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Concern over Orthodox and First Aids Treatments of Snakebite Victims in Kaltungo L.G.A, Gombe State, Nigeria

Tokdung, M.[1], Sagir, A.[2], Mohammed, N.[3]

[1]Department of Medical Laboratory Science,
Faculty of Allied Health Science,
Bayero University,
Kano.

[2]Haematology Department,
Aminu Kano University Teaching Hospital,
Kano.

[3]Snakebite Research,
Training and Treatment Centre,
Kaltungo.

Email: tokdunggbang@gmail.com

Abstract

Snakebite by venomous snake causes multi-dimensional fast adverse clinical and non-clinical effects; including mortality and morbidity. Hence, the need for urgent first aid and treatments always in such conditions. Unfortunately, most of the bites occur in very remote rural areas with no health facilities at all or poor health facilities where available for proper treatment. So, the alternative as a matter of necessity is self-help by means of traditional methods of "first aid or treatment". Unfortunately, the disadvantage of such methods far out-weigh the advantages in many ways for many reasons such as toxicity, none efficacy, lack of hygiene, unknown dosage and delay in going for proper health care early, due to hopeful confidence. The Tropical and Sub-Saharan regions of the globe are more affected; Nigeria is inclusive with the high burden in 12 States. This study was aimed at evaluating the level of dependence on some of these traditional methods of first and treatment of snakebite victims in Kaltungo, Gombe State. After getting ethical clearance from the State Ministry of Health and consent of the victims; a simple questionnaire was used to collect relevant information regarding first aids and treatments from 200 snakebite victims. The study showed that 167 (83.5%) of the victims took at least one form of first aid and/or treatment or the other before visiting the health centre for proper care. The first aids/treatments methods include at least one traditional methods – 27 (13.5%), orthodox only – 4 victims (2%), spiritual method only – 3 (1.5%), tourniquet method only – 7 (3.5%) combinations of two or more methods – 126 (63.0%), while 33 (16.5%) only did not take any first aid/treatment at all before getting to the treatment centre.

Keywords: First aid, Orthodox, Snake, Snakebite, Traditional,

**Author for Correspondence*

INTRODUCTION

Snakes are not domestic animals and are hardly seen by most people in their nature environments; yet they are one of the most known and feared animals by man and most other animals; although they are found in most parts of the world. In the reverse, snakes fear man more the way they are feared by man (Reeder *et al,* 2015, Francis *et al,* 2018; Stephen, 2022). There are over 2,500 species of snakes and are grouped or classified in various ways. The classification of interest here is on the basis of the venom, which are venomous and non-venomous species (AVRU, 2014; Francis *et al.*, 2018; Oliveira *et al*, 2022). The venomous species possesses the complex lethal substance called venom in their saliva, which is used to immobilize, kill and digest their preys for the purpose of food or self-defense. They constitute about 25% of all snakes but only about 15% can cause serious harm to their victims. Venomous snakes are the single most important venomous animals in the world. Non-venomous ones lack the venom in their saliva (Dyeyer and Dyeyer, 2013; Mackessy, 2021; Oliveira *et al,* 2022). Snakebite is the act of perforating the body surface of man or any other animal, causing physical injury. It is said to occur in every four minutes. All snakes have saliva and are capable of biting but not all snake saliva contain venom (Sharma and Baranwal, 2015; Pucca *et al*, 2020; Tolboom, 2021). The common victims of snakebite are out-door worker like farmers, herders, hunters etc. Hence, an occupational based disease that affects men more affected than women. These rural areas lack basic health facilities where care may be given on time with proper documentation. The prevalence of snakebite is estimated to more the 5 million annually globally, with high rates of mortality and morbidity. It is the world's biggest hidden health crisis, referred to as plaque and epidemic. Snakebite is the world's most neglected tropical disease (Habib, 2013; Harith *et al*, 2022; Micheal *et al,* 2023). In Nigerian, 12 States are said to be pronounced for snakebite cases. These statistics goes with high mortality and morbidity rates (Premiun Times, 2019; Nimzing *et al,* 2022; Iliyasu *et al,* 2023).

The act of injecting the venom along with the saliva into the bodies of the victims of snakebite is called **envenomation**. It is voluntary to the snake and occurs almost simultaneously with the process of biting. Without envenomation, snakebite is said to be "dry bite" and for 10- 80% of all bites (NIOSH, 2015; Toru *et al,* 2015; Pucca *et al*, 2020).

The effects of snakebite envenomation are as diverse as the complexity of the venom. However, they can be categorized broadly into three as follows: -

Psychological effect fear – Snake and snakebite evokes overwhelming fear such that human beings will prefer to avoid snakes at all cause (Dreyer and Dreyer, 2013; Sharma and Baranwal, 2015; Francis *et al*, 2018).

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Economical effect – Snakebite is associated with economy because it affects mainly males of productive ages, high cost of managing/treating the victims worsen their usually poor economic state, loss of valuable economic times by family care givers or supporters of the victims during treatment or otherwise, high mortality and morbidity rate and fear of venturing into such economic activities post bite. Furthermore, in an event of death, the victim may leave behind the usually large dependence to suffer (Habib, 2013; Pucca *et al*, 2020; Sayem *et al,* 2021).

Clinical effect – Snakebite is associated with both physical and clinical effects as follows: -

- The physical effect or immediate effect snakebite include the external or visible wound and other clinical manifestations like the local bleeding, anxiety, vomiting, nausea, dizziness, blurred vision, diarrhoea, redness, swelling, pains, headache, confusion,

collapse, difficulty in breathing among many others (Habib, 2013; Oliveira *et al*, 2022; Iliyasu *et al,* 2023).

- The systemic effects encompasses all or any effects on any of the systems of the body. These include the circulatory system, cardiac effect, renal (failure) effect, central nervous system (neurotoxic) effect, respiratory (breathing difficulty) effect and myotoxic (tissue) effect among others. Certain species of snakes might be majorly responsible for one or more of these effects but one effect can also lead to another even when the venom does not affect the later directly (U.S. NIOSH, 2015; Ministry of Health and Family Welfare, 2016; Subhankar, 2021).

Management of snakebite victims

In general, no any case of snakebite should be taken with levity. All venomous snakebite cases should be taken as emergencies even if the victim is in very stable condition because of the speedy nature of the prognosis. The treatment is largely dependent on the type of snake. As a result, is difficult to have a singular management protocol global, the available ones are regional, country or locality based. In some instances, caregivers depend on the information given by the victims, the predominant snake types in the locality, their experience, knowledge, skill of snakebite and the available resources at their disposal to give first aid and/or treatment (U.S. NIOSH, 2015; WHO, 2015; Moses *et al*, 2022).

Snakebite management may be classified first aid and actual treatment or non-orthodox (traditional) and orthodox. Regardless of the type of treatment to be employed, first aid is paramount in all cases of snakebites.

First aid – This is a preliminary intervention that can be given by any person including the victim before seeking the further and proper treatment, where available and possible. Occasionally, quick physical examination and taking of history may precede the actual first aid action. There are many methods of first aids. These include could be traditional/non-orthodox or orthodox methods and globally recommended or non-recommended ones. Recommended methods bring relief or succor to the victims by retarding systemic absorption of the venom while the non-acceptable ones may worsen the victim's condition (Habib, 2013; U.S. NIOSH, 2015; Moses *et al*, 2022).

Some of the acceptable snakebite first aid methods are immobilize the bitten limb with splint or sling, reassurance (counseling), gentle washing of the wound with water or soap water, moving away from the snake, the bite site should be placed below the heart, removal of jewelries and tight clothes and cover wound with sterile or clean material; prompt transfer the victim to the closest health facility (Dreyer and Dreyer, 2013; WHO, 2015; Moses *et al*, 2022).

The non-recommended first aid measure include the use of tourniquet, Incision e.g. knife or razor, applying ice packs and electric shock; Sucking out blood, carrying out cryotherapy, drinking of alcohol, spiritual measures (Habib, 2013; U.S. NIOSH, 2015; WHO, 2015)

Treatment – Globally, only orthodox methods of treatments are recommended for the treatment of snakebite and the gold standard is by the use of polyvalent anti-snake venom. Just like any other medical process, standard protocols are expected to be followed in the treatment of snakebite victims (U.S. NIOSH, 2015; WHO, 2016; WHO, 2019; Ravikar *et al,* 2022; Ludecke *et al,* 2022).

MATERIALS AND METHODS

Study area
The Snakebite Treatment, Research and Training Centre is located in Kaltungo, the Headquarters of Kaltungo Local Government Area, Gombe State, Nigeria. Gombe State is located in Northern Eastern part of Nigeria. It is located Latitude 9^0 48'and 30.59" N; Longitude 11^0 and 18' 19.20'' E (Post Office Map of L.G.A., 2009; Agbo, 2013; Prime Times, 2019).

Study population
A total of two hundred (200) subjects were selected for the study from snakebite victims at The Snakebite Treatment, Research and Training Centre, Katungo. The sample size for the study was determined using a standard formula for calculating the minimum sample size (Daniel, 1999).These consists of subjects that meet the inclusion criteria.

Inclusion criteria
All patients (victims) of venomous snakebites.

Exclusion criteria
Patience (victims) that were not bitten by venomous.

Ethical consideration
Ethical clearance was sought from the Ethical Committee of Ministry of Health Gombe, Gombe State.

Consent form
Written informed consent was sought from all the participants using standard protocol.

Concise questionnaires
Short and concise questionnaires were administered to all willing victims to collect relevant information.

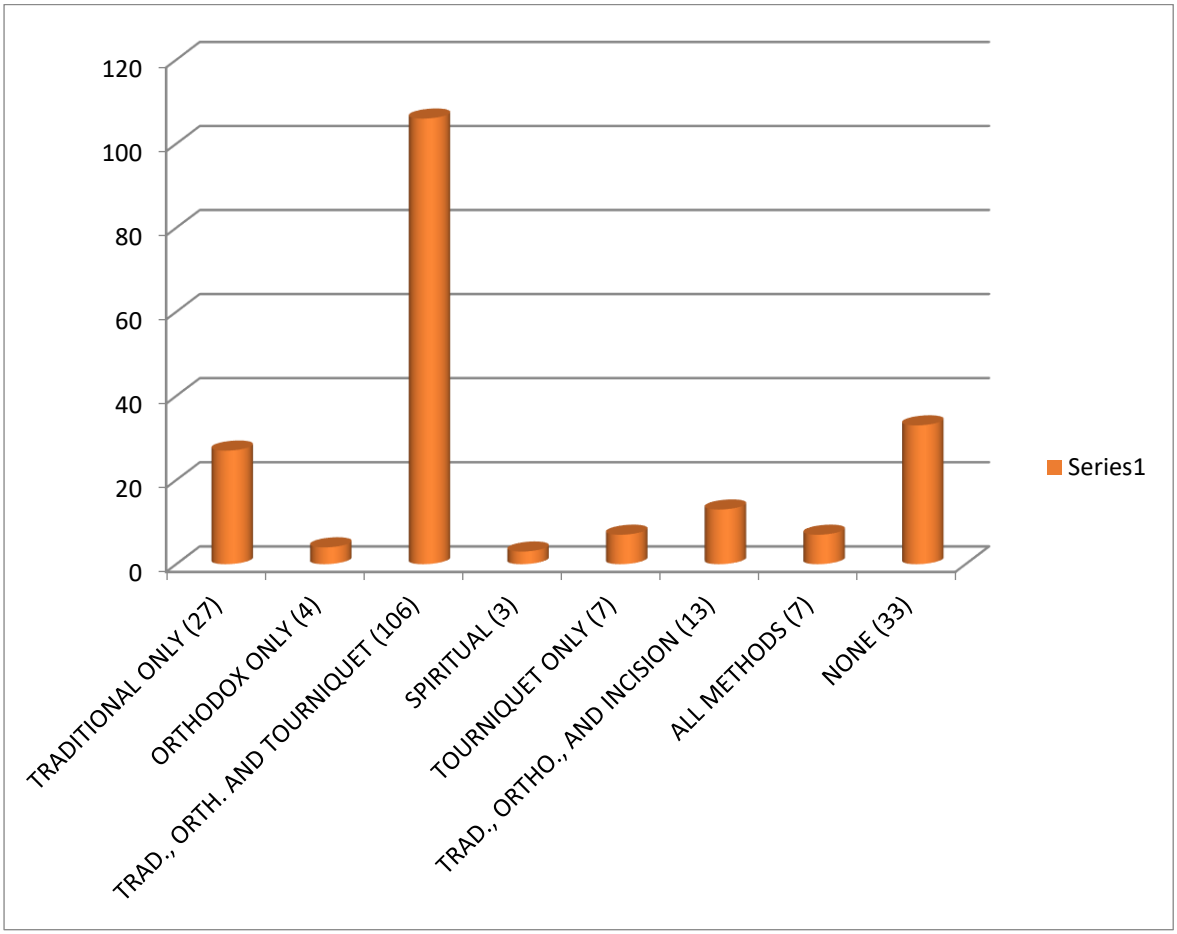
Study period
The research took place between October, 2020 and May, 2021

RESULT
This study looked at the various first method or traditional first aid and treatment methods that victims of snakebite commonly receive before getting to the snakebite research and there implication to the victims' well-being. The result is presented as showed below: -

Table 1: - This shows the tabular presentation of the various first aid methods (traditional or orthodox methods) or treatments (traditional methods only) before getting to the hospital.

S/N	METHOD	NO. OF VICTIMS	% OF VICTIMS	REMARK
1	Use of any traditional method	27	13.5	Mainly herbs topical and ingestible
2	Orthodox first aid	4	2.0	Analgesics and antibiotics
3	Combination of traditional, orthodox and tourniquet	106	53.0	-
4	Spiritual incantation	3	1.5	At river site or shrine
5	Tourniquet	7	3.5	-
6	Combination of traditional, orthodox and incision	13	6.7	-
7	Combination of all the methods	7	3.5	-
8	None	33	16.5	-
TOTAL		**200**	**100**	-

Fig 1: First aids and traditional treatments received before getting to the hospital for treatment.



DISCUSSION

The global prevalence of snakebite estimated to be 3 to 5 times above 5 million per annum (Habib, 2013; Sujeet *et al,* 2014; WHO, 2015; Micheal *et al,* 2023). This is because occur mostly in the rural areas where there are no health facilities. Where available, such facilities are uncoordinated and documentation is a big challenge. As a result of this, people results to other methods of getting succor such as traditional methods of first aids or treatments as a matter

of necessity even without assurance of the expected help. Ignorance, cultural, illiteracy and religion aid the use and reliance on these methods (Habib 2013, WHO, 2015; Harith *et al*, 2022).

This study shows high level of dependence on non-orthodox/orthodox (traditional) treatments and first aids (acceptable and non-acceptable methods) before going to the hospital for treatment among most of the snakebite victims. In fact, only 33 (16.5%) victims were found not to have taken any form of orthodox or non-orthodox medication or first aid before reaching the treatment the hospital for treatment. Only 4 (2.0%) of the victims took orthodox medication, mainly analgesics. In order words, 163 (81.5%) of the victims had one form of traditional first aid and/or treatment before getting to the health facility for orthodox treatment. Some of them even took more than one forms of first aid or traditional treatment/medication. Some of these non-orthodox method include traditional (the use of topical or ingestible herbs), spiritual, incision, tourniquet and abstinence from liquid. Some of these method are out-rightly not acceptable like the tourniquet and incision methods. Although we believe in the existence and power of a supreme being (God) as well as the miracle that can be performed, it is difficult for me to comment, recommend or accept the use spiritual method alone for the treatment of snakebite victims. Although there are no basis to say that no or all these methods are not effective, there is no prove that they are effective too. The issue of purity and toxicity of the substances (particularly the ingestible ones) is of great concern. Furthermore, the believe, over dependence and use of these substance encourages delay (or totally discourages) in going to health facilities no matter how far or close the facilities may be. Hence, causing more harm to the victims such as more mortality and morbidity rates. A number of measures have been recommended for snakebite first aid, while many others that were been used have been discouraged (Habib, 2013; U.S. NIOSH, 2015; Moses *et al*, 2022). WHO, 2015 had established that there was high dependence on traditional medication for snakebite cases.

None of the substances that were found to be in use for first aid and treatment has been satisfied by any authority, hence the effective, purity, dosage and site-effects are unknown. That does not mean that all of them may not be working at all. The fear is that their continuous usage may case some site effects to the body. Furthermore, over dependence on these methods leads to delay in going to the centre for prompt and proper treatments and worsening the snakebite associated disease prognosis. It is even worse when the substances are taken without any intention of going to the hospital. Perhaps many people might have died as a result of such processes too or survived but suffering from one form of site-effect or the other like disabilities, which are not known. It was further noticed that all the 33 victims that did not take any medication before going to the hospital were from Kaltungo town/L.G.A. and nearby locations. These calls for more creation of awareness to discourage these habits because of some them are doing it as a result of ignorance and necessity. WHO estimated that 80% of the world's population depends on traditional medicine for their primary healthcare needs (Hiremath *et al,* 2010). This study is therefore in agreement with W.H.O. as stated above. However, the big question is "whether these interventions are of any help"? It is only an in-depth research that can answer such question.

Consequently, there is the need to carry out researches on these substances that are being used in traditional first and medication because some of them may be actual effective and if properly prepared; they may work better.

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