliefs in India. Snakes are devoted as gods, especially in farming communities. (Chaaithanya *et al.*, 2021). Our study also depicts that almost one-half of the participants have religious beliefs (“sarpadosham”). In Hindu beliefs, snakes symbolize eternity and are capable of disrupting the balance of the world or even causing the extinction of humanity, leading communities to worship them out of fear of their power. This belief may have emerged from the human fear of death from snake bites (Das and Balasubramanian, 2017).

Our study reported that nearly half of the participants were practicing incorrect methods of first-aid measures for snakebite envenomation, such as tying tight tourniquets and cutting the bitten wound to remove the venom out and prevent the spread of venom to the rest of the body. Such findings were similar to a study conducted in Myanmar, where about 60 percent of the participants were following the wrong methods (Mahmood *et al.*, 2019). Following such first-aid measures is proved to be ineffective and harmful in a systematic review of treatment of snakebite in first-aid settings (Avau *et al.*, 2016) . Using a tight tourniquet can cause significant complications, such as tissue necrosis, lack of blood supply to the affected part, and also damage to nerves and muscles that may even lead to the

amputation of the affected part. Cutting the bitten wound also causes local swelling, and if its viper bites, it disrupts the normal blood clotting mechanism and results in a lot of blood loss. Similarly, sucking the bitten wound is also proven to be ineffective, and it can harm the caregiver as well. All such practices worsen the outcome of the snakebite victims.

4.2 Strengths and Limitations of the Study

Strengths

There are numerous Knowledge attitudes and perceptions studies related to snakes and snakebites envenomation, but the participants are mostly the general population or healthcare workers or medical students. Even though farming communities are the most affected communities for snakebite envenomation, studies which focus farmers as participants are scarce. The study utilizes a questionnaire where the components are based on a comprehensive metanalysis. Therefore, the aspects important to the study objectives are encompassed well.

Limitations

The participant may have responded in socially acceptable ways due to the presence of the principal investigator and secretaries of the padashekaram.

The study included only two Krishi-bhavans out of the ninety-five in the district, so more studies on other Krishi-bhavans are required. Although as these two Krishi-bhavans are typical Krishi-bhavans of the district with respect to size, type of farmers, age distribution etc., we believe that the findings will be applicable to the district.

4.3 Conclusions and Recommendations

Conclusion

The present study shows that a higher proportion of participants had adequate knowledge of signs and symptoms and preventive measures of snakebite envenomation. The knowledge of preventive measures for snakebite envenomation was associated with higher educational status and engaging in one type of crop cultivation. On the other hand, the knowledge related to snake identification and identification of venomous and nonvenomous snakes was low among farmers. The study also highlights the perceptions and beliefs about snakebites like “sarpadosham,” which points to misconceptions and superstitions regarding snakes and snakebites existing in society. Our study points to a comprehensive approach to creating awareness about snake identification and their venomous nature coupled with addressing misconceptions regarding snakes and snakebites in a culturally acceptable way among farmers of the Palakkad district.

Recommendations

Proper awareness and training regarding first-aid management of snakebite correctly identifying snakes commonly found in that geographical area and differentiating their venomous nature can ultimately contribute to reducing the burden of snakebite-related morbidity and mortality in farming communities, where their occupation itself exposes to snakebites. Awareness to address the myths concerning snakebite must be provided in a culturally acceptable way.

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ANNEXURES

Participant Information Sheet

Hello, I am Dr Amritha S, currently pursuing Master of Public Health (MPH) at Achutha Menon Centre for Health Science Studies (AMCHSS), Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala. I am doing a study on “**Assessing the Knowledge and Perception about Snakebites Among Farmers of Palakkad District**” as a part of my course work

You are being invited to participate in this research study. Before you decide whether or not to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the information sheet and the consent form carefully, and feel free to ask for clarifications you may have.

Purpose of the study

The purpose of this study is to assess the level of knowledge and perceptions about snakebites among farmers of the Palakkad district.

Procedure

If you are willing to participate in the study, you will be asked to complete an interview schedule which will include questions focussing on demographic information, economic status, and some basic questions on knowledge and perceptions about snakebites. The interview will take approximately 30-40 minutes of your valuable time.

Potential risks and discomforts

Participating in the study imposes no risk to your health. Although you may feel uncomfortable if you have fear of snakes. You may stop me at any point and skip the questions you feel uncomfortable in answering

Possible benefits

Your participation in the study will not give any direct benefit to you now other than knowing the level of knowledge about snakebites. However, the results of the study will be helpful for helping health professionals to prepare and use education materials on the correct methods of managing and preventing snakebites.

Cost and financial benefit

There is no cost for participation in this study. Participation is completely voluntary, and no payment will be provided.

Confidentiality

Information obtained in this study will be kept strictly confidential. A participant identification number will be assigned to each participant, which will help to maintain the strict confidentiality of the data collected. Your name will not be used in reporting information in publications or reports.

Withdrawal from the study

Your participation in the study will be completely voluntary. You are free and can withdraw during the study at any time. There will be no penalty for withdrawal or not participating in the study.

Contact information

If you have any research-related questions or you would like to verify my credentials, you may contact me or member secretary of our institute's ethics committee at the following address:

Dr Amritha S
Principal Investigator
MPH 2022, AMCHSS, SCTIMST
Contact Number: 9496301406
Email: dramrithasajeev44@gmail.com

Dr Srinivas G
Member Secretary
Institutional Ethics Committee
SCTIMST, TRIVANDRUM- 695011
Office: 04712524689
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പങ്കെടുക്കുന്നവരുടെ വിവര ഷീറ്റ്

നമസ്കാരം , ഞാൻ ഡോക്ടർ അമൃത എസ് ആണ്, നിലവിൽ തിരുവനന്തപുരം ശ്രീചിത്ര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസസ് ആൻഡ് ടെക്നോളജിയിലെ അച്യുതമേനോൻ സെന്റർ ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസിൽ (എംപിഎച്ച്) മാസ്റ്റർ ഓഫ് പബ്ലിക് ഹെൽത്ത് (എംപിഎച്ച്) പഠിക്കുന്നു. എന്റെ കോഴ്സ് വർക്കിന്റെ ഭാഗമായി "പാലക്കാട് ജില്ലയിലെ കർഷകരിൽ പാമ്പുകടിയേറ്റതിനെക്കുറിച്ചുള്ള അറിവിന്റെയും ധാരണയുടെയും വിലയിരുത്തൽ" എന്ന വിഷയത്തിൽ ഞാൻ ഗവേഷണ പഠനം നടത്തുകയാണ്.

ഈ ഗവേഷണ പഠനത്തിൽ പങ്കെടുക്കാൻ നിങ്ങളെ ക്ഷണിക്കുന്നു. ഈ പഠനത്തിൽ പങ്കെടുക്കണമോ വേണ്ടയോ എന്ന് നിങ്ങൾ തീരുമാനിക്കുന്നതിന് മുമ്പ്, എന്തുകൊണ്ടാണ് ഗവേഷണം നടക്കുന്നതെന്നും അതിൽ എന്താണ് ഉൾപ്പെടുകയെന്നും നിങ്ങൾ മനസ്സിലാക്കേണ്ടത് പ്രധാനമാണ്. വിവര ഷീറ്റും സമ്മത ഫോമും ശ്രദ്ധാപൂർവ്വം വായിക്കുക, നിങ്ങൾക്ക് ഉണ്ടായേക്കാവുന്ന വിശദീകരണങ്ങൾ ചോദിക്കാൻ മടിക്കേണ്ടതില്ല.

പഠനത്തിന്റെ ഉദ്ദേശ്യം

കേരളത്തിലെ പാലക്കാട് ജില്ലയിലെ കർഷകർക്കിടയിൽ പാമ്പുകടിയെക്കുറിച്ചുള്ള അറിവും ധാരണകളും വിലയിരുത്തുക എന്നതാണ് ഈ പഠനത്തിന്റെ ലക്ഷ്യം.

നടപടിക്രമം

നിങ്ങൾ പഠനത്തിൽ പങ്കെടുക്കാൻ തയ്യാറാണെങ്കിൽ, ജനസംഖ്യാപരമായ വിവരങ്ങൾ, സാമ്പത്തിക സ്ഥിതി, പാമ്പുകടിയേറ്റതിനെക്കുറിച്ചുള്ള അറിവ്, ധാരണകൾ എന്നിവയെക്കുറിച്ചുള്ള ചില അടിസ്ഥാന ചോദ്യങ്ങൾ എന്നിവയിൽ ശ്രദ്ധ കേന്ദ്രീകരിക്കുന്ന ചോദ്യങ്ങൾ ഉൾപ്പെടുന്ന ഒരു അഭിമുഖ ഷെഡ്യൂൾ പൂർത്തിയാക്കാൻ നിങ്ങളോട് ആവശ്യപ്പെടും. ഇന്റർവ്യൂവിന് നിങ്ങളുടെ വിലപ്പെട്ട സമയത്തിന്റെ ഏകദേശം 30-40 മിനിറ്റ് എടുക്കും. പഠനത്തിൽ നിങ്ങളുടെ പങ്കാളിത്തം തീരുമാനിക്കാൻ ഇത് നിങ്ങളെ സഹായിക്കുമെങ്കിൽ നിങ്ങളുടെ കുടുംബാംഗങ്ങളെയോ സുഹൃത്തുക്കളെയോ സമീപിക്കാൻ മടിക്കേണ്ടതില്ല.

സാധ്യതയുള്ള അപകടങ്ങളും അസ്വാസ്ഥ്യങ്ങളും

പാമ്പുകടിയേറ്റതിനെക്കുറിച്ചുള്ള അറിവിന്റെ തോത് അറിയുക എന്നതല്ലാതെ പഠനത്തിലെ നിങ്ങളുടെ പങ്കാളിത്തം നിങ്ങൾക്ക് ഇപ്പോൾ നേരിട്ട് ഒരു പ്രയോജനവും നൽകില്ല. എന്നിരുന്നാലും, കർഷകർക്കിടയിലെ പാമ്പുകടിയെ നിയന്ത്രിക്കുന്നതിനും തടയുന്നതിനുമുള്ള ശരിയായ രീതികളെക്കുറിച്ചുള്ള വിദ്യാഭ്യാസ സാമഗ്രികൾ തയ്യാറാക്കാനും ഉപയോഗിക്കാനും ആരോഗ്യ വിദഗ്ധരെ സഹായിക്കുന്നതിന് പഠന ഫലങ്ങൾ സഹായകമാകും.

ചെലവും സാമ്പത്തിക നേട്ടവും

ഈ പഠനത്തിൽ പങ്കെടുക്കുന്നതിന് യാതൊരു ചെലവും ഇല്ല. പങ്കാളിത്തം പൂർണ്ണമായും സ്വമേധയാ ഉള്ളതാണ്, സാമ്പത്തിക നേട്ടം ഉണ്ടാകില്ല.

രഹസ്യാത്മകത

ഈ പഠനത്തിൽ ലഭിക്കുന്ന വിവരങ്ങൾ കർശനമായി രഹസ്യാത്മകമായി സൂക്ഷിക്കും. ഓരോ പങ്കാളിക്കും ഒരു പങ്കാളി തിരിച്ചറിയൽ നമ്പർ നൽകും, ഇത് ശേഖരിക്കുന്ന ഡാറ്റയുടെ കർശനമായ രഹസ്യാത്മകത നിലനിർത്താൻ സഹായിക്കും. നിങ്ങളുടെ സ്വകാര്യ വിവരങ്ങൾ വെളിപ്പെടുത്തുകയോ ആരുമായും പങ്കിടുകയോ ചെയ്യില്ല. പ്രസിദ്ധീകരണങ്ങളിലോ റിപ്പോർട്ടുകളിലോ വിവരങ്ങൾ റിപ്പോർട്ടുചെയ്യുന്നതിന് നിങ്ങളുടെ പേര് ഉപയോഗിക്കില്ല.

പഠനത്തിൽ നിന്ന് പിന്മാറൽ

പഠനത്തിൽ നിങ്ങളുടെ പങ്കാളിത്തം പൂർണ്ണമായും സ്വമേധയാ ഉള്ളതായിരിക്കും. നിങ്ങൾക്ക് സൗജന്യമാണ്, പഠന സമയത്ത് എപ്പോൾ വേണമെങ്കിലും പിൻവലിക്കാം. പഠനത്തിൽ നിന്ന് പിന്മാറുകയോ പങ്കെടുക്കാതിരിക്കുകയോ ചെയ്താൽ പിഴ ഈടാക്കില്ല.

ബന്ധപ്പെടാനുള്ള വിവരങ്ങൾ

പഠനവുമായി ബന്ധപ്പെട്ട് നിങ്ങൾക്ക് എന്തെങ്കിലും ചോദ്യങ്ങളുണ്ടെങ്കിൽ അല്ലെങ്കിൽ എന്റെ ക്രെഡൻഷ്യലുകൾ പരിശോധിക്കാൻ നിങ്ങൾ ആഗ്രഹിക്കുന്നുവെങ്കിൽ, ഇനിപ്പറയുന്ന വിലാസത്തിൽ നിങ്ങൾക്ക് എന്നെയോ ഞങ്ങളുടെ ഇൻസ്റ്റിറ്റ്യൂട്ടിന്റെ എത്തിക്സ് കമ്മിറ്റി അംഗം സെക്രട്ടറിയുമായോ ബന്ധപ്പെടാം:

ഡോ അമൃത എസ്

പ്രധാന അന്വേഷകൻ

MPH 2022, AMCHSS, SCTIMST

ബന്ധപ്പെടേണ്ട നമ്പർ: 9496301406

ഇമെയിൽ: dramrithasajeev44@gmail.com

ഡോ ശ്രീനിവാസ് ജി
മെമ്പർ സെക്രട്ടറി
ഇൻസ്റ്റിറ്റ്യൂഷണൽ എത്തിക്സ് കമ്മിറ്റി
SCTIMST, തിരുവനന്തപുരം- 695011
ഓഫീസ്: 04712524689
ഇമെയിൽ: iec.mem.sec@sctimst.ac.in

INFORMED CONSENT FORM

I have been invited to participate in the thesis titled “**Assessing the Knowledge and Perception about Snakebites Among Farmers of Palakkad District**” I have read the information provided regarding the study, or it has been read to me. I have had the opportunity to ask questions about it and the questions I have been asked have been answered to my satisfaction.

I am aware that there is minimal risk in participating in the study. I understand there is no immediate direct benefit in the study.

I know I will not be incentivised for the participation.

I understand my personal information will remain confidential.

I know that I can withdraw my consent at any point of the study

I consent voluntarily to be a participant in this study.

Participant ID:

Name of the participant:

Mobile Number:

Signature

Name of the Witness

Signature

Place:

Date:

I confirm that the participant was allowed to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent and the consent has been given freely and voluntarily.

Researcher.....

Name of the

Date.....

Signature of the Researcher.....

സമ്മത ഘോഷം

“പാലക്കാട് ജില്ലയിലെ കർഷകർക്കിടയിൽ പാമ്പുകടിയേറ്റതിനെക്കുറിച്ചുള്ള അറിവും ധാരണയും വിലയിരുത്തൽ” എന്ന തലക്കെട്ടിലുള്ള പഠനത്തിൽ പങ്കെടുക്കാൻ എന്നെ ക്ഷണിച്ചിട്ടുണ്ട്. പഠനവുമായി ബന്ധപ്പെട്ട് നൽകിയിരിക്കുന്ന വിവരങ്ങൾ ഞാൻ വായിച്ചിട്ടുണ്ട്, അല്ലെങ്കിൽ അത് എനിക്ക് വായിച്ചുതന്നിട്ടുണ്ട്. അതിനെക്കുറിച്ച് ചോദ്യങ്ങൾ ചോദിക്കാൻ എനിക്ക് അവസരം ലഭിച്ചു, എന്നോട് ചോദിച്ച ചോദ്യങ്ങൾക്ക് എനിക്ക് തൃപ്തികരമായ ഉത്തരം ലഭിച്ചു. പഠനത്തിൽ പങ്കെടുക്കുന്നതിൽ അപകടസാധ്യതയില്ലെന്ന് എനിക്കറിയാം. ഗവേഷണത്തിൽ പങ്കെടുക്കുന്നതിനാൽ നേരിട് ഉള്ള ഒരു പ്രയോജനവും ഇല്ല എന്ന ഞാൻ മനസ്സിലാക്കുന്നു. എന്റെ സ്വകാര്യ വിവരങ്ങൾ രഹസ്യമായി തുടരുമെന്ന് ഞാൻ മനസ്സിലാക്കുന്നു. പഠനത്തിന്റെ ഏത് ഘട്ടത്തിലും എനിക്ക് എന്റെ സമ്മതം പിൻവലിക്കാൻ കഴിയുമെന്ന് എനിക്കറിയാം. ഈ പഠനത്തിൽ പങ്കാളിയാകാൻ ഞാൻ സ്വമേധയാ സമ്മതിക്കുന്നു.

പങ്കെടുക്കുന്ന ആളുടെ ഐഡി:

പങ്കെടുക്കുന്നയാളുടെ പേര്:

മൊബൈൽ നമ്പർ:

ഒപ്പ്

സ്ഥലം:

തീയതി:

പഠനത്തെ കുറിച്ച് ചോദ്യങ്ങൾ ചോദിക്കാൻ അനുവദിച്ചിട്ടുണ്ടെന്നും ചോദിച്ച എല്ലാ ചോദ്യങ്ങൾക്കും കൃത്യമായും എന്റെ കഴിവിന്റെ പരമാവധി ഉത്തരം നൽകിയിട്ടുണ്ടെന്നും ഞാൻ സ്ഥിരീകരിക്കുന്നു. സമ്മതം നൽകാൻ വ്യക്തിയെ നിർബന്ധിച്ചിട്ടില്ലെന്നും, സമ്മതം സ്വതന്ത്രമായും സ്വമേധയാ നൽകിയിട്ടുണ്ടെന്നും ഞാൻ സ്ഥിരീകരിക്കുന്നു.

ഗവേഷകന്റെ പേര്.....

തീയതി.....

ഗവേഷകന്റെ ഒപ്പ്.....

INTERVIEW SCHEDULE

SL NO.	QUESTIONS	CODING CRITERION	CODE OPTIONS	VARIABLE
A IDENTIFICATION DETAILS				
1	Participant ID			
2	Panchayath			
3	Ward No.			
B SOCIO-DEMOGRAPHIC INFORMATION				
4	Farmer's ID			
5	Age (Completed age in years as on 01.01.2024)			AGE
6	Gender	Male	0	GENDER
		Female	1	
		Transgender	2	
		Not willing to specify	3	
C SOCIOECONOMIC STATUS				
8	What is your educational qualification?	Informal education	0	EDU
		Formal Primary Education (Upto 7th STD)	1	
		Secondary Education (Upto 10th STD)	2	

		Senior Secondary Education (Higher Secondary)	3	
		Senior Secondary Education (Higher Secondary)	4	
9	What is your occupation?			OCCUPATION
10	What is the monthly income of your family?			
11	What is the colour of your ration card?	Yellow card	0	RATIONCARD
		Pink card	1	
		Blue card	2	
		White card	3	
D FARMING PRACTICES				
12.	What type of crops do you cultivate?	<input type="checkbox"/> Paddy	1	CROP
		<input type="checkbox"/> Coconut	2	
		<input type="checkbox"/> Fruits	3	
		<input type="checkbox"/> Vegetables	4	
		<input type="checkbox"/> Multiple crops		

		Other crops, please specify		
13	Which season are you engaged in cultivating this crop/s?	<input type="checkbox"/> Monsoon	1	SEASN
		<input type="checkbox"/> Winter season	2	
		<input type="checkbox"/> Summer season	3	
		<input type="checkbox"/> All season	4	
		<input type="checkbox"/> Multiple seasons		
		Others, please specify		
14	How long have you been engaged in farming / labour activities? years		EXP
15	Do you store harvested crops? If yes, go to question 15. a.	Yes		
		No		
15.a	Where do you store your harvested crops?	Inside your house	0	STORE
		Outside garage	1	
		In the open	2	

		Others, please specify	3	
16	Do you store firewood in or around the house?	Yes	1	FWOOD
		No	0	
17	Is there vegetation/forest near your house or field?	Yes	1	FOREST
		No	0	
18	Do you keep crop residues/agricult ural byproducts residues around your house/farm?	Yes	1	RESIDUES
		No	0	
E BASIC KNOWLEDE ABOUT SNAKEBITES				
a) QUESTIONS ON IDENTIFICATION OF SNAKES				
19	Which of the following snakes are you able to identify? The participants will be shown the pictures of these snakes	<input type="checkbox"/> Indian Spectacled Cobra		IDENT
		<input type="checkbox"/> Venomous <input type="checkbox"/> Non- venomous		
		<input type="checkbox"/> Common Krait <input type="checkbox"/> Venomous <input type="checkbox"/> Non- venomous		

		<input type="checkbox"/> Russells viper		
		<input type="checkbox"/> Venomous <input type="checkbox"/> Non- venomous		
		<input type="checkbox"/> Saw- scaled viper		
		<input type="checkbox"/> Venomous <input type="checkbox"/> Non- venomous		
		<input type="checkbox"/> Malabar Pit Viper		
		<input type="checkbox"/> Venomous <input type="checkbox"/> Non- venomous		
		<input type="checkbox"/> Rat snake		
		<input type="checkbox"/> Venomous <input type="checkbox"/> Non- venomous		
		<input type="checkbox"/> Wolf snake		
		<input type="checkbox"/> Venomous <input type="checkbox"/> Non- venomous		
		<input type="checkbox"/> Vine snake		

		<input type="checkbox"/> Venomous		
		<input type="checkbox"/> Non-venomous		
		<input type="checkbox"/> water snake		
		<input type="checkbox"/> Venomous		
		<input type="checkbox"/> Non-venomous		
		<input type="checkbox"/> Striped keez back		
		<input type="checkbox"/> Common sand boa		
		<input type="checkbox"/> Venomous		
		<input type="checkbox"/> Non-venomous		

b) QUESTIONS ON SIGNS & SYMPTOMS

20	A woman named Bhavani was walking in slippers through a ridge between paddy fields. She was wearing a saree. Suddenly she got bitten by a snake on her right leg. She didn't see the snake. From the below given options (20.a - 20.e) choose the signs & symptoms she develops will indicate that the snake may have been venomous?			
20.a	Local bleeding & swelling	Yes	1	BLD
		No	0	
20.b	Severe pain at the site of the bite	Yes	1	PAIN
		No	0	
20.c	Nausea & vomiting	Yes	1	VMT
		No	0	

20. d.	Drowsiness & weakness	Yes	1	DRWS
		No	0	
20.e	Dizziness	Yes	1	DZN
		No	0	
c) QUESTIONS ON FIRST-AID				
<p>A 52 years old man named Raju were removing weeds from a paddy field, and he was bitten by a snake on his left hand. Suddenly, he started developing bleeding and pain at the bitten site. Imagine you were working with him. What all first-aid measures will you take to save him? (choose from options 21.a-21. e)</p>				
21.a .	Reassure and calm the patient	Yes	1	REASR
		No	0	
21. b.	Immobilise the whole body, especially the affected part	Yes	1	IMMOB
		No	0	
21.c .	Apply a tight bandage	Yes	1	PRSUR
		No	0	
21. d.	Excise the bitten site	Yes	1	EXC
		No	0	
21.e .	Transport the patient to nearest hospital provided with Anti-Snake Venom (ASV) facility	Yes	1	HOSP
		No	0	
d) QUESTIONS ON PREVENTION				
22.	Are you aware about the prevention of snakebite? (If yes, go to question 22.a. If	Yes	1	PRV
		No	0	

	not, go to question 23)			
22.a	Do you think using a light (torch, flashlight or lamp) when walking at night will help in preventing snakebites?	Yes	1	LIGHT
		No	0	
22.b	Do you think avoiding holes, nests, and other hidden places, while working in the fields will help in preventing snakebites?	Yes	1	AVDHAB
		No	0	
22.c	Do you think wearing proper shoes while working in the field will help in preventing snakebites?	Yes	1	SHOES
		No	0	
22.d	Do you think wearing proper boots while working in the field will help in preventing snakebites?	Yes	1	BOOTS
		No	0	
22.e	Do you wear long trousers while working in the field will	Yes	1	TROUSERS
		No	0	

	help in preventing snakebites?			
22. d.	Do you think clearing bushes around home/field will help in preventing snakebites ??	Yes	1	CLEAR
		No	0	
e) QUESTIONS ON TREATMENT				
A 10-year old boy Ramu was playing near a bush, when he was suddenly bitten by a snake. He became afraid and ran towards you and you saw a bitemark in his left foot. The available facilities near you are listed below.				
23.	Which will you prefer to take him to?	Nearest health facility	0	TRT
		Hospital where, Anti-Snake Venom (ASV) is available		
		Traditional healer	1	
		Self-treatment	2	
		Don't know	3	
f) PREVIOUS HISTORY OF SNAKEBITE				
24.	Have you ever been bitten by snake in the past? (If yes, go to question 24.a. If no, go to question 25)	Yes	0	ENCNTR
		No	1	

24.a	When did the bite happened? (How many months/years back)			
24.b	Where did the snakebite happen?	Inside house	0	CMNPLC
		House premises	1	
		Fields	2	
		Roadside	3	
		Other sites, specify	4	
24.c	What activity were you doing when the snake bite happened?	Working in the fields	0	ACTIVITY
		Working in the house premises	1	
		Staying inside the house	2	
		Others, please specify		
24.d	Which type of snake had bitten you (If venomous, answer question 24.d, if not, go to question 25)	Non-Venomous	0	VENM
		Venomous	1	
24.e	Where was the bite location?	Hands	0	BTLCN
		Legs	1	

		Other sites, please specify		
24.f	Where did you go for treatment first?	Hospital, where ASV available.	0	FIRSTTRT
		Hospital, where ASV not available	1	
		Traditional healer	2	
		Other treatments, please specify	3	
24.g	Were you referred from the first facility or you went somewhere else? (if yes, go to 24.h)	Yes	1	
		No	0	
24.h	If you have not gone to a hospital where snakebite treatment available, specify the reasons.	Did not know that treatment for snakebite was available	0	REASONS
		Financial constraints	1	
		Lack of transport	2	

		Belief in the first facility	3	
		Others, specify		
24.i	Did you develop any complications related to snakebite?	No	0	COMP
		if yes, specify	1	
24.j	What were the treatments given?	<input type="checkbox"/> Local wound management	1	TRT
		<input type="checkbox"/> Symptomatic management	2	
		<input type="checkbox"/> ASV treatment	3	
		<input type="checkbox"/> Treatment for complications		
		<input type="checkbox"/> Do not know	4	
f) QUESTIONS ON AWARENESS				
25.	Have you ever received any of awareness programmes	Yes	0	AWRPGM
		No	1	

	regarding snakebites? (If yes, go to question 25.a, if not go to question 26)			
25.a	Which was the training attended by you regarding snakebites?	<input type="checkbox"/> By agricultural dept.	0	TRNG
		<input type="checkbox"/> By health dept.	1	
		<input type="checkbox"/> By NGOs	2	
		Others, specify	3	
25.b	How long back this training happened?		
F) QUESTIONS ON PERCEPTION				
26	How concerned are you about risk of snakebites?	Very concerned	0	CONCRN
		Somewhat concerned	1	
		Not very concerned	2	
		Not concerned at all	3	
27.	How afraid would you feel if you encounter a snake?	Very fearful	0	FEAR
		Somewhat fearful	1	
		Little fearful	2	
		No fear at all	3	

28.	Do you think capturing the offending snake is essential for treatment	Yes	0	CAPTR
		No	1	
		Don't know	2	
29.	Do you believe that bite marks help in differentiating between venomous & non-venomous snakes?	Yes	0	BITMRKS
		No	1	
		Don't know	2	
30.	What will be your reaction if you saw a snake in your farm / home, irrespective of whether it is venomous / non-venomous?	Panic and let the snake go	0	ACT
		Kill the snake, if you feel it is venomous	1	
		Call for help	2	
31.	Do you think sucking the bitten site, soon after snakebite will remove the snake venom?	Yes	0	SCK
		No	1	
32.	Do you think the application of herbs/ any other traditional medicines will help in removing	Yes	0	HRBS
		No	1	

	the snake-venom?			
33.	Do you believe that making the snake bite the same person will take back the snake-venom?	Yes	0	REBITE
		No	1	
34.	Do you believe that harming the snakes will make them take revenge on people by biting them?	Yes	0	RVNG
		No	1	
35.	Do you believe that snakebite is due to some curse bestowed upon you? (Sarpa dosham)	Yes		
		No		
36.	In your opinion, is there a need for awareness and training programmes on first-aid management of snakebites?	Very much needed	0	NEED
		Not much needed	1	
		Not needed	2	
		No opinion	3	

Thank you for your valuable time.

<u>ഇന്റർവ്യൂ ഷെഡ്യൂൾ</u>				
സീരിയൽ നമ്പർ	ചോദ്യങ്ങൾ	കോഡിംഗ് മാനുവൽ	കോഡ് ഓപ്പീഷൻ	വേരിയബിളുകൾ
A പങ്കെടുക്കുന്നയാളുടെ വിശദാംശങ്ങൾ				
1	പങ്കെടുക്കുന്നയാളുടെ ഐഡി: (അന്വേഷകൻ പൂരിപ്പിക്കേണ്ടതുണ്ട്)			
2	പഞ്ചായത്ത്			
3	പാടശേഖരത്തിന്റെ പേര്			
B പൊതുവായ വിശദാംശങ്ങൾ				
4	പങ്കെടുക്കുന്നയാളുടെ പ്രായം			AGE

5	പങ്കെടുക്കുന്നയാളുടെ ലിംഗഭേദം:	<input type="checkbox"/> ആൺ	0	GENDER
		<input type="checkbox"/> പെണ്ണ്	1	
		<input type="checkbox"/> ട്രാൻസ്ജെൻഡർ	2	
		<input type="checkbox"/> വ്യക്തമാക്കാൻ തയ്യാറല്ല	3	
C സാമൂഹിക-സാമ്പത്തിക നില വിലയിരുത്തുന്നു				
6	നിങ്ങളുടെ വിദ്യാഭ്യാസ നില: (ഇതുവരെ നേടിയ ഏറ്റവും ഉയർന്ന നില)	<input type="checkbox"/> അനുപചാരിക വിദ്യാഭ്യാസം	0	EDU
		<input type="checkbox"/> ഔപചാരിക പ്രാഥമിക വിദ്യാഭ്യാസം (ഏഴാം STD വരെ)		
		<input type="checkbox"/> സെക്കൻഡറി വിദ്യാഭ്യാസം (പത്താം STD വരെ)	1	
		<input type="checkbox"/> സീനിയർ സെക്കൻഡറി വിദ്യാഭ്യാസം (ഹയർ സെക്കൻഡറി)	2	
		<input type="checkbox"/> ബിരുദമോ അതിനു മുകളിലോ	3	
7	നിങ്ങളുടെ ഇപ്പോഴത്തെ തൊഴിൽ എന്താണ്?			OCCUPN.
8	നിങ്ങളുടെ കുടുംബത്തിന്റെ പ്രതിമാസ വരുമാനം എന്താണ്?			INCM

9	നിങ്ങളുടെ റേഷൻ കാർഡിന്റെ നിറം എന്താണ്?	<input type="checkbox"/> മഞ്ഞ കാർഡ്	0	RATIONCARD
		<input type="checkbox"/> പിങ്ക് കാർഡ്	1	
		<input type="checkbox"/> നീല കാർഡ്	2	
		<input type="checkbox"/> വെള്ള കാർഡ്	3	

D കൃഷി രീതികൾ				
10	ഏതുതരം വിളകളാണ് നിങ്ങൾ കൃഷി ചെയ്യുന്നത്?	<input type="checkbox"/> നെല്ല്	1	CROP
		<input type="checkbox"/> നാളികേരം	2	
		<input type="checkbox"/> പഴവിളകൾ	3	
		<input type="checkbox"/> പച്ചക്കറി വിളകൾ	4	
		<input type="checkbox"/> മറ്റ് വിളകൾ, ദയവായി വ്യക്തമാക്കുക		
11	ഏത് സീസണിലാണ് നിങ്ങൾ കൃഷി ചെയ്യുന്നത്?	<input type="checkbox"/> മഴക്കാലം	1	SEASN
		<input type="checkbox"/> ശീതകാലം	2	
		<input type="checkbox"/> വേനൽക്കാലം	3	
		<input type="checkbox"/> എല്ലാ സീസണും	4	
		<input type="checkbox"/> മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക		
12	നിങ്ങൾ എത്ര കാലമായി കൃഷി / കാർഷിക പ്രവർത്തനങ്ങളിൽ ഏർപ്പെട്ടിരിക്കുന്നു?	----- വർഷങ്ങൾ		EXP
13	വിളവെടുത്ത വിളകൾ നിങ്ങൾ സംഭരിക്കുന്നുണ്ടോ? അതെ എങ്കിൽ, ചോദ്യം 13.a ലേക്ക് പോകുക.	<input type="checkbox"/> അതെ		
		<input type="checkbox"/> അല്ല		
13.a	നിങ്ങൾ വിളവെടുത്ത വിളകൾ എവിടെയാണ് സൂക്ഷിക്കുന്നത്?	<input type="checkbox"/> നിങ്ങളുടെ വീടിനുള്ളിൽ	0	STORE
		<input type="checkbox"/> പുറത്തെ ഗാരേജിൽ	1	
		<input type="checkbox"/> തുറസ്സായ സ്ഥലത്ത്	2	
		<input type="checkbox"/> മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	3	
14		<input type="checkbox"/> അതെ	0	FWOOD

	നിങ്ങൾ വീട്ടിലോ പരിസരത്തോ വിറക് സൂക്ഷിക്കാറുണ്ടോ?	<input type="checkbox"/> അല്ല	1	
15	നിങ്ങളുടെ വീടിനടുത്തോ വയലിന് സമീപത്തോ പൊന്തകാടുകൾ ഉണ്ടോ ?	<input type="checkbox"/> ഉണ്ട്	0	FOREST
		<input type="checkbox"/> ഇല്ല	1	
16	നിങ്ങൾ വിളകളുടെ അവശിഷ്ടങ്ങളോ കാർഷിക ഉപോൽപ്പന്നങ്ങളോ വീടിനുള്ളിൽ/ചുറ്റും സൂക്ഷിക്കാറുണ്ടോ?	<input type="checkbox"/> ഉണ്ട്	0	RESIDUE S
		<input type="checkbox"/> ഇല്ല	1	
E പാമ്പുകളെക്കുറിച്ചുള്ള അടിസ്ഥാന അറിവ്				
a) പാമ്പുകളെ തിരിച്ചറിയുന്നതിനെക്കുറിച്ചുള്ള ചോദ്യങ്ങൾ				
17	ഇനിപ്പറയുന്നവയിൽ ഏതാണ് നിങ്ങൾക്ക് തിരിച്ചറിയാൻ കഴിയുന്നത്? (ചിത്രത്തിൽ നിന്നും)	a. <input type="checkbox"/> മുർഖൻ		IDENT
		<input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട്		
		<input type="checkbox"/> വിഷമില്ല		
		b. <input type="checkbox"/> വെള്ളിക്കെട്ടൻ		
<input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല				
<input type="checkbox"/> വിഷമുണ്ട്				
<input type="checkbox"/> വിഷമില്ല				
c. <input type="checkbox"/> അണലി/ചേനത്തണ്ടൻ				
<input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല				
<input type="checkbox"/> വിഷമുണ്ട്				
<input type="checkbox"/> വിഷമില്ല				
d. <input type="checkbox"/> ചുരുട്ട മണ്ഡലി				
<input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല				

		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		e. <input type="checkbox"/> മര അണലി <input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		f. <input type="checkbox"/> ചേര പാമ്പ് <input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		g. <input type="checkbox"/> വെള്ളി വരയൻ <input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		h. <input type="checkbox"/> പച്ചിലപാമ്പ് <input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		i. <input type="checkbox"/> ചുരുട്ട പാമ്പ് <input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		j. <input type="checkbox"/> നീർകോലി <input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		k. <input type="checkbox"/> ദേശം പാമ്പ് <input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
		l. <input type="checkbox"/> മണ്ണൂലി		

		<input type="checkbox"/> തിരിച്ചറിയാൻ കഴിയുന്നില്ല		
		<input type="checkbox"/> വിഷമുണ്ട് <input type="checkbox"/> വിഷമില്ല		
a) രോഗലക്ഷണങ്ങളെ പറ്റിയുള്ള ചോദ്യങ്ങൾ				
18	നെൽവയലുകൾക്കിടയിലെ വരമ്പിലൂടെ ഭവാനി എന്ന സ്ത്രീ ചെരിപ്പ് ധരിച്ച് നടക്കുകയായിരുന്നു. അവർ സാരിയാണ് ധരിച്ചിരുന്നത് . പെട്ടെന്ന് അവരുടെ വലതുകാലിൽ പാമ്പ് കടിച്ചു. അവർ പാമ്പിനെ കണ്ടില്ല. താഴെ നൽകിയിരിക്കുന്ന (18.a - 18.e) അടയാളങ്ങളും ലക്ഷണങ്ങളും നിന്നും പാമ്പ് വിഷം ഉള്ളതാണെന്ന് സൂചിപ്പിക്കുന്നവ തിരഞ്ഞെടുക്കുക			
18.a	കടിച്ച ഭാഗത്തുള്ള രക്തസ്രാവവും വീക്കവും.	<input type="checkbox"/> അതെ	0	BLD
		<input type="checkbox"/> അല്ല	1	
18.b	കടിയേറ്റ സ്ഥലത്ത് കടുത്ത വേദന	<input type="checkbox"/> അതെ	0	PAIN
		<input type="checkbox"/> അല്ല	1	
18.c	ഓക്കാനം, ഛർദ്ദി	<input type="checkbox"/> അതെ	0	VMT
		<input type="checkbox"/> അല്ല	1	
18.d	മയക്കവും തളർച്ചയും	<input type="checkbox"/> അതെ	0	DRWS
		<input type="checkbox"/> അല്ല	1	
18.e	തലകറക്കം	<input type="checkbox"/> അതെ	0	DZN
		<input type="checkbox"/> അല്ല	1	
c) പ്രഥമശുശ്രൂഷയെ പറ്റിയുള്ള ചോദ്യങ്ങൾ				
രാജു എന്ന 52 കാരൻ നെൽവയലിൽ നിന്ന് കളകൾ നീക്കം ചെയ്യുന്നതിനിടെയാണ് ഇടതുകൈയിൽ പാമ്പ് കടിച്ചത്. ഉടനെ തന്നെ കടിയേറ്റ സ്ഥലത്ത് രക്തസ്രാവവും വേദനയും ഉണ്ടാകാൻ തുടങ്ങി. നിങ്ങൾ അദ്ദേഹത്തിന്റെ കൂടെ പ്രവർത്തിക്കുന്നുവെന്ന് സങ്കല്പിക്കുക. അവനെ രക്ഷിക്കാൻ നിങ്ങൾ എന്ത് പ്രഥമശുശ്രൂഷാ നടപടികളാണ് സ്വീകരിക്കുക? (19.a-19. f ഓപ്ഷനുകളിൽ നിന്ന് തിരഞ്ഞെടുക്കുക)				
19.a	രോഗിയെ സമാധാനിപ്പിക്കുകയും ശാന്തമാക്കുകയും ചെയ്യുക	<input type="checkbox"/> അതെ	0	REASR
		<input type="checkbox"/> അല്ല	1	
19.b	പാമ്പ് കടിച്ച ഭാഗം അനക്കാതെ വയ്ക്കുക	<input type="checkbox"/> അതെ	0	IMMOB
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അതെ	0	PRSUR

19.c	എന്തെങ്കിലും മാർഗം ഉപയോഗിച്ച് കടിച്ച ഭാഗത്തിന് മുകളിലായി കെട്ടാൻ ശ്രമിക്കുക	<input type="checkbox"/> അല്ല	1	
19.d	കടിച്ച ഭാഗം മുറിച്ചു കളയുക	<input type="checkbox"/> അതെ	0	EXC
		<input type="checkbox"/> അല്ല	1	
19.e	ആൻറി സ്നേക്ക് വെനം അഥവാ ASV സൗകര്യമുള്ള അടുത്തുള്ള ആശുപത്രിയിലേക്ക് രോഗിയെ കൊണ്ടുപോകുക	<input type="checkbox"/> അതെ	0	HOSP
		<input type="checkbox"/> അല്ല	1	
d) പ്രതിരോധത്തെക്കുറിച്ചുള്ള ചോദ്യങ്ങൾ				
20.	പാമ്പുകടി തടയുന്നതിനെക്കുറിച്ച് നിങ്ങൾക്ക് അറിയാമോ? (ഉവ്വ് എങ്കിൽ, ചോദ്യം 20.a എന്നതിലേക്ക് പോകുക. ഇല്ലെങ്കിൽ, ചോദ്യം 21-ലേക്ക് പോകുക)	<input type="checkbox"/> അതെ	0	PRV
		<input type="checkbox"/> അല്ല	1	
20.a	രാത്രിയിൽ നടക്കുമ്പോൾ ഒരു ലൈറ്റ് (ടോർച്ച്, ഫ്ലാഷ് ലൈറ്റ്) ഉപയോഗിക്കുന്നത് പാമ്പുകടി തടയാൻ സഹായിക്കുമെന്ന് നിങ്ങൾ കരുതുന്നുണ്ടോ?	<input type="checkbox"/> അതെ	0	LIGHT
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അറിയില്ല	2	
20.b	പാടത്ത് ജോലി ചെയ്യുമ്പോൾ ദ്വാരങ്ങളും മറഞ്ഞിരിക്കുന്ന സ്ഥലങ്ങളും ഒഴിവാക്കുന്നത്	<input type="checkbox"/> അതെ	0	AVDHAB
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അറിയില്ല	2	

	പാമ്പുകടി തടയാൻ സഹായിക്കുമെന്ന് നിങ്ങൾ കരുതുന്നുണ്ടോ?			
20.c	വയലിൽ ജോലി ചെയ്യുമ്പോൾ ശരിയായ ഷൂസ്/ബൂട്ട് ധരിക്കുന്നത് പാമ്പുകടി തടയാൻ സഹായിക്കുമെന്ന് നിങ്ങൾ കരുതുന്നുണ്ടോ?	<input type="checkbox"/> അതെ	0	BOOTS
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അറിയില്ല	2	
20.d	പാടത്ത് ജോലി ചെയ്യുമ്പോൾ നീളമുള്ള ട്രൗസർ ധരിക്കുന്നത് പാമ്പുകടി തടയാൻ സഹായിക്കുമെന്ന് നിങ്ങൾ കരുതുന്നുണ്ടോ?	<input type="checkbox"/> അതെ	0	TROUSERS
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അറിയില്ല	2	
20.e	വീടിന് / വയലിന് ചുറ്റുമുള്ള കുറ്റിക്കാടുകൾ വൃത്തിയാക്കുന്നത് പാമ്പുകടി തടയാൻ സഹായിക്കുമെന്ന് നിങ്ങൾ കരുതുന്നുണ്ടോ?	<input type="checkbox"/> അതെ	0	CLEAR
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അറിയില്ല	2	
e) ചികിത്സയെക്കുറിച്ചുള്ള ചോദ്യങ്ങൾ				
<p>ഒരു കുറ്റിക്കാട്ടിനു സമീപം കളിച്ചു കൊണ്ടിരിക്കുകയായിരുന്ന രാമു എന്ന 10 വയസ്സുകാരനെ പെട്ടെന്ന് പാമ്പ് കടിയേറ്റു. അവൻ ഭയന്ന് നിങ്ങളുടെ അടുത്തേക്ക് ഓടി, അവന്റെ ഇടതു കാലിൽ ഒരു കടിയേറ്റ അടയാളം നിങ്ങൾ കണ്ടു. നിങ്ങളുടെ സമീപത്തുള്ള ലഭ്യമായ സൗകര്യങ്ങൾ ചുവടെ പട്ടികപ്പെടുത്തിയിരിക്കുന്നു.</p>				
21.	നിങ്ങളുടെ അഭിപ്രായത്തിൽ, ഏത് ആരോഗ്യ സ്ഥാപനത്തിലേക്കാണ്	<input type="checkbox"/> ആന്റി സ്പൈനൽ വെനം (എഫിസി) ലഭ്യമായ ആശുപത്രി	0	TRT

	അവനെ കൊണ്ടുപോകുക ?	<input type="checkbox"/> പരമ്പരാഗത വൈദ്യൻ	1	
		<input type="checkbox"/> സ്വയം ചികിത്സ	2	
		<input type="checkbox"/> അറിയില്ല	3	
f) മുമ്പ് പാമ്പ് കടിച്ചതിനെ കുറിച്ചുള്ള ചോദ്യങ്ങൾ				
22.	എപ്പോഴെങ്കിലും പാമ്പ് കടിച്ചിട്ടുണ്ടോ? (ഉപ്പ് എങ്കിൽ, ചോദ്യം 22.a. ഇല്ലെങ്കിൽ, ചോദ്യം 23-ലേക്ക് പോകുക)	<input type="checkbox"/> അതെ	0	ENCNTR
		<input type="checkbox"/> അല്ല	1	
22.a	എപ്പോഴാണ് കടിയേറ്റത്? (മാസങ്ങള്/വർഷങ്ങള്)			YRSBT
22.b	പാമ്പുകടിയേറ്റത് എവിടെ നിന്നാണ് ?	<input type="checkbox"/> വീടിനുള്ളിൽ	0	CMNPLC
		<input type="checkbox"/> വീടിന്റേ പരിസരം	1	
		<input type="checkbox"/> വയലുകൾ	2	
		<input type="checkbox"/> റോഡരികിൽ	3	
		<input type="checkbox"/> മറ്റ് സൈറ്റുകൾ, വ്യക്തമാക്കുക	4	
22.c	പാമ്പ് കടിയേറ്റപ്പോൾ നിങ്ങൾ എന്താണ് ചെയ്തുകൊണ്ടിരുന്നത് ?	<input type="checkbox"/> വയലുകളിൽ ജോലി ചെയ്യുന്നു	0	ACTIVITY
		<input type="checkbox"/> വീട്ടുവളപ്പിൽ ജോലി ചെയ്യുന്നു	1	
		<input type="checkbox"/> വീടിനുള്ളിൽ ആയിരുന്നു	2	
		<input type="checkbox"/> മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക		
22.d	ഏത് തരത്തിലുള്ള പാമ്പാണ് നിങ്ങളെ കടിച്ചത് (വിഷം ഉള്ളതെങ്കിൽ , ചോദ്യത്തിന് ഉത്തരം	<input type="checkbox"/> വിഷമുള്ള	0	VENM
		<input type="checkbox"/> വിഷമില്ലാത്തത്	1	

	22.e, ഇല്ലെങ്കിൽ, ചോദ്യം 23-ലേക്ക് പോകുക)			
22.e	കടിയേറ്റ സ്ഥലം എവിടെയായിരുന്നു?	<input type="checkbox"/> കൈകൾ	0	BTLCN
		<input type="checkbox"/> കാലുകൾ	1	
		<input type="checkbox"/> മറ്റ് സൈറ്റുകൾ, ദയവായി വ്യക്തമാക്കുക		
22.f.	നിങ്ങൾ ആദ്യം ചികിത്സയ്ക്കായി എവിടെയാണ് പോയത്?	<input type="checkbox"/> ASV ലഭ്യമായ ആശുപത്രി.	0	FIRSTTRT
		<input type="checkbox"/> ASV ലഭ്യമല്ലാത്ത ആശുപത്രി	1	
		<input type="checkbox"/> പരമ്പരാഗത വൈദ്യൻ	2	
		<input type="checkbox"/> മറ്റ് ചികിത്സകൾ, ദയവായി വ്യക്തമാക്കുക	3	
22.g	നിങ്ങളെ ആദ്യത്തെ സൗകര്യത്തിൽ നിന്ന് റഫർ ചെയ്തതാണോ അതോ നിങ്ങൾ മറ്റെവിടെയെങ്കിലും പോയിരുന്നോ? (അതെ എങ്കിൽ, 22.h-ലേക്ക് പോകുക)	<input type="checkbox"/> അതെ		
		<input type="checkbox"/> അല്ല		
22.h	പാമ്പുകടിയേറ്റ ചികിത്സ ലഭ്യമായ ആശുപത്രിയിൽ നിങ്ങൾ പോയിട്ടില്ലെങ്കിൽ, കാരണങ്ങൾ വ്യക്തമാക്കുക.	<input type="checkbox"/> പാമ്പുകടിയേറ്റതിന് ചികിത്സയുണ്ടെന്ന് അറിയില്ല	0	REASONS
		<input type="checkbox"/> സാമ്പത്തിക പരിമിതി	1	
		<input type="checkbox"/> ഗതാഗതത്തിന്റെ അഭാവം	2	
		<input type="checkbox"/> മറ്റുള്ളവ, വ്യക്തമാക്കുക	3	

22.i.	നിങ്ങൾക്ക് എന്തെങ്കിലും സങ്കീർണതകൾ ഉണ്ടായിട്ടുണ്ടോ	<input type="checkbox"/> ഇല്ല	0	COMP
		<input type="checkbox"/> ഉണ്ടെങ്കിൽ, വ്യക്തമാക്കുക	1	
22.j.	എന്തൊക്കെ ചികിത്സകളാണ് നൽകിയത്?	<input type="checkbox"/> മുറിവിനുള്ള ചികിത്സ	1	WND
		<input type="checkbox"/> രോഗലക്ഷണങ്ങള്ക്ക് ഉള്ള ചികിത്സ	2	
		<input type="checkbox"/> പാമ്പ് വിഷഭേദനയ്ക്കുള്ള ചികിത്സ	3	
		<input type="checkbox"/> സങ്കീർണതകൾക്കുള്ള ചികിത്സ	4	
g) ബോധവൽക്കരണം ചോദ്യങ്ങൾ				
23.	പാമ്പുകടിയുമായി ബന്ധപ്പെട്ട ബോധവൽക്കരണ പരിപാടികൾ നിങ്ങൾക്ക് എപ്പോഴെങ്കിലും ലഭിച്ചിട്ടുണ്ടോ? (ഉവ്വ് എങ്കിൽ, ചോദ്യം 23.a., ഇല്ലെങ്കിൽ ചോദ്യം 24-ലേക്ക് പോകുക)	<input type="checkbox"/> ഉണ്ട്	0	AWRPGM
		<input type="checkbox"/> ഇല്ല	1	
23a.	പാമ്പുകടിയുമായി ബന്ധപ്പെട്ട് നിങ്ങൾ പങ്കെടുത്ത പരിശീലനം ഏതാണ്?	<input type="checkbox"/> കൃഷി വകുപ്പ് മുഖേന.	0	TRNG
		<input type="checkbox"/> ആരോഗ്യ വകുപ്പ് പ്രകാരം.	1	
		<input type="checkbox"/> എൻജിനീയർമാർ വഴി	2	
		<input type="checkbox"/> മറ്റുള്ളവ	3	
23.b.	എത്ര കാലം മുമ്പാണ് ഈ പരിശീലനം നടന്നത്?		
F) പാമ്പ് കടിയെ കുറിച്ചുള്ള നിങ്ങളുടെ ധാരണകൾ				

24	പാമ്പ് കടിയേൽക്കാനുള്ള സാധ്യതയെക്കുറിച്ച് നിങ്ങൾ എത്രമാത്രം ആശങ്കയുണ്ട്	<input type="checkbox"/> വളരെ ആശങ്കയുണ്ട്	0	CONCRN
		<input type="checkbox"/> അൽപ്പം ആശങ്കയുണ്ട്	1	
		<input type="checkbox"/> വലിയ ആശങ്കയില്ല	2	
		<input type="checkbox"/> ഒട്ടും ആശങ്കപ്പെടേണ്ടതില്ല	3	
25.	നിങ്ങൾ ഒരു പാമ്പിനെ കണ്ടുമുട്ടിയാൽ എത്രമാത്രം ഭയപ്പെടും?	<input type="checkbox"/> വളരെ ഭയപ്പെടും	0	FEAR
		<input type="checkbox"/> അൽപ്പം ഭയം	1	
		<input type="checkbox"/> ചെറിയ ഭയം	2	
		<input type="checkbox"/> ഒട്ടും ഭയപ്പെടില്ല	3	
26.	കടിച്ച പാമ്പിനെ പിടികൂടുന്നത് ചികിത്സയ്ക്ക് അത്യാവശ്യമാണെന്ന് നിങ്ങൾ കരുതുന്നുണ്ടോ?	<input type="checkbox"/> അതെ	0	CAPTR
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അറിയില്ല	2	
27.	കടിച്ച പാമ്പ് വിഷമുള്ളതാണോ അല്ലയോ എന്നു തിരിച്ചറിയാൻ പാമ്പ് കടിയുടെ അടയാളം സഹായികുമോ ?	<input type="checkbox"/> അതെ	0	BITMRKS
		<input type="checkbox"/> അല്ല	1	
		<input type="checkbox"/> അറിയില്ല	2	
28.	നിങ്ങളുടെ ഫാമിൽ / വീട്ടിൽ ഒരു പാമ്പിനെ കണ്ടാൽ, അത് (വിഷം / വിഷമില്ലാത്തതോ) നിങ്ങളുടെ പ്രതികരണം എന്തായിരിക്കും?	<input type="checkbox"/> പരിഭ്രാന്തരായി പാമ്പിനെ വിട്ടയക്കുക	0	ACT
		<input type="checkbox"/> വിഷമുള്ളതാണെന്ന് എന്ന് തോന്നിയാൽ പാമ്പിനെ കൊല്ലുക	1	
		<input type="checkbox"/> സഹായത്തിനായി വിളിക്കുക	2	

29.	പാമ്പുകടിയേറ്റ ഉടൻ വിഷം വായ്കൊണ്ടു വലിച്ചെടുക്കുന്നത് ശേരിയാണോ ?	<input type="checkbox"/> അതെ	0	SCK
		<input type="checkbox"/> അല്ല	1	
30.	ഔഷധസസ്യങ്ങളുടെ/ മറ്റേതെങ്കിലും പരമ്പരാഗത ഔഷധങ്ങളുടെ പ്രയോഗം പാമ്പിന്റെ വിഷം നീക്കം ചെയ്യാൻ സഹായിക്കുമെന്ന് നിങ്ങൾ കരുതുന്നുണ്ടോ	<input type="checkbox"/> അതെ	0	HRBS
		<input type="checkbox"/> അല്ല	1	
31.	കടിച്ച പാമ്പിനെ കൊണ്ട് തന്നെ വിഷം തിരിച്ചെടുപ്പിക്കുമെന്ന് നിങ്ങൾ വിശ്വസിക്കുന്നുണ്ടോ?	<input type="checkbox"/> അതെ	0	REBITE
		<input type="checkbox"/> അല്ല	1	
32.	പാമ്പ് കടിയേൽക്കുന്നത് പാമ്പ് നിങ്ങളോടു വൈരാഗ്യം തീരുകയാണെന്ന് നിങ്ങളു് വിശ്വസിക്കുന്നുണ്ടോ?	<input type="checkbox"/> അതെ	0	RVNG
		<input type="checkbox"/> അല്ല	1	
33.	പാമ്പുകടിയേറ്റത് നിങ്ങൾക്ക് ലഭിച്ച ഏതെങ്കിലും ശാപം മൂലമാണെന്ന് നിങ്ങൾ വിശ്വസിക്കുന്നുണ്ടോ? (സർപ്പ ദോഷം)	<input type="checkbox"/> അതെ		CRS
		<input type="checkbox"/> അല്ല		
34.	നിങ്ങളുടെ അഭിപ്രായത്തിൽ, പാമ്പുകടിയേറ്റാൽ പ്രഥമശുശ്രൂഷ നൽകുന്നതിന് ബോധവൽക്കരണവും പരിശീലന	<input type="checkbox"/> വളരെ ആവശ്യമാണ്	0	NEED
		<input type="checkbox"/> അധികം ആവശ്യമില്ല	1	
		<input type="checkbox"/> ആവശ്യമില്ല	2	

	പരിപാടികളും ആവശ്യമുണ്ടോ?			
		<input type="checkbox"/> അഭിപ്രായമില്ല	3	

നിങ്ങളുടെ വിലയേറിയ സമയത്തിന് നന്ദി.



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०९९, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
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Institutional Ethics Committee

CDSO Registration No: ECR/189/Inst/KL/2013/RR-21
DHR Registration No: EC/NEW/INST/2022/2775

11.01.2024

SCT/IEC/2167/DECEMBER/2023

Dr. Amritha S
MPH Student, AMCHSS
SCTIMST, Thiruvananthapuram

Dear Dr. Amritha,

The Institutional Ethics Committee held on 30th December, 2023, reviewed and discussed your application to conduct the study titled "ASSESSMENT OF KNOWLEDGE AND PERCEPTIONS ABOUT SNAKEBITES AMONG FARMERS OF PALAKKAD DISTRICT (IEC /2167) "

Principal Investigator	Dr. Amritha S, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr Srikant A, Associate Professor, AMCHSS, SCTIMST
Duration of the study	6 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2023

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Smt. Sathi Nair	MA (English Literature)	Female	Lay Person	No
2.	Dr. Kala Kesavan P	MBBS,MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. P. Manickam	BSMS, MSc (Epid), PhD	Male	Health Science Expert/ Social Scientist	No
5.	Dr. Christina George	MD Psychiatry	Female	Clinician	No
6.	Dr. Narayanan Namboodiri K K	MBBS,MD DM	Male	Clinician	Yes
7.	Dr. Biju Soman	MBBS,MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes

The following documents were reviewed:

Original submission

1. Checklist Form
2. Responses/Amendments made based on the Reviewer's comments
3. Covering letter addressed to the Chairman, IEC, SCTIMST dated 01.12.2023
4. IEC Application Form
5. Research Proposal
6. Participant Information Sheet and Informed Consent Form in English and Malayalam
7. Interview schedule in English and Malayalam
8. CV of Principal Investigator and Guide
9. Declaration Form
10. SRC Recommendation Letter

Revised submission

1. Checklist Form
2. Responses/Amendments made based on the Reviewer's comments
3. Covering letter addressed to the Chairman, IEC, SCTIMST dated 01.12.2024
4. IEC Application Form
5. Research Proposal
6. Participant Information Sheet and Informed Consent Form in English and Malayalam
7. Interview schedule in English and Malayalam
8. CV of Principal Investigator and Guide
9. Declaration Form

IEC Decision

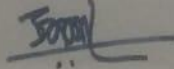
The IEC approved the conduct of the study in the present form.

Remarks:

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

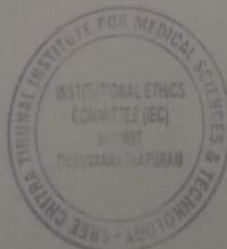
There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,



Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST, THIRUVANANTHAPURAM

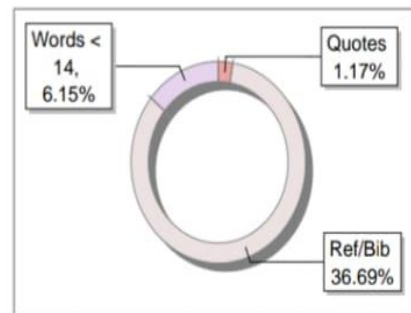
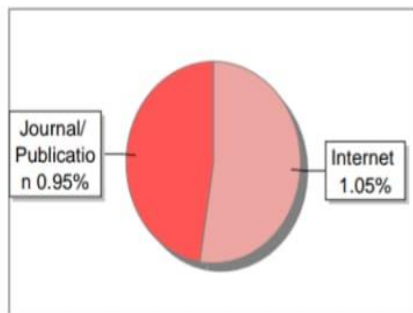
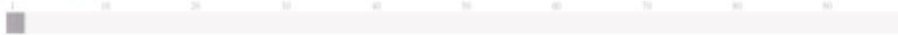


Submission Information

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