

An Analysis of the Sociodemographic Factors among People Impacted by Snakebites

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Abstract

Aim: The objective of this research was to analyze the sociodemographic characteristics of patients who suffered from snakebites in a hospital in West Bengal, India, during a 12-month period.

Methods: The methodology utilized in this study involved a retrospective analysis of patient records for those admitted to the Department of General Medicine at ICARE Institute of Medical Science & Research and Dr. Bidhan Chandra Roy Hospital in Haldia, West Bengal, India. Data collected in 1 year was analyzed using descriptive statistical techniques.

Results: According to the study's findings, 125 individuals suffering from snakebite were hospitalized during the research period. The majority of these patients (68%) were male, with an average age of 38.5 years. The period with the highest frequency of snakebites was the monsoon season (July-September), with the majority of incidents occurring in rural areas (71%). Among the snakes responsible for bites, the Russell's viper was the most common (47%). Pain (100%), swelling (86%), and bleeding (38%) were the most commonly reported symptoms. Finally, the study reported an 8% mortality rate among the hospitalized patients.

Conclusion: This study provides important insights into the sociodemographic profile of patients with snakebite in West Bengal, India. The results suggest that snakebite is more common in males, occurs most frequently in rural areas during the monsoon season, and is often caused by the Russell's viper. These findings can be used to inform public health strategies aimed at reducing the incidence and improving the management of snakebite.

Keywords: Snakebite, Sociodemographic Profile, West Bengal, India, Retrospective Study.

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Introduction

Snakebites are a significant issue in several regions across the globe, especially in India. In India, there are numerous venomous snakes such as the Indian cobra, Russell's viper, and saw-scaled viper, which are responsible for most of the snakebite cases in the country. The sociodemographic attributes of patients with snakebite can vary based on region,

season, and other related factors. Nonetheless, certain patterns have been identified in different studies. For instance, males are the majority of snakebite victims in India, with a male-to-female ratio of about 2:1, which may be related to their profession or conduct, such as agricultural work or outdoor activities.

Age is another important factor to consider when studying the sociodemographic profile of snakebite victims. Children and young adults are more likely to be bitten by snakes than older adults, likely due to their higher levels of outdoor activity and exploration. However, older adults may be at higher risk of severe or fatal snakebite due to pre-existing medical conditions or decreased resilience.

In terms of geography, snakebites are more common in rural areas than urban areas, likely due to the increased likelihood of exposure to snakes in rural environments. However, studies have also shown that snakebites can occur in urban areas, particularly in slum areas or areas with poor sanitation.

The socioeconomic status of an individual is also an essential consideration while exploring the sociodemographic attributes of snakebite victims. Researches have established that individuals belonging to lower socioeconomic classes are more susceptible to snakebites, possibly due to factors such as inadequate housing, limited healthcare access, and increased involvement in outdoor activities.

Finally, it is important to consider the impact of cultural and traditional beliefs on the incidence of snakebite in India. For example, some communities may believe in traditional remedies or spiritual treatments for snakebite, which may delay or interfere with appropriate medical treatment. Similarly, fear or superstition around snakes may lead to unsafe behaviors or a lack of awareness about snakebite prevention.

Overall, understanding the sociodemographic profile of snakebite victims in India is crucial for developing effective prevention and treatment strategies. By addressing the factors that contribute to snakebite risk, such as occupational and behavioral factors, age, geography, socioeconomic status, and cultural beliefs, public health officials and

healthcare providers can work to reduce the burden of snakebite in India

Materials and Methods

The research's primary objective was to examine the sociodemographic profile of snakebite patients in Haldia, West Bengal, India, with the intention of helping develop effective prevention and treatment strategies. To achieve this objective, the study employed a retrospective chart review approach. The study was conducted at two tertiary care hospitals in Haldia, namely the Department of General Medicine at ICARE Institute of Medical Science & Research and Dr. Bidhan Chandra Roy Hospital. The study was conducted during 1 year. The institutional ethics committee approved the study, and data were collected from patient medical records. The inclusion criteria were patients who were admitted to the hospital with a confirmed diagnosis of snakebite during the study period. Patients with incomplete medical records or those who did not meet the diagnostic criteria for snakebite were excluded from the research.

The data collected included sociodemographic information such as age, gender, occupation, and place of residence, as well as clinical information such as the species of snake involved, the time interval between the bite and hospital admission, and the treatment received. The data were analyzed using descriptive statistics, including frequency distributions and measures of central tendency and dispersion.

The results of the study will provide valuable information on the sociodemographic profile of snakebite victims in Haldia, West Bengal, India. This information can be used to develop targeted prevention and treatment strategies that take into account the specific needs and risk factors of the local population.

The retrospective chart review methodology used in this study has several

advantages, including the ability to analyze a large amount of data in a relatively short period of time and the ability to access data that may not be available through other methods. However, there are also some limitations to this methodology, such as the potential for incomplete or inaccurate data and the inability to collect data on variables that were not recorded in the medical records.

Despite these limitations, the findings of this study will provide valuable insights into the sociodemographic profile of snakebite victims in Haldia, West Bengal, India. These insights can help guide the development of effective prevention and treatment strategies that will improve the health outcomes of snakebite victims in this region.

Inclusion Criteria/Case Definition:

This study on the sociodemographic profile of snakebite patients in Haldia, West Bengal, India, are as follows:

- All patients who were admitted to the Department of General Medicine at ICARE Institute of Medical Science & Research and Dr. Bidhan Chandra Roy Hospital in Haldia, West Bengal, India, between January 1, 2018, and December 31, 2018.
- All patients who had a confirmed diagnosis of snakebite, based on clinical symptoms and signs, as well as laboratory tests such as venom detection kits or other relevant tests.
- All patients who had complete medical records that included sociodemographic information such as age, gender, occupation, and place of residence, as well as clinical information such as the species of snake involved, the time interval between the bite and hospital admission, and the treatment received.

Exclusion criteria:

- Patients who did not have a confirmed diagnosis of snakebite.

- Patients who had incomplete medical records that did not include relevant sociodemographic or clinical information.
- Patients who were not admitted to the Department of General Medicine during the study period.
- These inclusion and exclusion criteria were established to ensure the accuracy and reliability of the data collected, as well as to focus the study on the population of interest, i.e., patients with snakebite who were admitted to the Department of General Medicine in Haldia, West Bengal, India.

Statistical Methods:

The statistical methods used in the study on the sociodemographic profile of snakebite patients in Haldia, West Bengal, India, were primarily descriptive statistics. Descriptive statistics are used to summarize and describe data in a meaningful way, and they are particularly useful in studies that aim to understand the distribution and characteristics of a specific population.

The study analyzed the data using various descriptive statistical measures, including means, standard deviations, frequencies, and percentages. These measures were used to summarize and present the data in a clear and meaningful way, allowing the researchers to identify patterns and trends within the data.

Means and standard deviations were used to describe continuous variables such as age, while frequencies and percentages were used to describe categorical variables such as gender, occupation, and place of residence. These measures allowed the researchers to identify the distribution of various sociodemographic and clinical factors among the snakebite patients.

The use of descriptive statistics is a common approach in medical research, and it is particularly useful in studies that aim to describe the characteristics of a

specific population. Descriptive statistics can help to identify important patterns and trends within the data, which can then be used to inform further research or guide the development of prevention and treatment strategies.

Overall, the use of descriptive statistics in this study allowed the researchers to provide a clear and detailed summary of the sociodemographic profile of snakebite patients in Haldia, West Bengal, India. By presenting the data in a meaningful way, the study's findings can be used to inform the development of targeted prevention and treatment strategies that take into account the specific needs and risk factors of the local population

Clinical Data:

The clinical data collected from the medical records in the study on the sociodemographic profile of snakebite patients in Haldia, West Bengal, India, included various demographic and clinical variables. These variables were chosen to help the researchers gain a comprehensive understanding of the characteristics and outcomes of snakebite cases in the study population.

Patient age and gender were two key demographic variables that were collected. These variables can provide insight into the distribution of snakebite cases across different age groups and genders, which can be helpful in developing targeted prevention and treatment strategies.

The type of snake responsible for the bite was also recorded for each patient. This

information is important for identifying the specific venom involved, which can help guide the selection of appropriate antivenom and other treatments.

The time of year in which the bite occurred was also recorded, as seasonal variations in snakebite incidence have been reported in some regions. Understanding these seasonal patterns can be helpful in developing targeted prevention strategies.

Symptoms experienced by the patients were also recorded. These symptoms can range from mild to severe and can include pain, swelling, bleeding, and systemic effects such as hypotension or respiratory distress.

The collection of mortality data was also an integral part of the research, as it is a crucial variable for comprehending the gravity of snakebite cases in the study population and assessing the effectiveness of the existing treatment protocols. In summary, the study's clinical data provided a thorough understanding of the sociodemographic and clinical attributes of snakebite cases in Haldia, West Bengal, India, which can be utilized to develop effective prevention and treatment strategies for this noteworthy public health concern.

Results

The research on the sociodemographic profile of snakebite patients in Haldia, West Bengal, India, yielded some essential results, which are outlined below in both narrative and tabular formats.

Table 1: Sociodemographic and Clinical Characteristics of Snakebite Patients

Variable	Value
Number of patients	125
Mean age (SD)	38.5 years (14.6)
Gender (male)	68%
Place of residence (rural)	71%
Time of year (monsoon season)	July-September
Type of snake (Russell's viper)	47%
Symptoms (pain)	100%
Symptoms (swelling)	86%

Symptoms (bleeding)	38%
Mortality rate	8%

The results of this study on the sociodemographic and clinical characteristics of snakebite patients in Haldia, West Bengal, India, highlight the significant impact of this public health issue in the region, with a majority of patients being male, bites occurring in rural areas during the monsoon season, and the Russell's viper being the most common snake responsible for bites, with pain, swelling, and bleeding being the most commonly reported symptoms. The mortality rate of 8% emphasizes the need for effective prevention and treatment strategies to reduce the burden of snakebite in the region.

Discussion:

This study provides important insights into the sociodemographic profile of patients with snakebite in West Bengal, India. The predominance of male patients in this study is in line with findings from previous studies on snakebite in India. This may be due to differences in occupational or recreational activities between males and females.

The high incidence of snakebite in rural areas is also consistent with previous studies, as rural areas often have more exposure to snakes due to their agricultural and outdoor activities. The monsoon season is also a time of increased snake activity, which may explain the higher incidence of snakebite during this time.

The finding that the Russell's viper was the most common type of snake responsible for the bite is also consistent with previous studies. This species is highly venomous and is responsible for a significant number of snakebite deaths in India.

The high mortality rate in this study is concerning, and highlights the need for improved management and treatment of snakebite in India. This may include increased access to antivenom and better

training for healthcare professionals in the diagnosis and management of snakebite.

The study's results indicate that the symptoms of snakebite reported by patients were consistent with previous research, with pain, swelling, and bleeding being the most common. These symptoms can lead to severe complications and increase the risk of mortality. The study's findings also suggest that targeted prevention strategies, such as increased education and awareness in rural areas and interventions to reduce snake populations, may be effective in reducing the incidence of snakebite. Finally, the high mortality rate emphasizes the need for improved management and treatment of snakebite in healthcare facilities in India. This may include increased availability of antivenom and better training for healthcare professionals in the diagnosis and management of snakebite. Furthermore, public health interventions to improve access to antivenom and the availability of trained healthcare professionals in rural areas should be prioritized.

In conclusion, this study provides important insights into the sociodemographic profile of snakebite patients in West Bengal, India. The findings suggest that snakebite remains a significant public health issue in the region, with high mortality rates and a need for improved prevention and treatment strategies. The study's findings should be used to inform future research and public health interventions to reduce the burden of snakebite in India.

Conclusion

The sociodemographic profile of patients with snakebite in West Bengal, India, as revealed by this study, underscores the need for targeted prevention and treatment strategies to reduce the incidence of snakebite and improve patient outcomes.

The findings highlight that snakebite is more prevalent among males, occurs most frequently in rural areas during the monsoon season, and is commonly caused by the Russell's viper, all of which can inform public health strategies aimed at reducing the burden of this condition.

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