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Systematic Review

Nocturnal enigmas: a systematic review of bangungot and sudden death during sleep

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ABSTRACT

Bangungot and sudden unexplained nocturnal death syndrome (SUNDS) remain complex phenomena at the intersection of culture and medicine. This systematic review investigates their epidemiological prevalence, cultural interpretations and genetic foundations. We highlight the urgent need for culturally sensitive public health interventions by synthesizing Southeast Asia and Fiji's findings. Key findings indicate Brugada Syndrome, associated with genetic mutations such as SCN5A, as a primary medical explanation, while environmental and lifestyle factors further elevate risk. Integrating cultural narratives with scientific research can improve strategies to address and reduce sudden nocturnal deaths.

Keywords: Nocturnal enigmas, Nocturnal death syndrome, Southeast Asia and Fiji's

INTRODUCTION

Sudden Unexplained Nocturnal Death Syndrome (SUNDS), commonly referred to as Bangungot in the Philippines, is a mysterious condition primarily affecting young men who die suddenly during sleep. This phenomenon is prominent in Southeast Asia and the Pacific Islands, including Fiji, where supernatural forces are often blamed for these deaths. For example, Fiji's local term “kana tevoro” mirrors similar beliefs across cultures.[1-3]

Advances in medical research have identified genetic factors, such as those related to Brugada Syndrome, as potential explanations for many of these deaths.[1] Recent findings suggest that mutations in cardiac ion channel genes like SCN5A, CACNA1C and SCN10A are responsible for arrhythmias associated with sudden nocturnal deaths.[4,5] However, traditional beliefs often hinder timely medical responses, necessitating culturally sensitive health strategies. This review bridges the gap between cultural beliefs and medical knowledge of Bangungot and SUNDS, analyzing existing data while suggesting interventions to reduce occurrences.

Objective

The main objectives of this research are to analyze historical and cultural interpretations of Bangungot and SUNDS, primarily in Southeast Asia, while exploring parallel conditions in Fiji.

Review the medical literature on SUNDS, emphasizing genetic predispositions, physiological mechanisms and environmental contributors. Synthesize cultural and medical perspectives to identify commonalities and contradictions.

Highlight research gaps and suggest areas for further study. Provide practical insights for healthcare providers and policymakers to mitigate sudden nocturnal deaths.

METHODS

Study place

Data for this study were derived from hospital-based studies at the Philippine Heart Center, Cebu Institute of Medicine and public health records from Fiji's Ministry of Health.

Inclusion criteria

Documented cases of Bangungot or SUNDS in Southeast Asian or Fijian populations. Medical evidence linking cardiovascular conditions like Brugada Syndrome.[1,5] Cultural studies exploring traditional beliefs and practices.[6,7]

Exclusion criteria

Studies on unrelated causes of sudden death. Non-peer-reviewed or inconclusive studies.

Search strategy

A comprehensive search was conducted using PubMed, Google Scholar and JSTOR databases. The keywords used were "Bangungot," "sudden nocturnal death," "Brugada syndrome," "Southeast Asia," and "genetic predisposition." This systematic review was conducted between January 2022 and April 2023, focusing on literature published between 1980 and 2023.

Data collection

We systematically reviewed case reports and medical records and published articles from databases such as PubMed, Google Scholar and regional medical journals.

Ethical considerations

No ethical approval was required as the study involves analyzing existing data rather than conducting new experiments.

RESULTS

Epidemiological findings

Philippines: 38 cases per 100,000 men annually (ages 25–44), higher among Ilocano and Visayan populations.[8] Thailand and Laos: Incidence rates range from 26–43 cases per 100,000 annually.[3] Fiji: Cardiovascular diseases, accounting for 84% of premature deaths, suggest undiagnosed SUNDS cases.[3]

Demographics

It predominantly affects males aged 25–44 years.[7] Higher prevalence in rural and low-income communities.[9]

Environmental and lifestyle factors

Dietary influence

High-carbohydrate, low-nutrient diets increase metabolic stress.[4] Stress and Fatigue: Physical and emotional exhaustion are common triggers.[10]

Sleeping environment

Poor ventilation exacerbates risks.[3]

Genetic factors

Key mutations in SCN5A, CACNA1C and SCN10A genes are linked to Brugada Syndrome.[5] Genetic predispositions account for 20–25% of SUNDS cases.[9]

DISCUSSION

Bangungot and SUNDS are multifaceted phenomena deeply rooted in cultural traditions and medical science. In Southeast Asia and Fiji, traditional beliefs about spirits and supernatural forces influence how these sudden deaths are understood and reported. These cultural beliefs, while necessary for the community, can lead to delays in seeking medical attention, often resulting in preventable deaths. The high rates of cardiovascular disease in Fiji suggest that unexplained nocturnal deaths may occur more frequently than reported, mainly due to limited access to healthcare services.

Efforts to bridge the gap between cultural and medical perspectives have shown promise. For instance, in Thailand, involving Buddhist monks in public health education has helped increase acceptance of medical explanations for SUNDS, leading to higher rates of genetic testing and preventive care.[5] Similar programs in the Philippines have successfully integrated local healers into public health campaigns, allowing communities to embrace medical interventions like heart screenings by framing them for spiritual protection.[6,7]

The epidemiological findings in this study indicate a significant incidence of Bangungot in Southeast Asia, especially in the Philippines, with an annual rate of 38 per 100,000 individuals, primarily affecting young men between the ages of 25 and 44.[8] This rate is consistent with those observed in Southeast Asian countries like Thailand and Laos, where incidence rates range from 26 to 43 per 100,000. Additionally, the study found that specific populations, such as the Ilocano and Visayan ethnic groups in the Philippines, have a higher-than-average incidence of Bangungot, reaching up to 50 per 100,000 per year.

In comparison, Fiji presents a slightly different but related context. Non-communicable diseases (NCDs) are the leading cause of premature death in Fiji, accounting for over 84% of all mortality.[3] cardiovascular diseases,

such as heart attacks and strokes, are major contributors to these deaths. Although specific data on Bangungot is not well-documented in Fiji, the high rate of undiagnosed heart conditions suggests that similar cardiac-related deaths may be occurring, potentially falling under the category of SUNDS.

The comparison between the two countries reveals a notable contrast in how these conditions are recorded and understood. While the Philippines has robust data on the incidence of Bangungot, Fiji lacks detailed surveillance data on SUNDS or its potential link to cardiovascular diseases. The absence of clear documentation in Fiji suggests a significant gap in health monitoring, especially concerning nocturnal deaths that may go unexplained due to a lack of awareness or diagnostic tools for conditions like Brugada Syndrome or other arrhythmias linked to SUNDS.[9]

Moreover, the higher incidence rates in specific Filipino populations, such as the Ilocano and Visayan groups, suggest that genetic or lifestyle factors may play a pivotal role in the epidemiology of Bangungot. These subgroups might have specific risk factors, including unique genetic predispositions or lifestyle practices, such as diet or alcohol consumption, which could contribute to the increased incidence of Bangungot in these populations. Future studies should explore these factors, potentially highlighting critical aspects of public health strategies targeting high-risk ethnic groups in the region.[10]

The genetic component of SUNDS is a crucial aspect of understanding these phenomena. This study reveals that Brugada Syndrome, a genetic disorder linked to cardiac arrhythmias, is a significant cause of SUNDS in Southeast Asia. Familial clustering of Brugada Syndrome is commonly observed, with studies indicating that up to 20% of individuals with a family history of the condition are at risk for sudden nocturnal death.[11,12] This finding is consistent with other regional research, highlighting specific populations' genetic vulnerability to sudden cardiac events.[13]

Mutations in genes such as CACNA1C and SCN10A, which regulate cardiac ion channels, have been implicated in SUNDS. These genetic variations make individuals more susceptible to arrhythmias, particularly during sleep, when the body's autonomic nervous system is most active. The genetic predisposition to arrhythmias underlies the importance of early genetic screening in populations at risk. In the Philippines, where Bangungot is most prevalent, the genetic contribution of Brugada Syndrome and other similar conditions may offer a key explanation for the high incidence rates observed in young men, particularly within certain ethnic groups.[14]

CONCLUSION

This systematic review underscores the essential need for a holistic approach that combines cultural understanding with scientific inquiry to combat sudden nocturnal deaths effectively. The findings suggest that public health programs should prioritize several key areas Implementing educational programs to raise awareness about the risks of sudden nocturnal deaths. These programs should be culturally tailored to resonate with specific communities, addressing their unique beliefs, practices and health behaviors. Establish robust genetic screening initiatives to identify individuals at higher risk for sudden nocturnal death syndrome. This could involve both population-wide screenings and targeted testing in communities where such deaths are more prevalent. Developing and deploying interventions that are respectful of and responsive to the diverse cultural backgrounds of affected individuals. This requires understanding cultural norms and values and engaging community leaders and members in designing and implementing health initiatives.

Moreover, there is a pressing need for further research that focuses on longitudinal studies. Such research would investigate the intricate relationships between genetic predispositions, environmental factors and cultural contexts about sudden unexplained nocturnal death syndrome (SUNDS). By exploring these dimensions, researchers can contribute to more effective prevention strategies and improve health outcomes for at-risk populations. Understanding these interconnections will ultimately be vital for designing effective and culturally relevant interventions.

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