

Incidence and Associated Factors of Sudden Death in Kebbi State, Nigeria

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ABSTRACT

Abstract: Sudden death (SD), defined by the World Health Organization as a natural, non-violent death occurring within 24 hours of an abrupt change in clinical status, remains a critical public health issue, particularly in low-resource settings. This study assesses the incidence and associated factors of SD in Kebbi State, Nigeria, where data on the condition is scarce. A retrospective review of 3,624 medical records from 2018–2020 and interviews with 100 health personnel were conducted. Results indicated an SD incidence of 20.1%, with a peak in the 41–60 age group and a male-to-female ratio of 1.79:1. Cardiovascular diseases (44.4%) were the leading cause, followed by respiratory-related disorders (13.8%) and infectious diseases (11.12%). Hypertension was the most common risk factor, contributing to 47% of cases, while other significant factors included pulmonary embolism, asthma, and diabetes mellitus. Health personnel displayed inadequate knowledge regarding SD-related activities, underscoring the need for targeted training. Findings suggest that SD is prevalent in Kebbi State, with non-communicable diseases (NCDs) playing a prominent role in its etiology. Strengthening health system capacity and increasing NCD prevention efforts, especially for hypertension, are essential to reducing the SD burden in Kebbi State.

Keywords: sudden death, cardiovascular disease, hypertension, non-communicable diseases, public health, Kebbi State, Nigeria

INTRODUCTION

Background Sudden death (SD) remains a significant global health challenge despite advances in technology, biomedicine, and pharmaceuticals. The World Health Organization (WHO) classifies SD as a natural, unexpected death occurring within 24 hours of symptom onset, with estimates suggesting it accounts for about 40% of all global deaths. Cardiovascular diseases (CVDs) are the predominant cause of SD, with other factors such as respiratory, infectious, metabolic, toxicological, and neurological diseases contributing significantly.

In Nigeria, and Kebbi State specifically, the incidence of SD is increasing, exacerbated by the rise in non-communicable diseases (NCDs) such as hypertension and diabetes, linked to changing lifestyles and dietary patterns. This study aims to assess the incidence and associated factors of SD in this Kebbi State, Nigeria.

Significance of the Study Despite its public health importance, data on SD in Nigeria is limited, making it difficult to implement targeted interventions. Understanding the incidence, causes, and risk factors associated with SD in Kebbi State is essential for improving preventive measures, enhancing treatment outcomes, and mitigating the impact on the healthcare system. This study seeks to fill the knowledge gap and inform evidence-based interventions by investigating the prevalence and associated factors of SD within the region.

Objectives the specific objectives are to:

1. Determine the incidence rate of SD in Kebbi State.
2. Identify the leading causes and common risk factors of SD.
3. Assess the adequacy of health personnel knowledge on managing SD and its risk factors.

4. Provide evidence-based recommendations for reducing the SD burden in Kebbi State.

METHODOLOGY

Study Design This study utilized a mixed-methods approach, combining a retrospective review of medical records with cross-sectional interviews of health personnel. The dual design allowed for a comprehensive understanding of both quantitative data on SD incidence and qualitative insights into health personnel's knowledge and practices regarding SD management.

Study Area The research was conducted in Kebbi State, Nigeria, a region experiencing a high burden of both communicable and non-communicable diseases. Kebbi's tropical climate and population demographics contribute to varying health challenges, including the risk factors associated with SD.

Data Collection

1. **Retrospective Medical Record Review:** Medical records from 2018 to 2020 were reviewed across major healthcare facilities in Kebbi State, including Sir Yahaya Memorial Hospital, Federal Medical Centre, and selected primary healthcare centers. A total of 3,624 records were examined, focusing on cases where sudden death was documented, and underlying health conditions, age, and gender were recorded.
2. **Health Personnel Interviews:** Semi-structured interviews were conducted with 100 health personnel, including doctors, nurses, and other healthcare providers. Participants were selected using a purposive sampling method to gather relevant perspectives on knowledge, perception, and practices related to SD management. Interviews assessed the adequacy of knowledge on SD, including risk factors, symptoms, and emergency response capabilities.

Data Analysis Quantitative data from medical records were analyzed using descriptive statistics to determine incidence rates, demographic patterns, and primary causes of SD. Incidence rates were calculated as the percentage of SD cases among total recorded deaths, and the male-to-female ratio, age distribution, and common etiologies were examined.

Qualitative data from interviews were coded and analyzed thematically. Key themes were identified to highlight gaps in knowledge and areas for improvement in SD-related training and preparedness among health personnel.

Ethical Considerations Ethical approval for the study was obtained from the Kebbi State Ministry of Health and the participating healthcare institutions. Informed consent was obtained from all interviewed health personnel, and data confidentiality was maintained by anonymizing patient records and interview responses.

Limitations This study's retrospective design limited access to comprehensive medical histories and diagnostic details for some SD cases. Additionally, the lack of advanced diagnostic tools in the studied healthcare facilities may have led to underreporting of certain cardiovascular conditions, potentially impacting the data's completeness.

RESULTS

Incidence of Sudden Death A total of 3,624 medical records from 2018 to 2020 were reviewed, revealing an SD incidence rate of 20.1% among documented deaths. The highest incidence occurred in individuals aged 41–60 years, indicating a mid-life vulnerability. The gender distribution showed a male-to-female ratio of 1.79:1, suggesting a higher susceptibility among males.

Primary Causes of Sudden Death The leading causes of SD identified in the study were:

1. **Cardiovascular Diseases (CVDs):** CVDs were the most prevalent cause, accounting for 44.4% of SD

cases. Within this category, hypertensive heart disease and ischemic heart conditions were particularly prominent.

2. **Respiratory System Disorders:** Respiratory issues, such as asthma and pulmonary embolism, were responsible for 13.8% of SD cases.
3. **Infectious Diseases:** Infectious diseases, including malaria and meningitis, contributed to 11.12% of SD cases, emphasizing the persistent impact of communicable diseases in Kebbi State.

Associated Risk Factors Hypertension emerged as the most significant risk factor, associated with nearly half of the SD cases (47%). Additional risk factors included:

1. Pulmonary Embolism (11%)
2. Asthma (11%)
3. Infectious Diseases (10%)
4. Diabetes Mellitus (9%)

Knowledge and Perception among Health Personnel Interviews with 100 health personnel indicated a general inadequacy in knowledge regarding SD management, particularly in recognizing early signs and risk factors. Many healthcare providers expressed the need for more targeted training on emergency responses, such as CPR (cardiopulmonary resuscitation) and handling hypertensive crises.

DISCUSSION

Interpretation of Findings The findings indicate a significant incidence of SD in Kebbi State, predominantly driven by CVDs and associated with modifiable risk factors such as hypertension. The high prevalence of hypertension aligns with global trends of increasing NCDs in low-resource settings, linked to urbanization and lifestyle changes.

Implications for Public Health Policy The study highlights the urgent need for targeted public health interventions, including community-based education on NCD prevention, improved healthcare infrastructure, and enhanced emergency preparedness.

RECOMMENDATIONS

1. Strengthen NCD prevention programs through education and screening.
2. Enhance health personnel training on SD management and emergency response.
3. Invest in healthcare infrastructure, especially in underserved areas.
4. Develop standardized protocols for SD management.
5. Promote further research on SD to understand its socio-economic and environmental determinants in the region.

CONCLUSION

Sudden death in Kebbi State represents a significant public health challenge, with cardiovascular diseases and hypertension being the most critical factors. Addressing these issues through targeted prevention and improved healthcare preparedness is vital to mitigating the burden of SD in the region.

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