



**Knowledge, Attitude and Practice of traditional first aid as
prehospital management of snakebite among the coastal
rural population of Kumira Union, Chattogram.**

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Roll No: 0120/03

Registration No: 885

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**A thesis submitted in partial fulfillment of the requirements for the
degree of Masters in Public Health**

One Health Institute

Chattogram Veterinary and Animal Sciences University

Chattogram-4225, Bangladesh

February, 2021

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Symbol and Abbreviation

CVASU:	Chattogram Veterinary & Animal Science
University	
Etc:	ET cetera
kg:	Kilogram
km:	Kilometer
mm:	Millimeter
TB:	Tuberculosis
Sq:	Square
WHO:	World Health Organization
%:	Percentage
°C:	Degree celcius
>:	More than
<:	Less than
SD:	Standard Deviation
DGHS:	Directorate General of Health Services
KAP	Knowledge, Attitude and Practice

Abstract

A cross-sectional survey was conducted in Kumira of Chattogram district, one of the unions of Sitakunda upazilla to assess the knowledge, attitude, practice and perception about snakes and the first aid management of snake bite where 120 interviews of respondents were included. A combination of convenient and purposive sampling was applied to recruit subjects for the study. We employed Chi-square test to analyze the association between demographic characteristics and the degree of knowledge, attitude, practice, and perception. The mean knowledge score was 6.5 (SD=1.7). Regarding first aid knowledge, 57.50% of the respondents had adequate knowledge while 42.50% were regarded to have poor knowledge. The majority of the participants in this study (55%) had negative attitudes to the first-aid treatment of snake bites (45%). 47% of responders followed good practices for pre-hospital care of a snake bite. 56.7% of respondents believed in snake superstitions. With the exception of religion, which was not statistically significant, the study found a correlation between some other demographic factors and the population's level of knowledge, attitudes, behaviors, and perceptions of snakes as well as first aid techniques for snake bites. However, poor perception and low knowledge were not statistically substantially correlated with gender, although poor practice and negative attitudes were. Women performed worse than males in attitude and practice. The least knowledgeable groups were housewives (69.2%), moreover, all illiterates had poor perception. The older population showed greater levels of inadequate knowledge, a negative attitude, bad behavior, and poor perception as compared to the younger group. Negative behavior was not connected to education level; on the other hand, poor perception was strongly related. Negative attitudes were present in 86.21% of farmers, fishermen, and 65.3% of housewives. All the housewives had poor perception. The study's findings revealed that although the study population, had a basic understanding of snakes and snake bites, their practices and attitudes toward pre-hospital care were not sufficient. The study also discovered that people's adherence to superstitions and beliefs might cause them to kill snakes, seek out an ojha or snake charmer after being bitten by a snake, and postpone seeking the required medical attention.

Key words: Snake bite, First aid treatment, knowledge, attitude, practice, perception, snake charmers, superstitions.

Chapter 1: Introduction

Snakebite envenoming, a neglected tropical illness, is brought on when a poisonous snake accidentally injects people with its highly specialized deadly secretion, or venom. The snake injects venom through its fangs, which are modified teeth attached to a venom gland by a duct (Gutiérrez et al., 2017). Snakebite is a serious medical emergency that can cause anything from localized tissue damage to involvement of nearly all vital body organs and even permanent disability or limb loss. Before going to the hospital, snakebite sufferers frequently seek home medicines and get inappropriate first aid. The lack of knowledge on how to treat victims properly is to blame for the death rate from snakebites. One of the most efficient strategies to reduce death in snakebite patients is to administer proper first aid.

The World Health Organization (WHO) estimates that 4.5 to 5.4 million individuals are bitten by snakes each year (Hameed et al., 2019). Mortality ranges from 81,000 to 138,000 each year, out of which 2.7 million become envenomated (Kharusha et al., 2020). This could be because many of the affected people don't go to healthcare institutions and instead rely on conventional treatments. The signs and symptoms of snake bites from various species vary greatly. The WHO has classified over 250 poisonous snakes as medically significant. Humans can have either favorable or negative views about snakes (Alves, 2012). Rarely have studies been done on the effects of negativity, ambivalence, fear of, and snake-killing on biodiversity preservation and human wellbeing. Snakes are frequently mercilessly killed because of the risk of a possibly lethal snakebite. Therefore, it's critical to comprehend how rural people see snakes, including their general understanding of them, the prevalence and treatment of snakebites, and the preventative actions they take. Armed with this information, it is essential to include locals in educational initiatives that will result in more appropriate responses to snakes. This is predicted to reduce snakebite incidents and prevent potentially fatal encounters with snakes, leading to improved conservation of snake populations (Pandey et al., 2016). Many people have false beliefs about snakes and snake bites, which can negatively impact the prognosis and course of therapy. Before going to the hospital, snake bite victims frequently seek out conventional healers and receive

faulty first aid treatment, according to reports from Nepal, India, and even China (Subedi et al., 2018). Ineffective first aid for snake bites worsens the situation rather than making it better (Subedi et al., 2018). Previous research has shown that effective antivenoms should be made more accessible everywhere, especially in endemic locations, in order to reduce the difficulties associated with treating snakebites. Antivenom should be delivered as soon as possible after a bite since it is the only effective therapy for deadly snakebites. By restricting lymphatic flow, first aid interventions should be focused on lowering systemic toxicity. Movement of the affected extremity should be restricted by splints, rest, and avoidance of motion (Parker-Cote and Meggs, 2018). Experimental investigations have demonstrated that pressure immobilization bandages, compression pads, and compression rings can delay the systemic absorption of venom and lower mortality in several mice. Their utility in some situations is supported by limited human data (Currie et al., 2008). Neither medical professionals nor members of the general public applied pressure immobilization bandages successfully in a simulated environment (Canale et al., 2009). Several therapies are often not advised. Tourniquets result in amputations and limb ischemia (Parker-Cote and Meggs, 2018). It is also advised that the people be educated on the need of receiving immediate medical attention and how to prevent any negative consequences from unsupported traditional first aid.

Bangladesh is a disaster-prone country. Due to this reason, snakebite is a serious but neglected public health issue in Bangladesh. A great diversity of locales for snakes, as well as other wild species have developed in Bangladesh in the junction of Indo-Malayan, Indo-Chinese and Indo-Himalayan regions which provides excellent opportunities to make welcoming habitat for those dangerous beasts. Biting occurs generally when individuals are at work, engaging in activities such as cultivation, fishing, plantation, wood collection, tending crops and gardening (Hasan et al., 2016). In Bangladesh, there were 6,000 fatalities from snakebite per year out of an estimated 700,000 events. Only 3% of bite victims visited a hospital or sought medical attention from trained professionals; 6% went to a local doctor; and the majority of the remaining victims employed traditional healers, or "Ojhas". In Sylhet Division, the annual incidence of snake bites varied from 321 per 100,000 people to 2,667 per 100,000 people in Barisal Division. People in this region of the world have a mythical association with the field of

"snakes and snakebite." Traditional healers who were also snake charmers ("Ojha") predominated in the treatment of snakebite (John B. Harris et al, 2010). The conventional procedures of tight tourniquet, repeated biting site incisions, administration of medicinal preparations, and many ceremonies used to be sufficient for most people. Even medical experts lacked a thorough understanding of scientific management techniques. The snakebite study clinic at a medical ward at Chattogram Medical College Hospital launched the first effort. It began employing polyvalent antivenom and held many public education events in rural regions with participation from traditional snake charmers and healers. With certain achievements and the "miraculous" recovery of persons who were almost dead, it quickly gained popularity and public recognition. Through an ongoing program of DGHS, more than 1,000 physicians have been educated to date. Despite recent scientific advancements in the treatment of snakebite victims, social, cultural, geographic, economic, and ecological concerns continue to impede the management of this easily curable ailment (Gopalakrishnakone et al., 2015).

There are several studies that evaluated the knowledge, attitude, and practice of first aid management of snake bites by including medical professionals, students. However, there aren't many research that evaluated rural residents' knowledge. As snake bite fatalities rely on timing, it is important to evaluate rural residents' knowledge. In villages, individuals seek alternative medical advice or administer ineffective first aid, which might be dangerous for the victim. Following an incident in the village, dwellers and their families become frightened and follow the instructions of the most senior or experienced person, so it is essential to identify their knowledge as well as that of the community as a whole and provide appropriate education based on age, gender, occupation, and education level. The purpose of this study is to determine the knowledge, attitudes, and practices of the residents of Kumira Union, Chattogram, with regards to obtaining medical attention for snake bites. This research will be useful for identifying misconceptions and superstitions about snakes and snakebites, as well as for determining if people have positive or negative attitudes toward snakes, which is significant for the ecosystem and biodiversity. Effective antivenom administered promptly continues to be the cornerstone of therapy. It will be also useful to educate the community on untested traditional first aid's possible negative effects and how to prevent them as well as provide rapid and

timely care after assessing the knowledge, attitude and practice of prehospital management of snake bite among the particular rural population.

Objective of the study

General objective:

To assess the status of knowledge, attitude, practice of first aid management of snakebite among the rural people of Kumira union.

Specific objective:

1. To demonstrate the knowledge, attitude and practice level of first aid management of snakebite.
2. To evaluate the status of health seeking behavior according to sociodemographic variable.

Chapter 2: Review of the literature

2.1 Snake Bite envenoming

The World Health Organization (WHO) has identified snakebite as a neglected tropical disease that is a substantial and significant concern, particularly in rural parts of tropical and subtropical poor nations (Naiksatam et al., 2022). Snakebite envenoming is a potentially life-threatening 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 have the ability to spit venom as a defense measure (Alam, Islam and Jesmin., 2016).

2.2 Prevalence of snake bite around the world, Southeast Asia

According to estimates, 4-5 million individuals are bitten by snakes annually, of whom 2 million have clinical encephalitis, 81 000–138 000 pass away, and another 400 000 experience lasting disability (Alcoba et al., 2022). In Africa severe envenomation is responsible for around 20,000 annual deaths, and it also causes at least as many cases of severe morbidity and suffering that, in the absence of death, may lead to lifelong disability through limb amputation (by amputation) (Stock et al., 2007). In south Asia, snakebite envenoming is a significant cause of hospitalization and fatality. Large-scale national surveys have been carried out in Sri Lanka (Ediriweera et al., 2016) and Bangladesh (Rahman et al., 2010b), raising authorities' knowledge of snakebite

envenoming as a public health concern and assisting in the most effective resource allocation. From 2000 to 2019, 58 000 people each year in India died from snakebite envenoming, according to a national research (Suraweera et al., 2020).In Nepal, envenoming from snakebite results in roughly 20,000 hospital admissions a year and 1,000 fatalities (Alcoba et al., 2022).

Table1: Global occurrence of snake bite envenomation (Stock et al., 2007)

Region	Bites	Envenomation	Death
Europe	25000	8000	30
Middle east	20000	15000	100
USA	270	45000	6500
Latin America	300000	150000	5000
Africa	1000000	500000	20000
Asia	4000000	2000000	1000000
Oceania	10000	3000	200

2.3 Snake bite epidemiology in Bangladesh

Based on data from the health Directorate General of Health Services (DGHS), Bangladesh, drowning was found to be the second-leading cause of death in the 2007 flood catastrophe, after snakebite envenoming. A comprehensive, community-based epidemiological investigation of snakebite cases and associated Recently, a publication on Bangladesh's socioeconomic effects(Rahman et al., 2010).The study indicates a significantly greater incidence density of snakebite in rural Bangladesh than was previously thought. The yearly projected mortality toll from snakebites is 6,041 and the incidence density is 623.4/100,000 person-years. The vast majority of snakebite victims are children. The majority of bites happened when people were at work. The lower extremities of 71 % of the victims were bitten by snakes. In the first two hours after

being bitten by a snake, 86% of victims receive some kind of treatment, but just 3% go straight to a hospital or a doctor (Gopalakrishnakone et al., 2015).

2.4 Habitation of snakes

All around the world, with the exception of the Arctic, New Zealand, and Ireland, snakes are widespread. There are thought to be over 3000 species of terrestrial snakes in the globe, and they are most common in the warm, lush tropical climates. Some snakes, like the eastern worm snake, only emerge from their underground homes on hot, muggy evenings. Others dwell in grassy openings, like the green snake. The marshes and areas close to other bodies of water are where the water snake and ribbon snake reside. However, the majority of snakes like sunny regions where logs, rock heaps, and other debris offer cool, shady hiding spots. Snakes are drawn to heaps of firewood, old lumber, garbage, walls made of rock, ancient wells, foundations, flowerbeds with tons of mulch, gardens, bushes against walls, banks of streams and ponds, unmoved lawns, vacant lots, fields, basements, and barn lofts around the house (Curtis and Sullivan, 2001). In India, there are around 278 species, 58 of which are poisonous (Sirsat et al., 2016). The high human population density, the prevalence of venomous snakes near human settlements, and the fact that a sizeable portion of the human workforce is employed in agricultural fields where snakes are ostensibly in great abundance may all contribute to the high frequency of snakebites in rural communities in the tropics. Agricultural workers are the group of people most at risk from poisonous snake bites since the summertime coincides with the rainy season (Glaudias, 2021). However, whether victims are sleeping on the ground or traveling along country footpaths, bites are rather typical. Children are especially at danger for dying from snakebites or developing lasting disabilities. Because of the rain, snakes tend to escape their hiding places more frequently during the monsoon. The majority of Bangladeshi rural homes are not made of brick, and occasionally snakes are seen living in the holes in the muddy flooring. Additionally, the majority of the residences have homestead vegetation, which provides excellent habitat for snakes. People frequently leave their homes to use the bathroom or for other domestic functions and end up being victims. People frequently leave their homes to use the restroom or for other household tasks and end up being victims. People in the villages keep their poultry

and grains, such as paddy rice, in the same residence, which also serves as a home for snakes, increasing the danger of snakebites (Gopalakrishnakone et al., 2015).

2.5 Terrestrial Asian venomous snake

Four venomous snakes commonly referred to as the "Big Four" snakes are responsible for the majority of snake bite cases in tropical areas of the world. They include the Saw Scaled Viper (*Echis carinatus*), Russell's Viper (*Daboia russelii*), Common Krait (*Bungarus caeruleus*), and Spectacled Cobra (*Naja naja*). King cobras (*Ophiophagus Hannah*), which are also highly numerous, and hump-nosed pit vipers are two other snakes that frequently produce serious snake bite cases (*Hypnale hypnale*)(James et al., 2014).

Table 2 :Terrestrial Asian venomous snake families (Brent et al., 2017)

Family	Genus	Species	Common name
Viperidae	<i>Azemiops</i>	<i>A. feae</i>	Fea's viper
Viperidae (Viperinae)	<i>Cerastes</i>	<i>C. gasperettii</i>	Horned sand viper
	<i>Daboia</i>	<i>D. russelii</i> <i>Complex</i>	Russell's viper
	<i>Echis</i>	<i>E.multisquamatus</i>	Tibetan saw-scaled viper
	<i>Vipera</i>	<i>V. xanthina</i>	Steppe/ottoman viper
Viperidae (Crotalidae-pit vipers)	<i>Gloydius</i>	<i>G. brevicaudus</i>	Chinese mamushi
	<i>Hypnale</i>	<i>H. nepa</i>	Sri Lanka hump- nosed viper
		<i>H. hypnale</i>	Merrem's hump- nosed viper

	<i>Ovophis</i>	<i>O. monticola</i>	Mountain pit viper
Elapidae	<i>Bungarus</i>	<i>B. caeruleus</i>	Indian krait
	<i>Naja</i>	<i>N. naja</i>	Indian cobra
	<i>Ophiophagus</i>	<i>O. hannah (only)</i>	King cobra
	<i>Walterinnesia</i>	<i>W. aegyptia (only)</i>	Desert cobra
Colubridae	<i>Ahaetulla</i>	<i>A. nasuta</i>	Long-nosed vine snake

2.6 Types of venomous snake in Bangladesh

The location of Bangladesh at the confluence of the Indo-Malayan, Snakes and other wild creatures have exceptional opportunity to live in a variety of habitats in the Chinese and Indo-Himalayan regions. Bangladesh is a disaster-prone nation due to its geographic position and meteorological circumstances. Through medical costs and lost production, snakebites have a considerable negative impact on both human health and the economy (Gopalakrishnakone et al., 2015). As a result, Bangladesh is home to roughly 82 distinct species, including 12 kinds of sea snakes, of which 28 are poisonous. Community-based household surveys are carried out in nations like Bangladesh and India to determine its scope, which is far bigger than research conducted in hospitals (Hossain et al., 2016). The most prevalent snakes in Bangladesh include the non-venomous Asiatic water snake, non-venomous Rat snake, Python, Cobra, King Cobra, Krait, and Sea Snakes (Mondal et al., 2012a). In Bangladesh's coastal waters and estuaries, the Bay of Bengal, and up to several kilometers upstream in rivers, there are about 25 species of very poisonous sea snakes. Cobra and krait are two of the more well-known terrestrial elapid snakes in Bangladesh. The Indian or Spectacled Cobra, *Naja naja*, and the *Monocellate Cobra*, *Naja kaouthia*, are two species of cobra, respectively. There are also at least five distinct species of krait (*Bungarus*), the King Cobra (*Ophiophagus hannah*), and maybe four species of coral snakes in Bangladesh (*Sinomicrurus*). About six species of pitvipers and

genuine vipers may be found in Bangladesh, including the Russell's Viper (*Daboia russelii*) and many other types of green pitvipers. The main factor contributing to snakebite fatalities in Bangladesh is neurotoxic envenoming from kraits and cobras. Recent investigations have shown that snakebite fatalities in Bangladesh is caused by at least five different species of kraits. The greater black krait (*Bungarus niger*), common krait (*Bungarus caeruleus*), banded krait (*Bungarus fasciatus*), and lesser black krait (*Bungarus lividus*) are each thought to account for about 2% of all krait bites in the nation. Wall's krait (*Bungarus walli*) is responsible for about 40% of all krait bites. *Bungarus lividus* is now only known from the northwest of Bangladesh. Everywhere throughout the nation, *Bungarus fasciatus* and *B. niger* are found. *Naja kaouthia*, one of the cobra species, is predicted to inhabit the whole nation and be responsible for the bulk of cobra bites. Southeast Bangladesh, which is defined here to encompass Chattogram District, Cox's Bazar District, and the three Chattogram Hill Tract Districts, is home to only one species of *Naja*. In Bangladesh, where bamboo grows and woodlands are still mostly untouched, king cobras (*Ophiophagus hannah*) can be found there. The country's western and northern regions appear to be the only places where the Russell's viper (*Daboia russelii*) is found (Gopalakrishnakone et al., 2015). According to recent data, nine of Bangladesh's 64 districts are home to the Russell's viper, but earlier records said that the snake was present in 11 districts. 20 persons lost their lives as a result of Russell's viper bites in Rajshahi Division between 2013 and 2016 (Ahsan, 2020).



2.7 Medically important snake species



A snake species is considered medically significant if it falls into one of the following three categories:


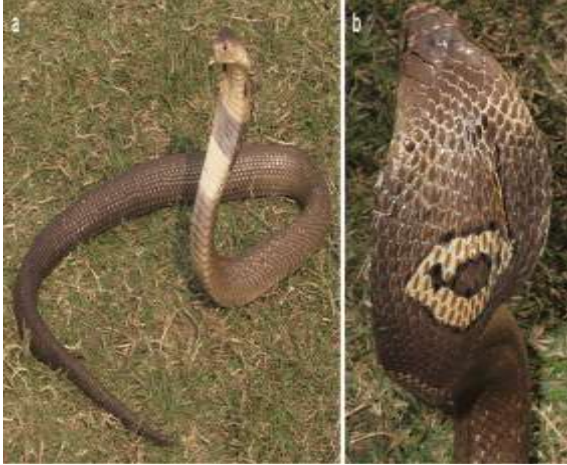
- a) Frequently results in death or major impairment;
- b) Rarely results in bites but is known to have serious consequences; or
- c) Frequently because bites serious repercussions are extremely uncommon. Depending on the type of snake that bit you, different systems are affected by the bite. Bite wounds from cobra and krait are known to be quite poisonous. Following a cobra bite, local envenoming with soft tissue necrosis has also been documented in certain nations, including Bangladesh (Faiz et al., 2017). But there is no local envenomation linked to the krait bite. The bite of a Russell's viper is linked to neurotoxicity, myotoxicity, and renal



failure. The most frequent severe envenoming is neurotoxicity, which is characterized by respiratory paralysis, ptosis, external opthalmoplegia , dysphagia, dysphonia, facial muscle weakness, the "broken neck sign," and loss of tendon jerks (Amin, 2016).

Table 3: Sign and symptoms of different snake bite envenoming

Snake name	Snake picture	Effect of venom
<p>1. Russell’s viper, <i>Daboia russelii</i></p>		<p>Local pain, local necrosis, local ecchymosis, shock, coagulopathy, AKI, systemic hemorrhage, anterior pituitary infarction/syndrome, Sheehan's rhabdomyolysis, and neurotoxic paralysis are only a few of the consequences that may result from its venom.</p>
<p>2. Malayan pit viper, <i>Calloselasma rhodostoma</i>.</p>		<p>2. This snake’s venom can cause extreme coagulopathy, shock, blistering, ecchymosis, significant local pain, and systemic bleeding.</p>

<p>3. Common green pit viper, <i>Trimeresurus albolabris</i>.</p>		<p>3. May result in mild to severe envenoming, which includes systemic coagulopathy, localized discomfort, swelling, and ecchymosis. Shock can occur in more severe circumstances, and there have been isolated reports of local necrosis and AKI.</p>
<p>4. Japanese habu, <i>Protobothrops flavoviridis</i>.</p>		<p>4. Its venom can result in mild to severe envenoming, with local discomfort, swelling, ecchymosis, blistering, necrosis, shock, and systemic coagulopathy and bleeding, as well as AKI, at least in certain species.</p>

<p>5.Hundred pace snake, <i>Deinagkistrodon acutus</i></p>		<p>5. This snake's venom can be mild to severe, resulting in shock, systemic coagulopathy, severe swelling, localized discomfort, ecchymosis, blistering, necrosis, and bleeding.</p>
<p>6.Indian spectacled cobra, <i>Naja naja</i>.</p>		<p>6. Exhibits flaccid neurotoxic paralysis, coagulopathy, necrosis, blistering, local discomfort, edema, and occasionally ecchymosis.</p>

<p>7. Siamese spitting cobra, <i>Naja siamensis</i>.</p>		<p>7. Produces localized pain, swelling, and necrosis after biting, however the paralyzing effects may be less noticeable. It also causes corneal pain and damage from spit venom.</p>
<p>8. King cobra, <i>Ophiophagus hannah</i>.</p>		<p>8. Moderate to severe envenoming from king cobras can result in localized discomfort, swelling, sometimes blistering and necrosis, shock, and rapidly developing flaccid neurotoxic paralysis.</p>

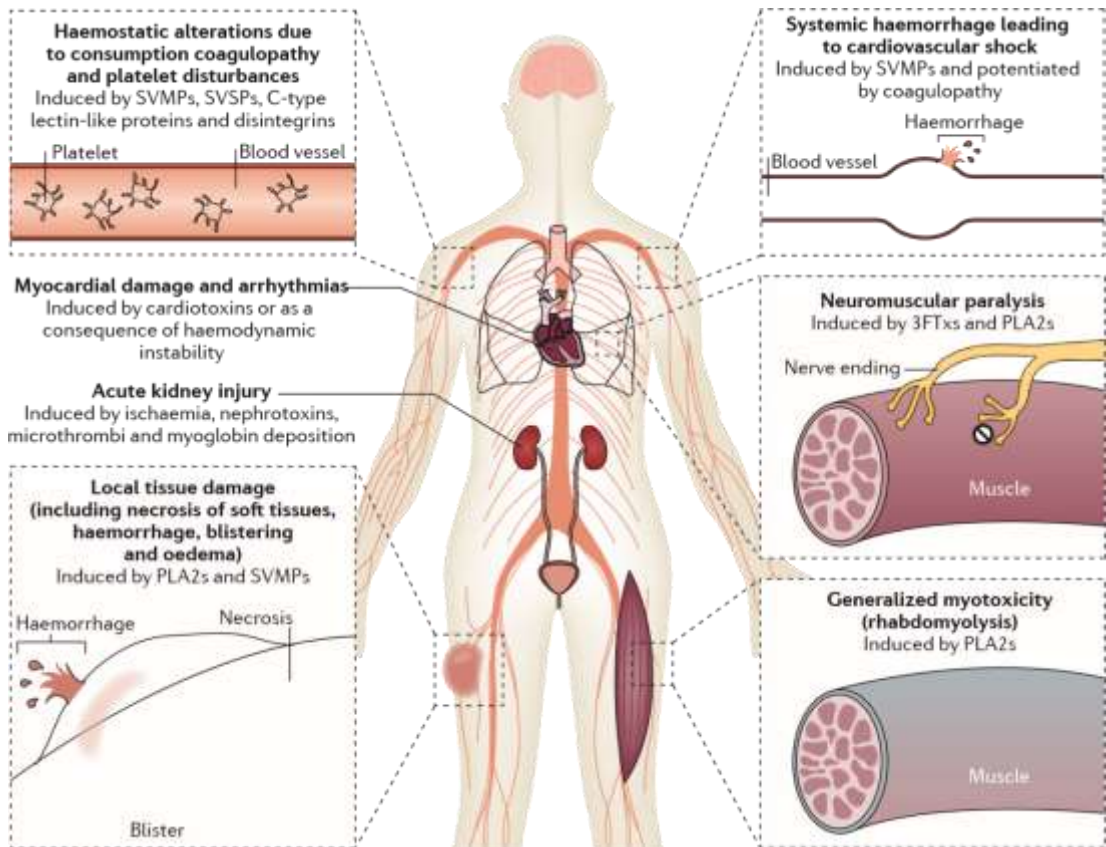


Fig 1 : Mechanism of action of snake venom (Gutiérrez et al., 2017)

2.9 Clinical manifestation of venomous and non-venomous snake

Cobra and viper bites result in local swelling if poison is administered, however swelling in these cases takes one to two hours to appear and is accompanied by local discomfort that is not diagnostic. Two puncture marks, blisters, and local necrosis around the site of envenomation are signs of elapid and snake bites. Viper is indicated by blood-stained spit and local hemorrhages caused by non-clotting blood, whereas ptosis and glossopharyngeal palsy are signs of an elapids bite (Gorea, 2019).

Table 4 : Clinical effects of snake bite (Ralph et al., 2022)

<p>Local effects</p> <ul style="list-style-type: none">• Bite site—Swelling, blistering, bruising, necrosis, intense pain, abnormal sensations, or a cold, pulseless, immobile limb• Venom droplets or spray into the eyes—Intense pain, redness, blepharitis, blepharospasm, and corneal erosions
<p>Systemic effects</p> <p>Vascular-Clotting failure, platelet abnormalities, and vessel wall damage. mild bite site or mucosal bleeding, spontaneous systemic or intracranial haemorrhage</p> <p>Neuromuscular-Most elapid and certain viperid venoms have the ability to paralyze targets by interfering with presynaptic or postsynaptic connections at the neuromuscular junction. Initial symptoms of eye muscle weakness include ptosis, diplopia, and blurry vision. This is followed by weakening of the neck, breathing, bulbar (dysphonia, dysphagia, and drooling) and limb muscles. Envenomation by various elapid and viperid species, including sea snakes, results in generalized muscle destruction.</p> <p>This causes soreness and pain in the muscles, particularly in the neck, trunk, and proximal limbs, along with black urine.</p> <p>Acute Kidney Injury-Hypotension, fibrin-platelet microthrombi in capillaries and arterioles, immune system or hemoglobin-related tubular damage, or the direct venomous action are likely the causes of acute kidney injury.</p> <ul style="list-style-type: none">• Shock



Fig 2: Local effect of snake bite (a. Fang marks 2.5 cm apart caused by a large Russell's viper

b. Spontaneous local bleeding from fang marks

c. Swelling, blistering and bruising

d. Blistering with necrosis at the site of a cobra bite (Warrel, 2019)



Fig 3 : Neurological manifestation of snake bite (Mohan G, Singh A, 2018)



Fig 4 :Myoglobinuria and hemoglobinuria (Mohan G, Singh A, 2018)



Fig 5:Facial Swelling followed by Green Pit Viper Bite on Head
(Gopalakrishnakone et al., 2015)



Fig 6 : Broken neck sign (Gopalakrishnakone et al., 2015)

2.10 Clinical time course

Local swelling is often seen 2-4 hours after viper and certain cobra bites, and it can grow quickly, peaking on the second or third day. Blistering begins between two and twelve hours after the bite, and tissue necrosis is visible by the next day. During the following weeks or months, sloughing of necrotic tissue and secondary infections, including osteomyelitis, occur. It could take weeks for the bitten limb's swelling to fully subside and for its usual functionality to return. Within minutes of the bite, vomiting or syncope may signify systemic envenoming. When left untreated, coagulopathy and bleeding can appear within a few hours and last for around two weeks. Within 30 minutes to a few hours, neurotoxic symptoms might escalate to widespread flaccid paralysis and respiratory arrest (Gutiérrez et al., 2017).

2.11 Snake bite complication

Following symptoms of prolonged, tight compression, such as foot drop and wrist drop, were occasionally seen. If closely monitored, it is discovered that the *N. kaouthia* bites on the survivors develop soft tissue necrosis by the end of the first week. This necessitates meticulous debridement, surgical treatment, and can occasionally have debilitating consequences like contracture. Bites in confined spaces may cause compartmental syndrome, which may need surgical intervention or perhaps amputation. Long-term monitoring revealed that a sizable percentage of snakebite victims had unquantified long-term disabilities (Gopalakrishnakone et al., 2015).

2.12 Management of snake bite

According to WHO guideline management stages are (Warrel, 2019):

- First aid treatment
- Transport to hospital
- Rapid clinical assessment and resuscitation
- Detailed clinical assessment and species diagnosis Investigations/laboratory tests
- Antivenom treatment
- Observing the response to antivenom
- Deciding whether further dose(s) of antivenom are needed
- Supportive/ancillary treatment
- Treatment of the bitten part
- Rehabilitation Treatment of chronic complications

2.13 First aid management of snake bite envenoming

First-Aid Treatment: The mnemonic is the basis for the current first aid protocols.

"CARRY NO R.I.G.H.T." The following are its components(Mohan G, Singh A, 2018):

- CARRY = Carry the victim in any possible way, especially if the bite was to the leg, and do not even let him walk a short distance.
- No=Tourniquet;
- No-electrotherapy;
- No-cutting;
- No-pressure immobilization;
- No-sucking of venom

2.14 Principle of first aid treatment (Warrel, 2019) (Vsm and Sashindran, 2002):

- Boost the victim's confidence if they seem apprehensive.
- Immobilize the patient's entire body by placing him or her on a comfortable, secure surface. In particular, use a splint or sling to immobilize the bitten limb. Venom is more readily absorbed into the circulation and lymphatics when there is movement or muscle activity.
- Consider pressure-immobilization or a pressure pad if the required tools and abilities are available, but only if an elapid bite can be ruled out. The pressure pad technique has worked well for Russell's viper bite sufferers in Myanmar.
- Avoid interfering with the bite site in any way (including by making cuts, rubbing, rigorous cleaning, massaging, or using herbs or chemicals), as this might cause an infection, enhance venom absorption, or worsen the local bleeding.
- Compression bandages and tourniquets provide some hazard. The only situation where their usage is advised, when a serious sea snake or elapid bite results in a delay of more than 0.5 hours but less than 2–3 hours getting to a medical facility. In order to obstruct lymphatic and venous flow but not arterial flow, the tourniquet should be sufficiently loose. It is a good rule of thumb that it should be loose enough to allow a finger to slide beneath it. Only after administering the initial dosage of antivenom should the tourniquet be removed.

2.15 Traditional first aid management practiced among people

The most often employed Traditional first aid techniques included the use of a tourniquet, cow dung, local incisions, topical medicines, cow emetic gadali, and black "snake" stone. People in Bangladesh have a mythological link with the field of "snakes and snake bite." Traditional snake charmers (Ozha) or "Kaviraj" predominated in the treatment of snake bites, and the majority of people are still ignorant of the proper medical treatment for envenomation. A severe panic usually ensues after a snake bite, and this is quickly followed by the use of tourniquets and a hasty trip to the local healers. Applying superfluous, tight tourniquets, making several incisions, sucking out the "poison" with the tongue, applying herbal remedies, and performing other rituals, such as reciting poetry or "mantras," are all traditional ways of treatment (Alam et al., 2016b). The fact that most snake bites are non-venomous and all venomous bites do not always deliver enough

poison to result in deadly envenomation means that victims occasionally escape death. In addition to the possibility of death, some snake bite victims experience long-lasting physical aftereffects from local tissue necrosis and, occasionally, psychological aftereffects. In several regions of Bangladesh, traditional healers treat snake bites with a variety of medicinal herbs. The majority of first aid techniques used in the field are hazardous to patients. These include:

- Putting tight tourniquets,
- Cutting or pricking the bite site or the area around it,
- Sucking blood,
- Applying seeds, stones, mud, or other natural remedies,
- Inducing vomiting,
- Reciting poetry, and so on.

The majority of them are used by local healers (Ojha), who the rural population consults for snakebite treatment. These inflict physical injury to the patient and, more significantly, squander valuable time, delaying their arrival at the medical institution. These procedures frequently result in the loss of important bodily parts or functions, even in patients who have been bitten by nonvenomous snakes (Gopalakrishnakone et al., 2015).

Tourniquet

Constrictive bands called tourniquets stop lymphatic, venous, and arterial blood flow. When a person has been bitten by a snake and needs first aid, tourniquets are frequently utilized, especially in remote locations where getting to a hospital takes longer. After being envenomated by the *Crotalus durissus*, Amaral et al. found no difference between those who applied a tourniquet and those who did not in terms of plasma creatine kinase enzyme activity, partial thromboplastic time, plasma whole venom, crotoxin concentrations, frequency of acute renal and respiratory failure, or deaths. Tourniquets have harmful consequences that manifest 20 minutes to 2 hours after treatment (Amaral et al., 1998).



Fig 7 : Multiple tight tourniquet (Gopalakrishnakone et al., 2015)

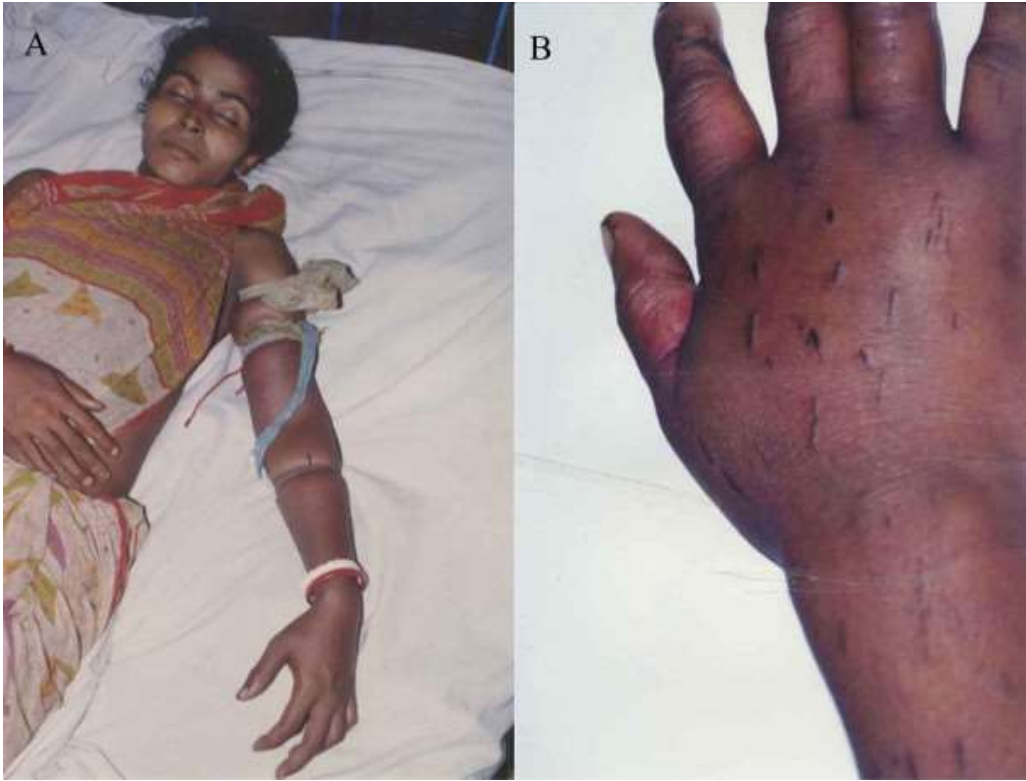


Fig 8 : Multiple incision was given by the traditional healers at the bite site (John B Harris et al., 2010)

Pressure immobilization bandaging (PIB) and local compression pad immobilization (LCPI):

These are crucial pre-hospital snakebite care techniques for preventing systemic venom absorption, the start of systemic envenomation effects, the emergence of a potentially fatal respiratory paralysis without pain, and other severe outcomes. However, there is disagreement on their effectiveness. PIB entails applying pressure of 40 to 70 mm Hg for an upper limb and 55 to 70 mm Hg for a lower limb to the bitten appendages using an elastic bandage. The limb is then immobilized with a splint or sling. LCPI entails applying a hard rubber pad (or cotton pad) to the bite site, covering it with cotton bandages, and immobilizing the affected limb with a splint or sling. The guiding premise is that PIB may be beneficial for treating snakebites with high systemic toxicity (high mortality), but at the expense of tissue necrosis, whereas PIB should not be used to treat snakebites with low systemic toxicity (low mortality), but high tissue necrosis. The choice to use PIB is challenging and depends on clinical judgment since some snake species, such as some viperids and some cobra species, have significant levels of both systemic and local (tissue) toxicity. However, in the case of certain elapid snakes that cause life-threatening respiratory paralysis and little to no local tissue necrosis, delaying the beginning of envenomation using PIB until antivenom can be administered is significant. Because it might worsen the local tissue damage, the use of PIB is thought to be prohibited in snake bites that result in substantial local tissue necrosis (P. Pandey, 2013).

Oral remedies by traditional healers: According to a study of Africa the most often used treatments had been the use of a tourniquet and oral isibiba. Isibiba is a locally produced drug made by traditional healers from different snake remains, usually including the gallbladder. Other frequent oral remedies included consuming an elixir made from crushed aloe leaves to cause vomiting and drinking urine, usually the patient's own (Newman et al., 1997).

Tropical remedies by traditional healers: Common topical treatments have included scarifying the bite site and applying herbal combinations directly to the bitten site. The

most common tool used for scarification was a razor blade, but a sharpened cow horn has also been used three times. Isibiba, household cleaner, potassium permanganate, paraffin, breast milk, and snuff were only a few of the items that had been rubbed into the bite site. Amputation of the affected area and the use of a "healing stone" were some of the most peculiar therapies (Newman et al., 1997). Both complications were seen during the current experiment. The usual practice of scarification and administration of non-sterile treatments increases the danger of bleeding in coagulopathic bites as well as the introduction of infection to the bite site.

Venom Extractors: In some country, venom extractor is used .Theoretically, venom extractors' function by providing suction to the site of a snakebite. Venom extraction is induced by applying negative pressure on the fang markings. The extractors may have compressed the subcutaneous tissue and drawn fluid from superficial capillaries with a low venom load, according to Alberts et al. (2004). These gadgets come with hazards, including the potential for local tissue loss and a skewed feeling of security (Alberts et al., 2004).The American Heart Association and Wilderness Medical Society do not currently recommend using mechanical suction for pit viper envenomations.

Electric shock: Although there is no scientific justification for using electric shock and no evidence to support its usage outside of case reports, it has been promoted as a therapy for poisonous snakebites. The use of these shocks has been prohibited by the United States Food and Drug Administration.

2.16 Superstitions and perception about snakes among the people of Bangladesh

The northwest districts of Bangladesh are well-endowed with plains, rivers, canals, and some portions are covered with deciduous woods. These areas are mostly used for agriculture. Among these, habitat loss and fragmentation, traffic accidents, and unjustified killing by locals have all presented serious challenges to snakes and caused a sharp drop in their natural population. Because of the widespread fear of snakes among people of many cultures, conservation efforts for this group of reptiles are hampered. Traditional methods for avoiding snake bites kill snakes probably cure snakebites. The most common beliefs are the gem on a snake's head, snakes dancing at the sound of a whistle, and snakes milking cows. Additionally, conventional folklore encourages unfavorable sentiments that foment hostility and dread among neighbors. Negative

attitudes frequently endanger both people and snakes because they lead to illogical actions that frequently result in snake fatalities or an elevated risk of snakebites, which in turn leads to a lack of interest in snake conservation. Some superstitions and misperceptions are (Shome et al., 2020):

- Snake is considered as dangerous animal.
- Snake harm their eco condition by preying on their domestic animals.
- killing snake gives a good feeling
- snakes attack humans
- Snake carry snakestone (Moni) on the head
- Snake can dance when it hear the sound of flute played by snake charmer Ojha
- Snake drink milk
- Snake takes revenge if humans kill one snake, another individual of the pair comes to take revenge

2.17 Relevant studies

A cross-sectional research was conducted at Rangpur Medical College Hospital from January 2010 to June 2012. Only venomous snakebite patients were considered, and a clinical syndrome-based diagnosis was made. Farmers made up the majority (46.4%), and most bites (50%) occurred while people were doing home chores. The median time between being bitten and being admitted to the hospital was 5, ranging from 6 to 10 hours for 39.2 percent of patients and >10 hours in 10.7 percent of cases. Patients who needed pre-hospital first aid received ligatures in 82.1% of cases. Anti-snake venom (ASV) was administered to 21 patients overall, at various dosage levels. While 15 patients made a full recovery, 13 people passed away. 13 individuals perished, and of them, 53.8% passed away within two hours, 15.3% from three to 24 hours, and 30.7% beyond 24 hours following the bite (Mondal et al., 2012a).

A study was conducted in a tertiary care facility with a large rural patient population in Culicut, south India. It was done using a cross-sectional research approach. According to this study's findings, 86 percent of the public was poorly informed about how to treat a snakebite. There was a misunderstanding that curses and a lack of devotion may result in snake bites, and 67.94% of people believed that snakes were Gods. Only 69.87 percent of respondents agreed that the victim should not be offered anything to drink or eat. The

percentage of participants who thought it was a good idea to cleanse the bite location with soap and water, make an incision close to or on it, or suction the bitten site was 69.23% (Beeson et al., 2021).

A community-based cross-sectional study of 400 persons who lived in Kin aye village permanently was done. 100% of survey participants would seek medical attention right away if bitten by a snake and would head straight for a hospital if they were. Spectacled Cobra, the most often recognized poisonous snake (72%), and Common Krait, the least frequently identified (24%). About 75% of research participants accurately distinguished between images of venomous and non-venomous snake bite marks. Nearly 90% of respondents said snakes bite in self-defense. In the current study, 304 participants (76%) said they would tie a tourniquet there. After suffering a snake bite, 364 (91%) of the participants said they would not consider seeking treatment from a traditional healer or ojha (Pathak and Metgud, 2017).

The Rural Health Training Center in Maharashtra, India performed a cross-sectional study in 10 of its chosen villages between July 2011 and June 2012. All participants had a low degree of knowledge of first aid techniques, however the majority of subjects had a higher level of knowledge about the signs and symptoms of a snake bite. It was discovered that people between the ages of 12 and 20 knew a lot more about snakes. Out of the 68 total cases, eight of whom received the wrong first aid, 49 of them survived. Blood sucking and mantrik usage were only sometimes employed. The nearest medical facility is typically more than 30 minutes away, and there is no available transportation service to get there (Chincholikar et al., 2014). In three arid zone areas of Sri Lanka, where agriculture is the predominant economic activity, 176 part-time and full-time Chena and paddy farmers were evaluated for their knowledge and views. The majority of research participants chose allopathic snake bite therapy over conventional/Ayurvedic treatment. Of them, 80.8% cited the accessibility of a government hospital as the reason for their decision. However, it was clear that a sizable portion of participants favor the use of a tourniquet as a first aid procedure in the event of a snakebite. The majority of participant acknowledged that some hospitals had snake antivenom and that snake bites can be successfully treated (Silva et al., 2014).

According to a study, cluster sampling was used to choose 4,276 rural individuals from Kyaukse and Madaya townships in the Mandalay area. 144 villages were randomly chosen, and 30 households from each village were randomly sampled. Only 39% were knowledgeable about the appropriate first aid techniques. Despite the fact that using a tourniquet may result in serious consequences including ischaemia of the leg, more than 60% of respondents mentioned it as a first aid technique. 58 percent of respondents who stated they would take a snakebite sufferer to a government hospital did so because antivenom was readily available. The majority also said that there were traditional ways for first aid and therapy, and 25% named at least one damaging traditional practice as a potential beneficial strategy (Afzal et al., 2019).

Chapter 3: Materials and Methods

3.1 Study design and period

A cross-sectional study was carried out from July 2021 to August 2022 throughout the course of a full year. We conducted a literature review to prepare the protocol and questionnaire. A pretest was conducted in January 2020 after the questionnaire was developed by December 2021. Data collection began in the first week of February 2022 after necessary modifications and corrections. By the middle of August 2022, compilation, processing, analysis, and report writing were completed.

3.2 Description of the study area

This study was carried out at Kumira, one of the unions of Sitakunda upazilla in the Chattogram area. Geographically, it is located at 22° 30' 13" North and 91° 41' 54" East in Chattogram district, Chattogram division, Bangladesh. Sonaichori Union to the north, Banshbaria Union to the south, Hathazari Upazilla to the east, and the Sandwip Channel of the Bay of Bengal to the west encircle it. This Union contains nine wards. Alekdia, Courtpara, New Rjarpur, kumira jelepara were selected from 7, 8, and 9 no ward. These villages are located along the coastal area.

- Area: 34.56 (sq. km).
- Population: 34,135 (as per 2011 statistics)
- Women: 15638 (as per 2011 statistics)
- Male: 18,497 (as per 2011 statistics)
- Education rate: 74.65% (according to 2001 education survey).



Fig 9: Map of study location

3.3 Study population:

Respondents were selected conveniently from the rural residents of the selected households of Alekdia, Courtpara, New Rjarpur, kumira jelepara villages.

3.4 Selection Criteria

Inclusion criteria:

1. Every adult people ≥ 18 years old
2. Permanent resident of that particular rural area
3. Living on that particular area for more than 10 years
4. Living in a household of nuclear or big family
5. Who are willing to give consent

Exclusion criteria:

1. People less than 18 years old
2. People who are not stable in mind

3.5 Sample size and sampling plan

3.5.1 Sample size

The following formula was used for calculating the adequate sample size in this study.

$$n = Z^2 P (1 - P) / d^2$$

Where n is the sample size, Z is the statistic corresponding to level of confidence, P is .623 % (Rahman et al., 2010c), and d is precision(0.05). The level of confidence was aimed for 95%.

$$N = 1.96^2 * 0.00623 * (1 - 0.00623) / .05^2$$
$$= 9.5$$

For the security and reliability we visited 200 households but got permission to include 120 populations in this study.

3.5.2 Sampling strategy

For this investigation, a combination of convenient and purposive sampling method was used. Union, villages, and families were chosen either purposively and conveniently for the study. Detailed sampling procedure are given below:

3.5.3 Selection of the District

Chattogram district has been selected purposively due to the geographical location. There are several coastal regions and hilly areas which are the habitational area for the snakes.

3.5.4 Selection of the Upazilla, Union, villages

Sitakund Upazilla and Kumira Union has been selected conveniently as easy access to those places is possible due to good communication facilities. Kumira, Courtpara, Newrajapur, Alekdia those villages have been selected purposively as the location of those villages are along the coastal margin of Sandwip Channel. From each village, 30 households (total 120) were selected conveniently based on easy access. One person has been selected from each household who have met the inclusion criteria.

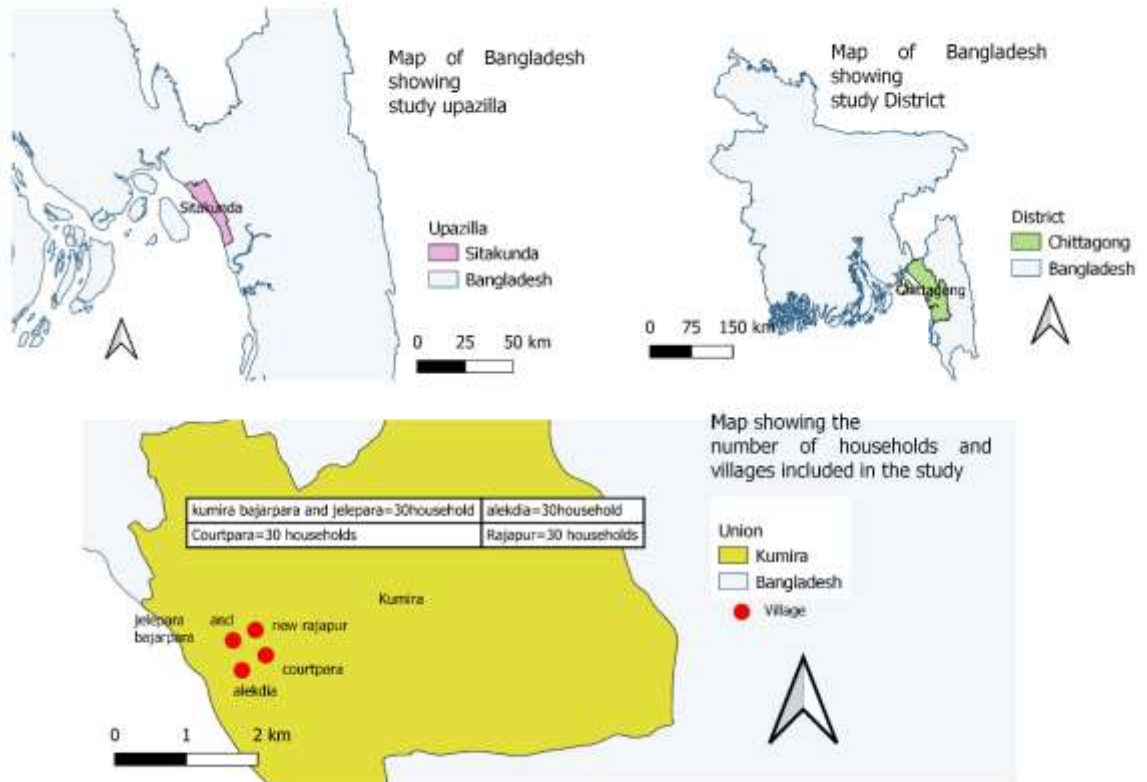


Fig 10: Map of study area created by using QGIS

3.6 Research instrument

A questionnaire attached with a consent form had been used. The questionnaire had 6 parts: 1. Sociodemographic information; 2. History of snake bite; 3. Knowledge about snake, snakebite, consequences of delayed management; 4. Attitude towards the pre-hospital management of snakebite; 5. Practice of snake bite management; and 6. Perception and misconception about snakes and snake bite management.

3.7 Data collection technique

Data was collected by face-to-face interview. Pretesting was conducted on 10 people once they met the selection criteria in order to assess the efficacy of the research instrument before the data gathering process began. Researchers questioned, tested and observed participants carefully during the pretesting process if any specific phrases or sentences they didn't understand as well as an inappropriate or insulting term or expression. Additionally, participants were questioned about any language barriers they may have encountered or any language substitutions. Following any necessary adjustments, the study instrument was completed.

3.8 Ethical consideration

An observation checklist and a questionnaire were used to collect data for the study. A consent form written in native language was given to every participant prior to the decision-making process. The information on the form was intended to convey the purpose, scope, and process that participants would need to follow. They were made aware of their right to decline to answer any or all of the interview questions as well as their ability to end a current interview. Each prospective participant was chosen after expressing their agreement by signing or leaving a thumbprint. Gender sensitivity, ethnic sensitivity, cultural sensitivity, and political sensitivity were not issues with the study. Subjects were made aware of the nature, goal, and purpose of the study.

3.9 Data entry, management and statistical analysis

Microsoft Excel 2003 was used to enter the primary data, which was then exported to Statistical Package of Social Science for Windows version 28. Each right response received one (1) mark, while each incorrect response received zero (0) marks, in order to

establish a total score for knowledge, practice, and perception about snake bite management (Alahakoon et al., 2022). The total score for knowledge part was ranged from 0-11, in practice part 0-5, in perception part 0-7. Total scores were then classified as good or bad. Each study participant who had total score above the mean on each component (knowledge, practice, and perception) was considered to have achieved a good result. In attitude part 5 graded Linkert scale was used and total score was 5-40. The total score above mean was considered as positive attitude and the alternative was negative attitude.

Chapter 4: Result

4.1 Sociodemographic characteristics of the respondents

The distribution of population according to age, sex, education, occupation is given in figure 11. It has been observed that 46.7 % of respondents were male while 53.3% were female. The age of the respondents was in between 18 years and 60+ years and the mean age was 40.05 ± 9.82 years. Most (55.8%) of the respondents were between 18-30 years. Only 11 out of 120 respondents were aged above 45-60 years comprising 9.2% of the target population. Other people made up 20.8% and 14.2%, respectively, of the target population in the age groups 31-45 years and 60+ years. According to this study data, most (82.5%) of the respondents were Muslim while 17.5 % were Hindu. The majority of respondents (39%) finished their SSC, followed by 24% their high school education, 21% their HSC and 16% their elementary education. Only 9% and 3% of the respondents had completed their education with a bachelor's degree or higher, while 8% were illiterate. The majority of the participants were students, 32 (26.7%), followed by housewives (21.7%), office workers (18.5%), farmers (13.8%), the unemployed (13.8%), and fishermen (10.3%). Day laborers and businessmen made up just 2% of the population (fig 11).

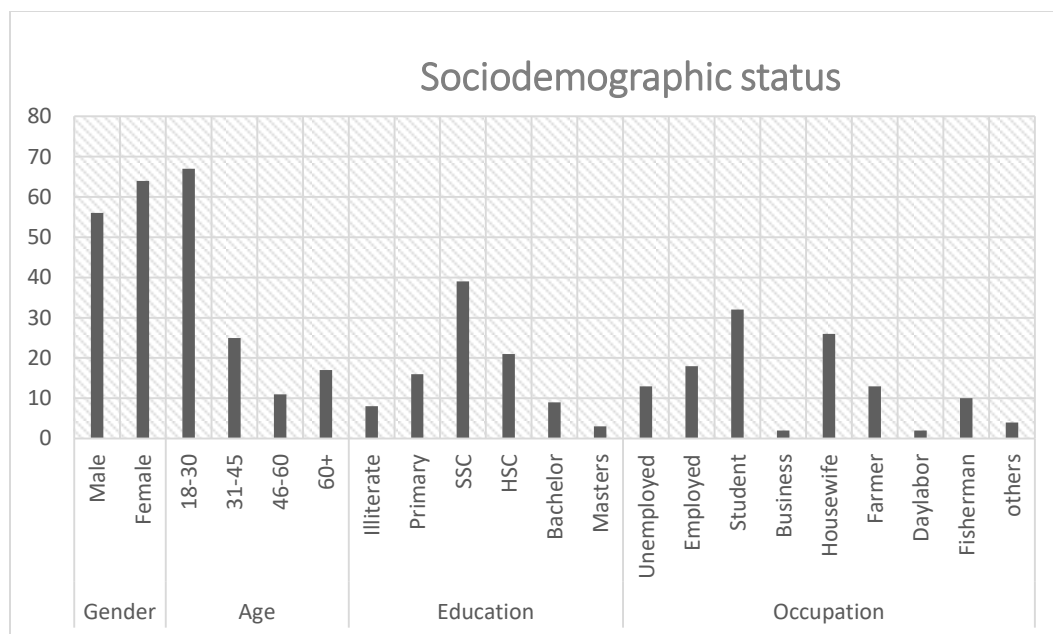


Fig 11: Distribution of the population by gender, age, education, occupation

4.2 History of snakebite and health seeking behavior

According to Table 5, 48.3% of respondents had experienced a snake bite among their Known persons, while 51.70 % of respondents gave negative answers. Only 10% them said that they had previously visited a hospital; the rest had gone to a village doctor (29.20%), a kobiraj (23.30%), or an ojha (12.50%).

Table 5: History of snake bite and health seeking behavior

History of snake bite		
History of snakebite among known persons	Yes	48.30%
	No	51.70%
History of health seeking behavior	Village doctor	29.20%
	Ojha	12.50%
	Kobiraj	23.30%
	Hospital	10.00%
	not known	7.50%
	not applicable	17.50%

4.3 Knowledge, Attitude, Practice, Perception grading

Between a minimum of 3 and a maximum of 10, the mean knowledge score was 6.5 (SD=1.7). In terms of first aid knowledge, 57.50% had adequate knowledge about snakes, their habitat, the timing of snake bites, venomous and non-venomous snakes, the consequences of snake bites, and the significance of pre-hospital management of snake bites, while 42.50% were classified as having poor knowledge (Figure12). 45% of respondents had negative attitudes regarding the first-aid treatment of snake bites, making up the majority of respondents (55%) in this study.

In respect to pre-hospital management of a snake bite, 53% of respondents were engaged with poor methods, while 47% with good practices such as going to hospital as early as possible, immobilize the infected part of the body, not giving tight bandage to the part, not cutting skin/muscles of that part, not putting icepack on that area, not killing the snake which accused to bite for presenting it to the hospital. While only 43.3% of respondents had accurate perceptions of snakes, 56.7% of respondents believed in snake superstitions (Figure12).

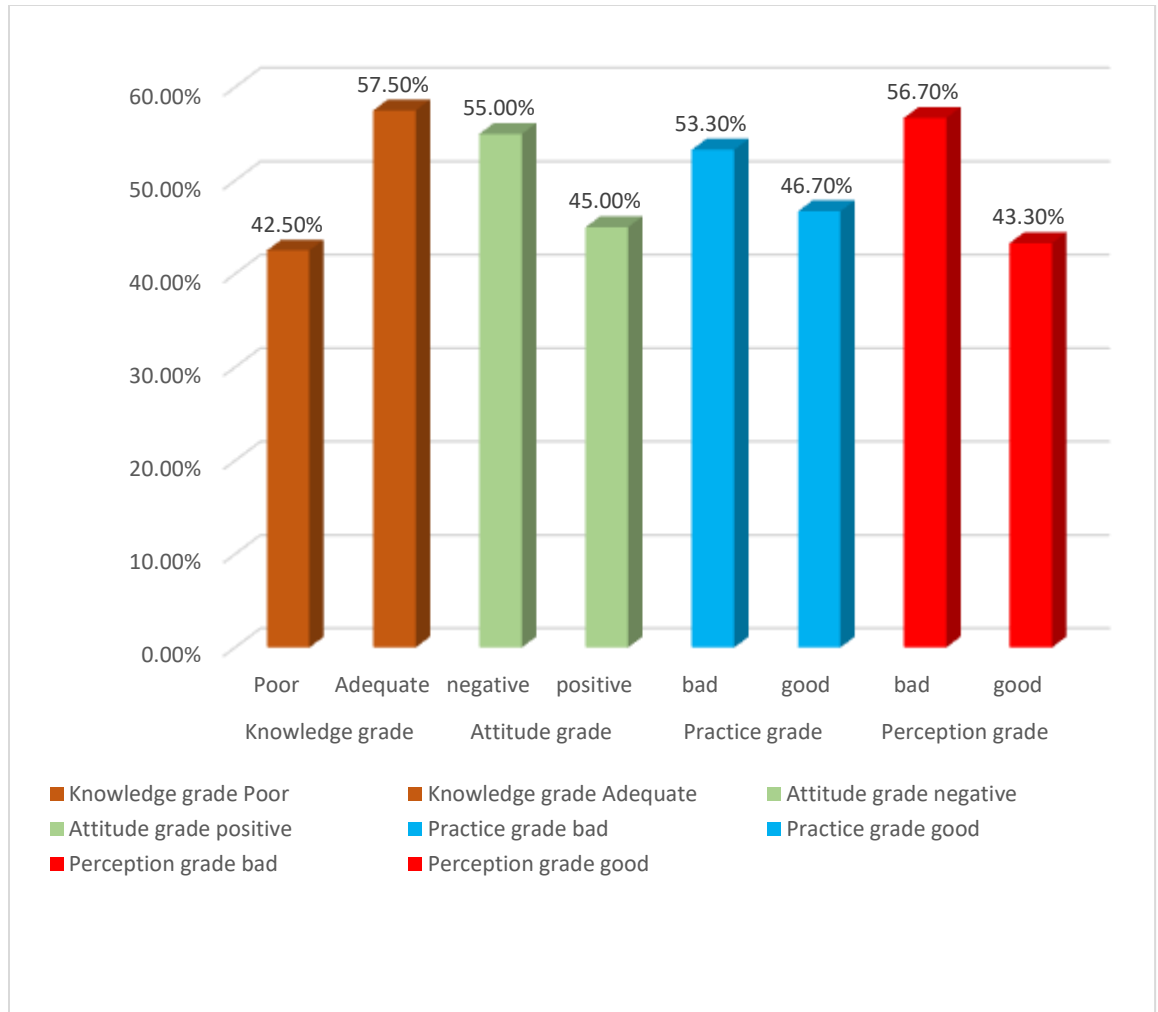


Fig 12: Graphical presentation of Knowledge, Attitude, practice, perception grade

4.4 Knowledge of snakes and snake bite among the study population

Approximately 13% of respondents said they were unaware that snake bite is a neglected public health issue in Bangladesh, while 40% said that they are aware of that (Table 6).

Table 6: Knowledge about snakes and snake bite consequences

Knowledge		Frequency	Percentage
Snake bite is a neglected public health problem in Bangladesh	no	16	13.30%
	yes	49	40.80%
	not known	55	45.80%
what is the season of snake bite	moonsoon	95	79.20%
	summer	11	9.20%
	winter	5	4.20%
Which part of the body is mostly attacked by snakes	leg	82	68.30%
	face	12	10.00%
	arm	25	20.80%
Which time of the day snake bites typically?	noon	23	19.20%
	Afternoon	15	12.50%
	night	54	45.00%
	not known	28	23.30%
Knowledge about venomous and nonvenomous snakes	no	12	10.00%
	yes	108	90.00%
All snakes are venomous	no	51	42.50%
	yes	49	40.80%
	not known	20	16.70%
Knowledge about the presence of two punctured wounds by venomous snakes?	no	55	45.80%
	yes	65	54.20%
cobra, viper, and sea snake are some venomous snakes prevailing in Bangladesh	no	5	4.20%
	yes	114	95.00%
	not known	1	0.80%
Python, gecho shap, and dora shap are some nonpoisonous species of snakes	no	8	6.70%
	yes	100	83.30%
	not known	12	10.00%
Inappropriate first aid can cause long-term disability	no	6	5.00%
	yes	66	55.00%
	not known	48	40.00%
Nearest hospital have enough facilities to treat snakebite patients	no	35	29.20%
	yes	19	15.80%
	not known	66	55.00%

The majority of the people (79.20%) were aware that the monsoon season is snake-bite season. When asked about which area of the body most frequently is attacked by snakes, 68.3% of the respondents accurately responded, "leg," 10% responded, "face," and 21% said, "arm." 90% of the individuals were aware of venomous and non-venomous snakes. In contrast, 40.8% of the respondents indicated that they were knowledgeable that not all

snakes are poisonous. In addition, 54.2% of the individuals were knowledgeable that poisonous snake bites can result in two pierced wounds. 95% could properly classify cobras, vipers, and sea snakes as poisonous snakes (Table 6).

4.5 Attitude towards the prehospital management of snakebite

35.8% of the respondents said they knew at least the basics of managing a snake bite, while 5.8%, 29.2%, and 27.5% expressed their attitudes as strongly disagreeing, agreeing, and neutral, respectively. 68.3% of respondents agreed, 15% strongly agreed, and 13.3% neutrally answered that applying tight bands to the bite site will stop the spread of venom, while in total 3.4% answered strongly disagree and disagree. In response to the statement "sucking the wound site to transport the venom out of the site causes swift improvement in the initial condition," 45.8%, 3.3%, and 25% of the respondents indicated agreement, strong agreement, and neutrality, respectively. Similarly, when asked if applying ice to that location may help the condition, 47.5% and 7.5% of the respondents indicated that they respectively agreed and strongly agreed with that statement, respectively. According to 44.2% of all the respondents, all agreed and strongly agreed with the statement of cutting the bite site can reduce the spread of the venom. According to 56.7% and 4.2% of the respondents, pressure immobilization bandages were identified as a wise choice to be used around the bite site. 44.2% of the respondents agreed with the statement that "the use of herbs or traditional medicine is useful in the treatment of snakebite," while 10% disagreed. 66.7% and 11.7% of the respondents agreed and strongly agreed that transporting snake bite patients to a treatment center quickly lowers the fatality rate, respectively (Table 7).

Table7: Pattern of attitude of first aid management of snake bite among the population

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I have minimum knowledge on snake bite first aid management	7 (5.8%)	35 (29.2%)	33 (27.5%)	43 (35.8%)	2 (1.7%)
Tight bands (tourniquets) shall be useful around the limb proximal to the bite site to cease the spread of venom.	2 (1.7%)	2 (1.7%)	16 (13.3%)	82 (68.3%)	18 (15%)
Sucking the wound site to move the venom out of the site causes swift improvement in the initial condition.	13 (10.8%)	18 (15%)	30 (25%)	55 (45.8%)	4 (3.3%)
Giving ice on that area can improve the condition	3 (2.5%)	5 (4.2%)	46 (38.3%)	57 (47.5%)	9 (7.5%)
cutting the bite area can reduce the spread of the venom	16 (13.3%)	25 (20.8%)	26 (21.7%)	44 (36.7%)	9 (7.5%)
Pressure immobilization bandages are of good choice to be applied around the bite site.	00	6 (5%)	41 (34.2%)	68 (56.7%)	5 (4.2%)
The appliance of herbs or traditional medicine- is useful for the treatment of snakebite.	12 (10%)	12 (10%)	21 (17.5%)	53 (44.2%)	22 (18.3%)
Rapid transportation of victims to a snake bite to a treatment center decreases the mortality rate.	00	1 (.8%)	25 (20.8%)	80 (66.7%)	14 (11.7%)

4.6 Practice of prehospital management

Following the snake bite occurrence (Table8), 32.5% of the population had the tendency to go to the hospital as soon as they could, while the remaining population sought care after exhibiting the symptoms, when there was a bite mark, and after seeking treatment from traditional healers. Immobilizing the diseased body as a primary therapy was

supported by 72.9% of respondents. 79.2% of the respondents claimed to have the habit of using tight bandages, however 36.7% and 41.7% claimed to have the practice of applying ice or surgically slicing the affected region. 41.7% of the respondents were against killing the snake that was responsible for biting, while 34.2% said they had.

Table 8: Practice of prehospital treatment of snake bite

	no	yes	not known
Time of going to hospital for treatment of snakebite-As early as possible	76 (63.3%)	39 (32.5%)	5 (4.2%)
Practice of immobilize the infected body part as primary treatment	3 (2.5%)	95 (79.2%)	22 (18.3%)
Practice of giving tight bandage	6 (5%)	95 (79.2%)	19 (15.8%)
Practice of giving ice on that area	46 (38.3%)	44 (36.7%)	30 (25%)
Practice of cutting the area with sharp knife	48 (40%)	50 (41.7%)	2 (18.3%)
Practice of killing the snake	50 (41.7%)	41 (34.2%)	29 (24.2%)

4.7 Perception and superstitions persist about snakes among people

Snakes should be killed, according to 51.70 %, while 46.70 % disagreed. 60% of the respondents thought snakes were a notorious animal, whereas 30% did not (Figure13).44.2% of the respondents did not think that a snake could dance when it heard the sound of a flute, compared to 49.2% who did .The majority of the responders (97.5%) disagreed that snakes have stones on their heads.44.20% of respondents said they thought snakes could take revenge, compared to 50.80% who disagreed.

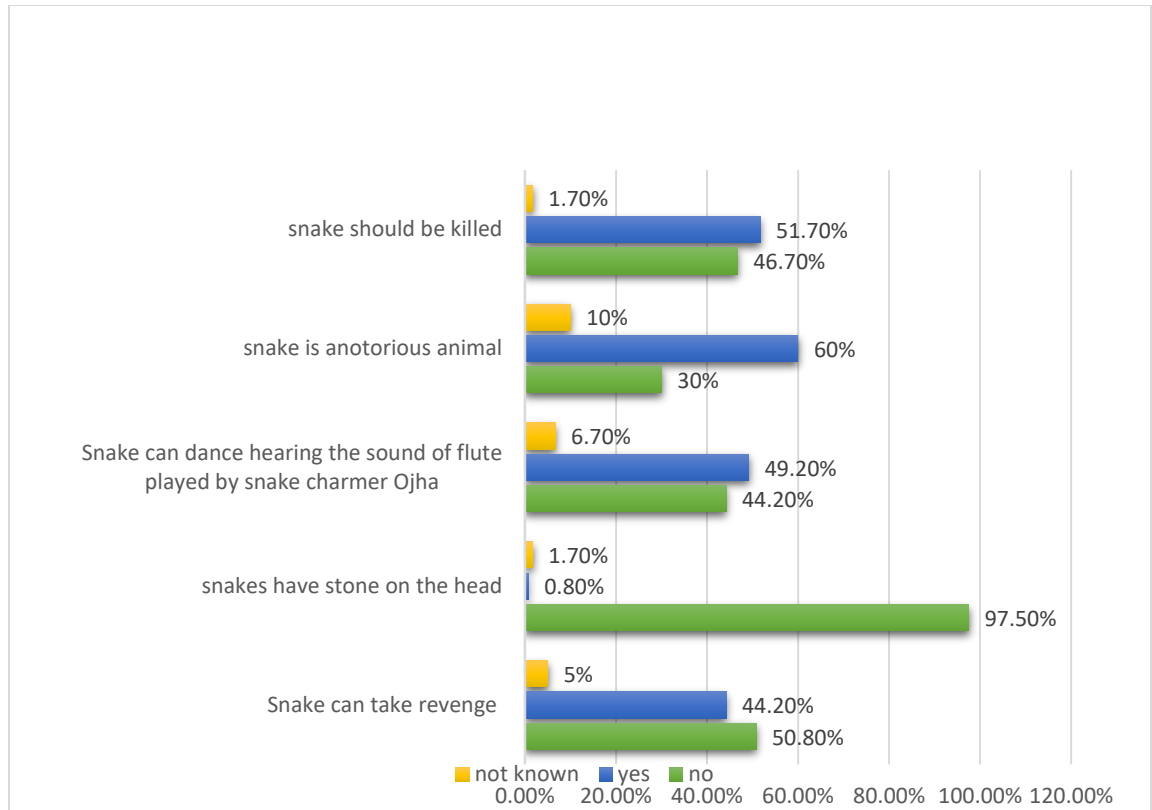


Figure 13: Perceptions and superstitions about snake among people

4.8 Association of age, gender, education, religion, occupation with knowledge, attitude, practice and perception level of the study population

According to Table 9, the study indicates association between different demographic component with the population's degree of knowledge, attitudes, practices, and perceptions of snakes as well as first aid procedures for snake bites, with the exception of religion, which was not statistically significant. Bad attitude and poor practice were significantly associated with gender, although bad perception and poor knowledge were not. In comparison to men, women scored lower in attitude and practice. Low knowledge was substantially correlated with educational level ($p=0.01$), where 8.33% of graduates, 50% of primary-level people, 40% of SSC and HSC level people, and 75% of illiterates had poor knowledge. Negative attitude was highly significantly related with educational level; primary-level people (80%) scored very poor. Educational level was not associated with bad practice otherwise bad perception was highly related to educational level. All the illiterate people had bad perception and 92.5% primary-level people had also bad perception. Occupation was also associated with poor knowledge ($p=0.01$), negative attitude ($p<0.001$), bad practice ($p<0.001$) and bad perception ($p<.001$). Housewives (69.2%) and unemployed people (53.83%) had the lowest knowledge levels overall. 86.21% of farmers, fishermen, and 65.3% of housewives exhibited a negative attitude. 34% of the farmers and fishermen were engaged in negative behavior, while

84.5% of the housewives showed bad practice. 79% of farmers, day laborers, and fishermen also had poor perception, compared to 100% of housewives. Compared to the younger group, the adult population displayed higher levels of inadequate knowledge, a negative attitude, poor behavior, and poor perception (Table 9).

Table 9: Association of different demographic variables with knowledge, attitude, practice and perception level of the study participants

Variable	Level	Total observation	Frequency (%)	P value
A. Poor Knowledge level				
Sex	Male	56	22 (39.29)	0.50
	Female	64	29 (45.31)	
Age	18-30	67	17 (25.37)	<0.001
	31-45	25	14 (56)	
	46-60	11	8 (72.73)	
	>61	17	12 (70.59)	
Educational level	Illiterate	8	6 (75)	0.01
	Primary and high school	40	20 (50)	
	SSC & HSC	60	24 (40)	
	Graduation and above	12	1 (8.33)	
Religion	Hindu	21	11 (52.38)	0.31
	Muslim	99	40 (40.40)	
Occupation	Unemployed	13	7 (53.85)	0.01
	Employed & business	20	7(35)	
	Student	32	8 (25)	
	Housewife	26	18 (69.23)	
	Farmer, fisherman, daily labor and others	29	11 (37.93)	
B. Negative attitude				
Sex	Male	56	36 (64.29)	0.05
	Female	64	30 (46.88)	
Age	18-30	67	28 (41.79)	0.008
	31-45	25	17 (68)	
	46-60	11	7 (63.64)	
	>61	17	14 (82.35)	
Educational level	Illiterate	8	5 (62.50)	<0.001
	Primary and high school	40	32 (80)	
	SSC & HSC	60	28 (46.67)	
	Graduation and above	12	1 (8.33)	
Religion	Hindu	21	9 (42.86)	0.21
	Muslim	99	57 (57.58)	
Occupation	Unemployed	13	6 (46.15)	<0.001
	Employed & business	20	8 (40.00)	
	Student	32	10 (31.25)	
	Housewife	26	17 (65.38)	
	Farmer, fisherman, daily labor and others	29	25 (86.21)	
C. Bad practice				
Sex	Male	56	21 (37.50)	0.04
	Female	64	36 (56.25)	
Age	18-30	67	26 (38.81)	0.02
	31-45	25	11 (44)	

	46-60	11	9 (81.82)	
	>61	17	11 (64.71)	
Educational level	Illiterate	8	7 (87.50)	0.10
	Primary and high school	40	20 (50.00)	
	SSC & HSC	60	25 (41.67)	
	Graduation and above	12	5 (41.67)	
Religion	Hindu	21	10 (47.62)	0.99
	Muslim	99	47 (47.47)	
Occupation	Unemployed	13	7 (53.85)	<0.001
	Employed & business	20	8 (40.00)	
	Student	32	10 (31.25)	
	Housewife	26	22 (84.62)	
	Farmer, fisherman, daily labor and others	29	10 (34.48)	
D. Bad perception				
Sex	Male	56	32 (57.14)	0.92
	Female	64	36 (56.25)	
Age	18-30	67	24 (35.82)	<0.001
	31-45	25	19 (76.00)	
	46-60	11	10 (90.91)	
	>61	17	15 (88.24)	
Educational level	Illiterate	8	8 (100)	<0.001
	Primary and high school	40	37 (92.50)	
	SSC & HSC	60	23 (38.33)	
	Graduation and above	12	0.00	
Religion	Hindu	21	10 (47.62)	0.35
	Muslim	99	58 (58.59)	
Occupation	Unemployed	13	6 (46.15)	<0.001
	Employed & business	20	5 (25.00)	
	Student	32	8 (25.00)	
	Housewife	26	26 (100)	
	Farmer, fisherman, daily labor and others	29	23 (79.31)	

Chapter 5: Discussion

According to the survey, the majority of the participants were women between the ages of 18 and 30. Students and housewives participated most among all occupations. The respondents who provided information on known individuals who had snake bites confirmed that sufferers had taken help from a traditional healer rather than going to a hospital. Additionally, the majority of responders agreed with the belief that using herbs or conventional medicine to treat snakebites is helpful. Most people (about two-thirds) did not seek medical attention as soon as possible after being bitten by a snake; instead, they wait until they have symptoms, have tried unsuccessfully to be treated by a snake charmer, an ojha, kabiraj, or have noticed bite marks. This is in conflict with a research by Pandey et al. where they found that large amount of participants in Nepal did not consider seeking treatment from a faith healer or quack after suffering a snake bite (Pandey et al., 2016). While 86% of snakebite victims in Bangladesh (Rahman et al., 2010b), 75% in Pakistan, and 61% in Maharashtra, India, still seek out traditional healers, according to other research of a similar nature (Pandey et al., 2016). In contrast, a different study found that a sizable majority of participants preferred modern allopathic therapy for snakebites over conventional/Ayurvedic treatment. Of those, 80.8% mentioned the accessibility of a government hospital as the reason for their preference (Silva et al., 2014).

In the current study, more than half of the participants were rated as having appropriate knowledge of snakes and the effects of snake bites and this outcome is consistent with that of Minolin et al. (Minolin and Ranjitha, 2021). The majority of the individuals can distinguish between venomous and non-poisonous snakes, similarly, in another study 98% could tell a poisonous snake from a non-poisonous snake by looking at the snake (Lakshmi and Sarathy, 2020). Surprisingly, just 29% of the respondents were aware that, in the event of a venomous snake bite, the patient must be sent to Chattogram Medical College Hospital since the closest hospital lacks anti-venom treatment resources. This finding conflicts with the findings of a research in which 66.5% of participants were aware of the locations of Kinaye's medical facilities for snake bite treatment (Pathak and Metgud, 2017). Lack of knowledge was associated with age, occupation, and educational level. The majority of illiterate individuals lacked knowledge, additionally, it was

observed that educated individuals knew more about various snake species than did those with less education; same result was shown in Chincholikar et al.'s study that educated individuals knew more about various snake species than did those with less education (Chincholikar et al., 2014). Compared to younger individuals, older people had the least knowledge. Unemployed people and housewives performed badly across all occupations. In the current study, it was found that 55% of the respondents had a poor attitude towards the first aid treatment of snake bites. Most people acknowledged that they knew very little about how to treat a snakebite with first aid, although many people thought that applying a tourniquet was the best pre-hospital therapy. Other common knowledge about first aid among the study population were sucking the wound, applying ice to the bite location, and cutting the biting region. Awareness about 'rapid transfer to the hospital can lower the mortality' was one of the sole beneficial results of this segment. As a first aid measure, tourniquets were frequently discussed in another study. Many patients arrive at the hospitals in the area with a tourniquet on, according to observations made at the local hospitals. Indigenous peoples have historically utilized ligatures and tourniquets to stop the spread of poison (Afzal et al., 2019). In a community-based study in rural Sindh, 92% of respondents reported providing first aid, of which 79% applied tourniquets, 29% administered cuts and performed suction, and the other 8% used various techniques such as applying onion to the bite site (Dahri et al., 2000). Similar outcomes were found in a research by Alirol et al. (Alirol et al., 2010), which demonstrated that plenty of time was lost as a result of applying inadequate first aid methods. The solution for first aid measures in many subjects was herbal medicine, summoning mantriks, and home cures. The research of Wanje Sudhir and D. P. Punde (Wanje and Gadekar, 2011) produced similar findings.

In this study negative attitude was strongly correlated with educational attainment and employment. The majority of elderly persons displayed a negative attitude. Despite having extensive knowledge about snakes, the majority of the farmers and fishermen demonstrated a negative attitude towards administering first aid for snake bites. More than half of the population was engaged in poor first aid management practices, such as delaying treatment, applying tight bandages, applying ice, cutting the affected region with a sharp knife, and killing the snake. From Pathak and Metgud's study, it was encouraging

to learn that every participant claimed they would seek medical attention right away if a snake bite them (Pathak and Metgud, 2017), but this result is not consistent with the present study. A large portion of the population immobilized the affected body part as a first therapy in the present study, which was a positive occurrence. In contrast, no victims were immobilized in a research done in Bangladesh (Mondal et al., 2012b).

More than 50 % of the individuals believed that snakes are dangerous creatures that should be killed. Superstitions and negative perceptions are still prevalent, especially among elderly people, the illiterate, and housewives who lack proper education, had poor habits, and lack a positive attitude. In one study, 75% of participants believed that snakes were violent, which is a strong indication of incorrect assumptions that might lead people to fear snakes. The survey results, which showed that 48% of respondents said they would kill snakes directly, supported the idea that this fear will always end in the killing of encountered snakes (Street, 2021).

Therefore, educational programs emphasizing the dissemination of fundamental information about snake bites and dispelling myths should be held in rural areas including the female, illiterate and elder population. Proper first aid procedures for snakebites should also be demonstrated through a variety of outreach activities, and there should be increased awareness of snake and snakebite management among both the general public and health care professionals.

Chapter 6: Limitations

- Sample size was limited due to time constraint.
- The sampling technique was purposive so that it is more prone to researcher bias.
- The study location was confined to one Union .More locations of Chattogram which have the higher incidence of snake bite should be included in this study.

Chapter 7: Conclusion

The inhabitants of the coastal rural area of Kumira Union, Chattogram had midlevel knowledge about snakes and snake bites, but practice and attitude regarding pre hospital treatment were not satisfactory according to the study's findings. The study also found that people's belief in superstitions and myths sometimes leads them to kill snakes, prompts them to seek out a snake charmer or ojha after being bitten by a snake, and delays receiving the necessary medical care. As women and elderly residents of the village are confined to their homes, they have a negative attitude and poor snake bite management practices. People with only a primary education and illiteracy could not do better than those with a high school diploma. Furthermore, despite having sufficient knowledge and a positive attitude toward snakebite care, farmers and fishermen, who are more likely to be bitten by snakes, had a negative attitude and unsatisfactory perception and they prefer traditional method of first aid such as giving tight bandages, sucking the bite site, cutting the area, giving herbs and traditional medicine on the wound site. In order to preserve lives, quick access to therapy at a critical period and its management are essential. It is necessary to provide appropriate instruction on how to treat snake bites, how to avoid using risky first-aid techniques, and how important it is to quickly transport victims to local facilities that are well-equipped. There should also be media education initiatives.

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Annexure-1

Consent Form

Thesis Title: Knowledge, Attitude and Practice of traditional first aid as prehospital management of snakebite among the coastal rural population of Kumira Union, Chattogram.

Researcher: Dr. Tasnia Afrin (MPH One Health)

Supervisor: Prof. Dr. Sharmin Chowdhury Director , One Health Institute Chattogram Veterinary and Animal Sciences University

You are being asked to take part in a research study. Your participation is voluntary. Before agreeing to participate in the study, please read the explanation of the study. Please ask the researcher to explain anything you do not understand. If you decide to participate then please sign this form. Purpose of the study:

1. To assess the status of knowledge, attitude, practice of first aid management of snakebite among the rural people of Kumira union.
2. To demonstrate the knowledge, attitude and practice level of first aid management of snakebite.
3. To evaluate the status of health seeking behavior according to sociodemographic variable.

Explanation of the procedure: The researcher will take some information from general people about knowledge, attitude and practice of about first aid methods and management of snakebite .There is no chance of pain, discomfort or harm in the procedure and there is also no chance of transmission of diseases.

Withdraw without prejudice: Each participant is free to withdraw consent and discontinue the participation in this study at any time.

Confidentiality: Your identity in this study will be treated as confidential. Your name and identity will not be linked in any way to the research study. Cost and payment to the subjects for participation in research: There is no financial support for your participation in this research.

Available medical treatment for research related injury: Emergency medical care will be provided if you are injured as a direct result of taking part in this research study.

For educated people: I have read the document carefully and here by agree to participate in this research study.

For illiterate people: The document has been read to me. I have listened and clearly understood. I hereby agree to participate in this research study.

Participant's Signature: Date: _____ / ____ / _____

Name:

থিসিস শিরোনাম: কুমিরা ইউনিয়ন, চট্টগ্রামের উপকূলীয় গ্রামীণ জনগোষ্ঠীর মধ্যে সাপের কামড়ের প্রাক-হাসপাতাল ব্যবস্থাপনা হিসাবে ঐতিহ্যগত প্রাথমিক চিকিৎসার জ্ঞান, মনোভাব এবং অনুশীলন।

গবেষক : ডাঃ তাসনিয়া আফরিন (এমপি এইচ ওয়ান হেলথ)

তত্ত্বাবধায়ক : প্রফেসর ড. শারমিন চৌধুরী পরিচালক, ওয়ান হেলথ ইনস্টিটিউট চট্টগ্রাম ভেটেরিনারি অ্যান্ড এনিম্যাল সায়েন্সেস বিশ্ববিদ্যালয়

আপনাকে একটি গবেষণায় অংশ নিতে বলা হচ্ছে। আপনার অংশ গ্রহণ স্বেচ্ছায়। অধ্যয়নে অংশ নিতে সম্মত হওয়ার আগে, অনুগ্রহ করে অধ্যয়নের ব্যাখ্যা পড়ুন। অনুগ্রহ করে গবেষককে আপনি বুঝতে পারেন না এমন কিছু ব্যাখ্যা করতে বলুন। আপনি যদি অংশ গ্রহণ করার সিদ্ধান্ত নেন তাহলে অনুগ্রহ করে এই ফর্মে স্বাক্ষর করুন। অধ্যয়নের উদ্দেশ্য:

1. কুমিরা ইউনিয়নের গ্রামীণ জনগণের মধ্যে সাপের কামড়ের প্রাথমিক চিকিৎসা ব্যবস্থাপনার জ্ঞান, দৃষ্টিভঙ্গি, অনুশীলনের অবস্থা মূল্যায়ন করা।
2. সাপের কামড়ের প্রাথমিক চিকিৎসা ব্যবস্থাপনার জ্ঞান, মনোভাব এবং অনুশীলনের স্তর প্রদর্শন করা।
3. সামাজিক জনসংখ্যাগত পরিবর্তনশীল অনুযায়ী স্বাস্থ্য চাওয়া আচরণের অবস্থা মূল্যায়ন করা।

পদ্ধতির ব্যাখ্যা: গবেষক সাধারণ মানুষের কাছ থেকে প্রাথমিক চিকিৎসা পদ্ধতি এবং সাপের কামড়ের ব্যবস্থাপনা সম্পর্কে জ্ঞান, মনোভাব এবং অনুশীলন সম্পর্কে কিছু তথ্য নেবেন। পদ্ধতিতে ব্যথা, অস্বস্তি বা ক্ষতির কোন সম্ভাবনা নেই এবং রোগ সংক্রমণেরও কোন সম্ভাবনা নেই। কোনো পক্ষপাত ছাড়াই প্রত্যাহার করুন: প্রতিটি অংশগ্রহণকারী সম্মতি প্রত্যাহার করতে এবং যেকোনো সময় এই গবেষণায় অংশগ্রহণ বন্ধ করতে স্বাধীন।

গোপনীয়তা: এই গবেষণায় আপনার পরিচয় গোপনীয় হিসাবে বিবেচিত হবে। গবেষণা অধ্যয়নের সাথে আপনার নাম এবং পরিচয় কোনভাবেই সংযুক্ত করা হবে না।

গবেষণায় অংশ গ্রহণের জন্য বিষয়ের খরচ এবং অর্থপ্রদান : এই গবেষণায় আপনার অংশগ্রহণের জন্য কোনো আর্থিক সহায়তা নেই।

গবেষণা সম্পর্কিত আঘাতের জন্য উপলব্ধ চিকিৎসা : এই গবেষণায় অংশ নেওয়ার সরাসরি ফলাফল হিসাবে আপনি আহত হলে জরুরী চিকিৎসা সেবা প্রদান করা হবে।

শিক্ষিত লোকদের জন্য : আমি নথিটি মনোযোগ সহকারে পড়েছি এবং এখানে এই গবেষণায় অংশ নিতে সম্মত হয়েছি।

নিরক্ষর লোকদের জন্য : দলিলটি আমার কাছে পড়া হয়েছে। আমি শুনেছি এবং স্পষ্ট বুঝতে পেরেছি। আমি এত দ্বারা এই গবেষণায় অংশগ্রহণ করতে সম্মত।

অংশগ্রহণকারীর স্বাক্ষর:

তারিখ: _____ / ____ / ____

নাম:

Annexure-2

Serial NO	Questions Sociodemography-Part1
1	Name
2	Gender (Male=1, Female=2) <input data-bbox="1321 531 1398 590" type="checkbox"/>
3	Age (years)..... 18-30=1 31-45=2 46-60=3 61+=4
4	What is your level of education illiterate=1 primary=2 high school=3 ssc=4 hsc=5 bachelor=6 master 7 <input data-bbox="1321 720 1398 779" type="checkbox"/>
5	Religion Hindu=1 Islam=2 other=3 <input data-bbox="1321 825 1398 884" type="checkbox"/>
6	Village <input data-bbox="1321 919 1398 978" type="checkbox"/>
7	Union <input data-bbox="1321 1014 1398 1073" type="checkbox"/>
8	Upazilla
9	District
10	Occupation unemployed=1 employed=2 student=3 business=4 housewife= 5 farmer=6 day laborer=7 fisherman=8 others=9
History- Part 2	
11	History of snakebite among known persons yes=1 no=2 not known=3
12	where they went for treatment? village doctor=1 ojha=2 kobiraj=3 hospital=4 not known=5 not applicable=6
13	Source of information gained about snake bite family=1 friends=2 television=3 newspaper=4 office colleague=5
KNOWLEDGE-part3	

14	Snake bite is a neglected public health problem in Bangladesh No=1,yes=2, not known=3
15	what is the season of snake bite ? moonsoon=1 summer=2 winter=3 not know=4
16	Do you know, which part of the body is mostly attacked by snakes? leg=1 face=2 arm=3
17	Which time of the day snake bites typically? noon=1 afternoon=2 night=3 not known=4
18	Know about venomous and nonvenomous snakes No=1,yes=2
19	All snakes are venomous no=1 yes=2 not known=3
20	Do you have knowledge about the presence of two punctured wounds by venomous snakes? no=1 yes=2
21	cobra, krait, and sea snake are some venomous snakes prevailing in Bangladesh no=1 yes=2 not known=3
22	Python, gecho shap, and dora shap are some nonpoisonous species of snakes no=1 yes=2 not known=3
23	inappropriate first aid can cause long term disability no=1 yes=2 not known=3
24	Nearest hospital have enough facilities to treat snakebite patients no=1 yes=2 not known=3

	PRACTICE-part5				
	Strongly disagree/Neutral	Disagree	Neutral	Agree	Strongly agree/Extensive knowledge
25. I have minimal knowledge on snake bite first aid management					
26. Tight bands (tourniquets) shall be useful around the limb proximal to the bite site to cease the spread of venom.					
27. Sucking the wound site to move the venom out of the site causes swift improvement of the initial condition					
28. Giving ice on that area can improve the condition					
29. . Cutting the bite area can reduce the					

spread of the venom patients- is the most effective.					
30. Pressure immobilization bandages are of good choice to be applied around the site					
31. Application of herbs or traditional medicine is useful for the treatment of snakebite					
32. Rapid transportation of the victim to a snake bite to a treatment center decreases the mortality rate					
	PRACTICE-part5				
33	Time of going to hospital for treatment snake bite <input data-bbox="1398 1476 1464 1535" type="checkbox"/>				
	wait for the symptoms to show=1 as early as possible=2 after receiving the treatment from traditional healer=3 only when there is a bite mark=4 not known=5				
34	practice of immobilize the infected body part as primary treatment <input data-bbox="1398 1749 1464 1808" type="checkbox"/>				
	no=1 yes=2 not known=3				

35	practice of giving tight bandage as primary care before going to no=1 yes=2 not known=3	<input type="checkbox"/>
36	practice of giving ice on that area as primary care before going to hospital	<input type="checkbox"/>
37	no=1 yes=2 not known=3	
38	practice of cutting the area with sharp knife as primary care before going to hospital no=1 yes=2 not known=3	<input type="checkbox"/>
39	practice of killing the snake and bring it to the hospital in a packet or jar as primary care before going to hospital no=1 yes=2 not known=3	<input type="checkbox"/>
Perception and superstition-part 6		
40	Snake takes revenge (if humans hurt one snake, another individual of the pair takes revenge) no=1 yes=2 not known=3	
41	snake have stone on the head no=1 yes=2 not known=3	
42	Snake can dance hearing the sound of flute played by snake charmer Ojha no=1 yes=2 not known=3	
43	snake is a notorious animal no=1 yes=2 not known=3	
44	Do you believe in snake God? no=1 yes=2	

45	Are you afraid of snake? no=1 yes=2
46	snake should be killed no=1 yes=2 not known=3

Serial NO	Questions Sociodemography-Part1
1	নাম
2	লিঙ্গ (পুরুষ=1, মহিলা=2)
3	বয়স (বছর).....। 18-30=1 31-45=2 46-60=3 61+=4
4	আপনার শিক্ষার স্তরকি? নিরক্ষর = 1 প্রাথমিক = 2 উচ্চবিদ্যালয় = 3 ssc = 4 hsc = 5 স্নাতক = 6 মাস্টার = 7
5	ধর্ম হিন্দু = 1 ইসলাম = 2 অন্যান্য = 3 <input type="checkbox"/>
6	গ্রাম <input type="checkbox"/>
7	Union <input type="checkbox"/>
8	উপজেলা
9	জেলা
10	পেশা বেকার = 1 কর্মরত = 2 ছাত্র = 3 ব্যবসা = 4 গৃহিণী = 5 কৃষক = 6 দিনমজুর = 7 জেলে = 8 অন্যান্য = 9

	History-part2
11	পরিচিত ব্যক্তিদের মধ্যে সাপের কামড়ের ইতিহাস হ্যাঁ=1 না=2 জানা নেই=3
12	তারা চিকিৎসার জন্য কোথায় গেল? গ্রামের ডাক্তার =1 ওঝা=2 কবিরাজ=3 হাসপাতাল=4 জানানোই=5 প্রযোজ্য নয়=6
13	সাপের কামড় সম্পর্কে প্রাপ্ত তথ্যের উত্স পরিবার = 1 বন্ধু = 2 টেলিভিশন = 3 সংবাদ পত্র = 4 অফিস সহকর্মী = 5
	KNOWLEDGE-part3
15	সাপের কামড় বাংলাদেশের একটি অবহেলিত জনস্বাস্থ্য সমস্যা নং=1, হ্যাঁ=2, জানোই=3 <input type="checkbox"/>
16	সাপের কামড়ের মৌসুম কি? চন্দ্রিমা = 1 গ্রীষ্ম = 2 শীত = 3 জানিনা = 4 <input type="checkbox"/>
17	আপনি কি জানেন, শরীরের কোন অংশে বেশির ভাগ সাপ আক্রমণ করে? পা=1 মুখ=2 বাহু=3 <input type="checkbox"/>
18	দিনের কোন সময় সাধারণত সাপ কামড়ায়? দুপুর=1 বিকাল=2 রাত=3 জানানোই=4 <input type="checkbox"/>
19	আপনি কি জানেন, বিষধর ও বিষহীন সাপ সম্পর্কে না=1, হ্যাঁ=2 <input type="checkbox"/>
20	সব সাপই বিষাক্ত না=1 হ্যাঁ=2 জানা নেই=3

21	আপনার কি বিষাক্ত সাপের দুটি খোঁচা ক্ষতের উপস্থিতি সম্পর্কে জ্ঞান আছে? না=1 হ্যাঁ=2	<input type="checkbox"/>
22	কোবরা, ক্রেইট এবং সামুদ্রিক সাপ হল বাংলাদেশে বিরাজ মান কিছু বিষধর সাপ নং=1 হ্যাঁ=2 জানানেই=3	<input type="checkbox"/>
23	পাইথন, গেচেশাপ এবং ডোরা সাপ হল কিছু অবিষাক্ত প্রজাতির সাপ	
24	অনুপযুক্ত প্রাথমিক চিকিৎসা দীর্ঘমেয়াদী অক্ষমতার কারণ হতে পারে না=1 হ্যাঁ=2 জানানেই=3	
25	নিকটস্থ হাসপাতালে সাপে কাটা রোগীদের চিকিৎসার জন্য যথেষ্ট সুবিধা রয়েছে না=1 হ্যাঁ=2 জানানেই=3	
ATTITUDE-part4		

ATTITUDE- Part4						
		দৃঢ়ভাবে অসম্মত	অসম্মতি	নিরপেক্ষ	সম্মত	দৃঢ়ভাবে একমত/বিসত জ্ঞান
	26. আমার ন্যূনতম জ্ঞান আছে সাপে কামড়ের প্রাথমিক চিকিৎসা সম্পর্কে।					
	27. বিষের বিস্তার বন্ধ করার জন্য কামড়ানোর স্থানের কাছাকাছি অঙ্গের চারপাশে টাইট ব্যান্ড					

	(টুর্নিকেট) কার্যকর হবে।					
	28. স্থান থেকে বিষ সরানোর জন্য ক্ষতস্থান চুষলে প্রাথমিক অবস্থার দ্রুত উন্নতি হয়					
	29. সেই জায়গায় বরফ দিলে অবস্থার উন্নতি হতে পারে					
	30. কামড়ানোর স্থান কাটা রোগীদের বিষের বিস্তার কমাতে পারে- সবচেয়ে কার্যকর।					
	31. প্রেশার ইমোবিলাইজেশন ব্যান্ড কার্যকর চিকিৎসা।					
	32. সাপের কামড়ানোর চিকিৎসার জন্য ভেষজ বা ঐতিহ্যবাহী ওষুধের প্রয়োগ কার্যকর					
	৩৪. সাপের কামড়ানোর আক্রান্ত ব্যক্তিকে দ্রুত চিকিৎসা কেন্দ্রে নিয়ে যাওয়ার ফলে মৃত্যুহার কমে যায়					
	PRACTICE- Part5					

35.	সাপে কামড়ে আক্রান্ত ব্যক্তিকে হাসপাতালে নেওয়ার উপযুক্ত সময় লক্ষণগুলি দেখানোর জন্য অপেক্ষা করুন = 1 যত তাড়াতাড়ি সম্ভব = 2 ঐতিহ্যগত নিরাময়কারীর কাছ থেকে চিকিত্সা নেওয়ার পরে = 3 শুধুমাত্র যখন একটি কামড়ের চিহ্ন থাকে = 4 জানা যায় না = 5	<input type="checkbox"/>
36.	প্রাথমিক চিকিত্সা হিসাবে সংক্রামিত শরীরের অঙ্গ অচল করার অনুশীলন না=1 হ্যাঁ=2 জানা নেই=3	<input type="checkbox"/>
37.	যাওয়ার আগে প্রাথমিক যত্ন হিসাবে টাইট ব্যান্ডেজ দেওয়ার অভ্যাস না=1 হ্যাঁ=2 জানা নেই=3	<input type="checkbox"/>
38.	হাসপাতালে যাওয়ার আগে প্রাথমিক যত্ন হিসাবে সেই এলাকায় বরফ দেওয়ার অনুশীলন না=1 হ্যাঁ=2 জানা নেই=3	<input type="checkbox"/>
39.	হাসপাতালে যাওয়ার আগে প্রাথমিক যত্ন হিসাবে ধারালো ছুরি দিয়ে এলাকা কাটার অভ্যাস না=1 হ্যাঁ=2 জানা নেই=3	<input type="checkbox"/>
40.	হাসপাতালে যাওয়ার আগে প্রাথমিক যত্ন হিসাবে সাপকে মেরে প্যাকেট বা বয়ামে করে হাসপাতালে নিয়ে আসার অভ্যাস না=1 হ্যাঁ=2 জানা নেই=3	<input type="checkbox"/>
Perception and superstition- Part6		
41.	সাপ প্রতিশোধ নেয় (মানুষ যদি একটি সাপকে আঘাত করে তবে জোড়ার অন্য ব্যক্তি প্রতিশোধ নেয়) না = 1 হ্যাঁ = 2 জানা নেই = 3	
42.	সাপের মাথায় পাথর আছে না=1 হ্যাঁ=2 জানা নেই=3	
43.	ওঝার বাঁশির শব্দ শুনে সাপ নাচতে পারে না=1 হ্যাঁ=2 জানা নেই=3	

44.	সাপ একটি হিংস্র প্রাণী না=1 হ্যাঁ=2 জানা নেই=3
45.	আপনি কি সাপের ঈশ্বরে বিশ্বাস করেন? না=1 হ্যাঁ=2
46.	সাপকে ভয় পান? না=1 হ্যাঁ=2
47.	সাপ মেরে ফেলতে হবে না=1 হ্যাঁ=2 জানা নেই=3

Biography

Tasnia Afrin Shifat has passed Secondary School Certificate (SSC) examination from Silver Bells Kinder Garten Girls and High School, Chittagong in 2009 and then Higher Secondary School (HSC) examination from Hazi Mohammad Mohsin College, Chittagong in 2011. She has completed Bachelor of Medicine, Bachelor of Surgery (MBBS) from Cumilla Medical College under Chittagong University in 2018. She has enrolled himself as an applicant for the MS in Public Health at One Health Institute, Chattogram Veterinary and Animal Sciences University (CVASU), Bangladesh. She has great interest and passion in sharing his experience and conducting research, and she would be excited to participate in furthermore opportunities. She is now living in Germany, Dresden with her family and willing to enroll in a PhD programme after completing her MPH.