

THE SOCIO-ECONOMIC CONSEQUENCES OF SNAKEBITE: CASE STUDIES FROM KAJIADO COUNTY, KENYA



BACKGROUND

In Sub-Saharan Africa, up to 32,000 snakebite deaths are estimated to occur every year. However, due to underreporting and a lack of research, the true burden remains unknown. Snakebite envenoming mainly affects the young and productive population groups of impoverished communities living in rural regions, often with poor access to quality healthcare.¹⁻³ Availability of antivenom is low here, especially in lower-level facilities that usually cater to rural areas. In Kenya, the cost for one vial of antivenom, the only effective treatment of snakebite envenoming, was found to be up to 19,996.00 KSH, which is 44.2 days of wage for the lowest paid government worker.⁴

The long-term health effects after snakebite envenoming include amputations, deformities, muscular weakness, neurological impairment, blindness, chronic ulceration, chronic renal failure, depressive symptoms and post-traumatic stress disorder.⁵

Families may have to deal with a loss of income, increase in caregiving needs, and high treatment costs pushing them into debt or poverty.^{2,6,7} Further, there are likely many social consequences of living with a snakebite-related impairment or being a caregiver to the victim of snakebite. At this point, little is known about how people's lives are affected in various ways after a snakebite, and what the societal impacts of snakebite have been on the household's work, social position, financial position, and (in)formal care needs.

Health Action International (HAI) has studied the capacity of healthcare workers (HCWs) and health facilities to manage snakebites, as well as the burden of snakebite in affected communities (see [Snakebite in Kenya: Evidence from the Field](#)).

This research showed that there are long-term consequences of snakebite that have not yet been documented in Kenya. To give a voice to those still suffering from their snakebites, or from

the impact it had on their life, their experiences must be heard. This research therefore studied the acute and long-term socio-economic consequences of snakebite in Kajiado County.

The Kajiado County government have made promising initial steps by allocating funding for snakebite community education and sensitisation. Further, HCW champions developed action plan priorities for Kajiado County at a HCW Training of Trainers (ToT) workshop on snakebite care, management and treatment in 2021. The findings and recommendations provide evidence on the lived experiences of snakebite victims to policy makers and inform further prioritisation of snakebite funding and resources to snakebite efforts.

METHODS

In September 2021, ten interviews with both snakebite victims and caregivers of snakebite victims and four focus group discussions were held in Kajiado West sub-county. A total of 31 community members (22 victims, nine caregivers) participated. An interview guide was used for the semi-structured interviews, while a script was used for the focus group discussions. Questions were asked related to the snakebite event, its treatment and rehabilitation, and health outcomes, followed by questions on to the long-term impact of the snakebite. These questions pertained to changes in livelihood, financial, socio-cultural and caregiving aspects because of to the snakebite.

RESULTS

Snakebite Event and Health-seeking Behaviour

Snakebite victims that participated in this research were bitten while performing a variety of activities. Ten of the victims were asleep when bitten, five of them were in their homes, four were doing chores such as fetching water or firewood, four were grazing cattle, two were doing construction work, two were filling a lorry with sand, and one was walking outside at night. Three of the participants did not specifically mention the activity performed when bitten.

After their snakebite, victims used a combination of traditional first-aid methods and formal healthcare. Two of the victims made use of only traditional healing. Some victims tied the bitten area off or put a black stone on the wound (a traditional, ineffective method of first aid), after which they travelled to a health facility. Others directly sought care at a health facility. However, many victims shared they had to visit multiple health facilities before they found a facility that had antivenom available:

“After being bitten, I went to the hospital in Ewaso but the doctor could not help. I went to St Mary in Nairobi but there was no medicine [antivenom] there. The same instance was at Mbagathi hospital. I ended up going to Kenyatta Hospital.” (FGD1.2)

In some cases, victims also needed more specialised care because the envenoming was so serious. One of the participants illustrates the care pathway undertaken after their child was bitten:

“The only thing I did at home in haste is tying the bitten hand and travelled for approximately one hour to Ewaso where we got some first aid. The doctor gave my child an injection and he fell asleep and we then spent the night at the hospital. The next day he was not feeling well and we therefore proceeded to Naivasha. The child was well attended to, but a piece of his arm was cut off and the hand did not heal. We stayed in the hospital in Naivasha for two weeks and one day I referred myself to Kenyatta Hospital. We were admitted in Kenyatta for almost three months where the child was treated and four surgeries were performed on the arm.” (FGD 1.1)

Physical Consequences

For many of the victims the snakebite impacted their physical abilities. Many experienced loss of strength, numbness, pain, deformities or itchiness in affected limbs, while some were also suffering due to amputations. As illustrated by one of the victims:

“Yes. I have a disability of my finger. Before the snakebite, there were things I could do then but now I cannot. For example, I cannot handle the spade very well, I cannot load a lorry, cut firewood nor fence the compound.” (FGD 3.2)

Socio-economic Consequences

Socio-economic consequences can be serious for snakebite victims and their families. Victims and their families can be hit particularly hard emotionally and economically. Not all participants experienced emotional distress as a consequence of the snakebite, but for those who did, it was because of their worry about full recovery, they were fearful of another snake attack and of snakes in general, and they were worried about not being able to provide for their families:

“Yes, I have concerns because I cannot work for my children who are in school. It has given me many thoughts. I thought I would die.” (R 9)

Related to this, 17 of the snakebite victims specifically indicated that the snakebite, and its physical consequences, have had a significant impact on their ability to work. They are no longer able to do the same work because they lack strength in the bitten limb, because they are in too much pain, or they get tired very easily.

“I am unable to do work for a long time, I get tired easily and therefore need to rest so that the leg gets strength once again.” (R 5)

Moreover, and in line with the previous, the snakebite also had a significant impact on the financial situation of the victims and their family. Firstly, because the treatment costs were very high, and secondly because, as mentioned above, the snakebite impacted their ability to work. Worryingly this could have a trickle-down effect on the education of children in the family. One participant, for example, shared the impact the snakebite had on their child’s education:

“I spent the school fees of my child on treatment and therefore my child had to stay at home in the course of treatment. When I was discharged, I had to look for alternative ways to find money to pay his school fees.” (FGD 2.1)

Others also shared how they had to sell animals or take out a loan to pay the treatment costs, which they were still paying off. One participant illustrated how the snakebite is still impacting them financially:

“My income has been affected so much because I cannot do my work at all with a bitten hand as my work is dependent on fully functioning hands. Moreover, instead of making savings in the self-help group, I am paying for the loan I had borrowed.” (FGD 2.4)

This illustrates how catastrophic healthcare expenditure can be to the long-term financial situation of the family. When participants were asked about support and acceptance by their respective communities, almost all of them described positive experiences. They did not feel isolated or that they were no longer accepted by their family and friends. On the contrary, family and community members came to visit them, helped them out with chores, provided food, and sometimes also helped with paying hospital bills:

“People did not isolate themselves from me at all, but they instead stayed and visited me until I recovered. They brought me water, firewood, as well as took care of my small needs that they could.” (FGD 1.3)

However, one participant did share a negative experience as a consequence of the snakebite:

“The boy was bitten in another house where he used to sleep. Following the snakebite, the child wasn’t allowed to sleep there anymore. He was asked to take the curse back to his own home. My child was not allowed to sleep in that house again.” (R 10)

Government Support Needs

Many of the participants believed that the government could provide more support to snakebite victims. The kinds of support participants wanted to see from the government included compensation for victims and supporting victims in paying hospital bills. As one participant described:

“The snakebite victims should be helped as some of them are breadwinners in their families. In my case for instance, I am paying off the loan that I borrowed to cover the hospital bill and yet my business is failing. I urge the government to offer any assistance to my business or school fees for her children both in primary and secondary schools.” (FGD 2.4).

They also stressed that the government should ensure availability of antivenom at health facilities close by, as having to go from facility to facility

causes delays in treatment, which might lead to more serious health outcomes or even the death of the snakebite victim. Participants also raised the issue of bad roads, which make it difficult to reach health facilities quickly, and poor housing, which results in higher risk of snakebite:

“If the government can compensate and build houses for the victims, this could be good. The traditional houses attract snakes. Moreover, roads need to be constructed well to ensure easy access to hospitals especially for snakebite victims. Additionally, the nearby dispensaries also need to be equipped with antivenom so that people can be treated quickly.” (FGD 4.3)

Finally, participants also believed in the need for educating communities about snakes, snakebites, first aid methods and effective health-seeking behaviour.

RECOMMENDATIONS

Snakebite Cases, Treatment and Health-Seeking Behaviour

We found that snakebite victims were often bitten while performing a variety of activities in different settings; that a combination of traditional first aid methods and formal health services was often used; and lengthy journeys to several health facilities were undertaken to find the emergency treatment and care required.

- Strengthen the capacity of HCWs in snakebite management care and treatment, including community health volunteers, by undertaking frequent trainings, training of trainers and education sessions.
- Disseminate the national management guidelines on care, management and treatment of snakebites among HCWs through the above trainings.
- Train and sensitise a range of first responders, including traditional healers, community leaders and community health volunteers in snakebite prevention, first aid, treatment and referral pathways to improve timely health services and reduce complications and specialised care.
- Hold frequent community engagement meetings in order to bridge the gap between community and health system responses and disseminate both new and existing educational tools at these meetings to increase community awareness, health-seeking behaviours and first aid.

SOCIO-ECONOMIC AND PHYSICAL CONSEQUENCES

Our research found that many victims suffered from a range of debilitating disabilities due to the snakebite and experienced permanent social and economic consequences, such as lasting emotional distress, permanent working limitations, and financial hardship. Yet, support and acceptance among the community for snakebite victims were often high.

- Incorporate snakebite-related injuries and impairments within established clinical rehabilitation services.
- Ensure that snakebite victims are exempt from any out-of-pocket payments and expenses to reduce the chances of poverty and economic hardship.
- Partner with civil society organisations and community leaders to undertake further qualitative research to understand better the physical, societal, and economic impacts on snakebite victims and their families.
- Request county health officials to engage in advocacy to ensure all eligible snakebite victims receive financial support through the human-wildlife compensation scheme following the Kenyan Government's announcement to reinstate snakebite into the support package in 2021.
- Ensure budget allocation to snakebite interventions by the County Government for implementation of all abovementioned recommendations.

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MORE INFORMATION

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