THE PREVALENCE OF BUSH BURNING IN NIGERIA AND ITS EFFECT ON HUMAN HEALTH: THE CONTROL AND TREATMENT

by

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ABSTRACT

This study examines the prevalence of bush burning in Nigeria, a widespread practice with significant environmental and public health consequences. Bush burning is commonly used for agricultural purposes, land clearing, and hunting, but it contributes to air pollution through the release of toxic pollutants like particulate matter, carbon monoxide, and volatile organic compounds. These pollutants pose serious health risks, including respiratory and cardiovascular diseases, particularly among vulnerable populations such as children, the elderly, and those with pre-existing conditions. Efforts to control bush burning in Nigeria have faced challenges due to limited enforcement and public awareness. The study highlights the need for sustainable alternatives, such as agroforestry and regulated waste management, to reduce open burning. Additionally, enhancing public health awareness and strengthening healthcare systems are crucial for managing and treating health conditions related to bush burning exposure. The study concluded that despite regulatory efforts, enforcement challenges and a lack of awareness continue to hinder effective control. Sustainable alternatives, such as improved agricultural practices and waste management, are crucial to reduce the reliance on open burning. The study also recommended that foster partnerships between government agencies, non-governmental organizations, and local communities to implement programs that address both the environmental and health impacts of bush burning.

KEYWORD: Bush Burning, Human Health, Control, Treatment, Nigeria

INTRODUCTION

Bush burning, also known as open burning, is a widespread practice in Nigeria, particularly in rural and semi-urban areas, where it is used for land clearing, hunting, and farming purposes. This method of burning is not only detrimental to the environment but has become a significant public health concern. The prevalence of bush burning in Nigeria has increased in recent years, driven by factors such as the expansion of agriculture, inadequate waste management practices, and the lack of effective enforcement of environmental regulations. While bush burning is often perceived as a cheap and convenient tool for land management, its consequences for human health are far-reaching, contributing to air pollution, respiratory diseases, and other health complications in affected communities.

The harmful effects of bush burning on human health are primarily linked to the release of toxic pollutants such as carbon monoxide (CO), particulate matter (PM), and volatile organic

compounds (VOCs). These pollutants, once inhaled, can lead to a range of health issues, including respiratory illnesses such as asthma, chronic obstructive pulmonary disease (COPD), and bronchitis. Additionally, exposure to these toxins has been associated with cardiovascular diseases and even increased mortality rates in certain populations. Studies have shown that people living in areas where bush burning is frequent are at a higher risk of suffering from these conditions, particularly children, the elderly, and individuals with pre-existing health conditions (Adebayo et al., 2019; Olaniyan et al., 2020).

Efforts to control bush burning in Nigeria have been met with varying degrees of success. Regulatory frameworks and policies aimed at curbing open burning have been implemented, yet enforcement remains a challenge due to limited resources and the lack of public awareness about the long-term health impacts. Some strategies, such as the promotion of controlled or regulated agricultural burning, have shown promise in mitigating the environmental and health risks. However, the adoption of sustainable alternatives to bush burning, including agroforestry practices, mulching, and improved waste management, remains critical to reducing the practice's prevalence and its associated health risks (Davis et al., 2018).

The treatment and management of health conditions resulting from bush burning exposure in Nigeria require a multifaceted approach. This includes the strengthening of healthcare systems, early detection of respiratory and cardiovascular diseases, and the provision of effective treatment options. Public health campaigns that emphasize the dangers of open burning and advocate for safer, more sustainable farming methods are also crucial. Furthermore, collaboration between government agencies, non-governmental organizations, and local communities is essential for implementing policies that promote environmental sustainability while safeguarding human health (Akinmoladun et al., 2021).

CONCEPT OF BUSH BURNING

Bush burning is the practice of setting fire to vegetation, either intentionally or accidentally, in Nigeria. It is a common occurrence during the dry season when the grasses and weeds are dry and flammable. Bush burning is mainly done for agricultural purposes, such as clearing land for cultivation, controlling pests, and enhancing soil fertility. It is also done for hunting, as some hunters use fire to drive out animals from their hiding places. However, bush burning has many negative effects on the environment, health, and economy. Wilson, Caitlin A (2020). It causes air pollution, soil degradation, loss of biodiversity, greenhouse gas emissions, damage to infrastructure and livelihoods, and increased vulnerability to climate change.

The bush burning practice is defined as the process of clearing, gathering and burning of forestland for the purpose of preparing the land for crop or livestock production. Bush burning is the agricultural practice that involve the that involving the clearing and burning of bush. It is a common practice in west Africa. Although it is a quick way of getting rid of the weeds, it is considered a type of environmental hazard. According to Olarewaju, (2024) Bush burning is a silent killer to land productivity as the fire burns everything in sight, leaving only misery behind. This culture of bush burning should be abolished totally in the agricultural sector in the developing countries as this destroys the ecosystem faster and alters the soil structure that supports growth and development of plants.

According to Ojochenemi, Yakubu, Otitoju Gto, and Daniel (2019), bush burning is the removal of the natural vegetation cover that protects the soil surface using fire. This exposes the land to the effect of wind, water erosion and ultraviolet radiation. Bush burning has detrimental effect to the environment, health, and the economy. It involves the production of air pollution such as carbon monoxide, hydrocarbon, hydrogen sulphide, nitrogen oxide, sulphur, ozone, and other oxidants. Particulate pollutants such as dust, fume, mist, and smoke are also obtained

from bush burning. Furthermore, Chiroma and Alhassan., (2024) Bush burning, defined as the removal of the natural vegetation cover that protects the soil surface through the use of fire has detrimental effect on the environment, health and the economy

CONCEPT OF HUMAN HEALTH

The concept of human health has evolved significantly over time, reflecting changes in societal values, scientific understanding, and environmental contexts. Traditionally, health was perceived merely as the absence of disease. However, contemporary definitions embrace a more holistic view, encompassing physical, mental, social, and environmental well-being. This essay explores the multifaceted nature of human health, integrating insights from recent scholarly literature published. In 1948, the World Health Organization (WHO) defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." This definition was groundbreaking, as it acknowledged that health extends beyond mere physiological functioning to include mental and social dimensions. However, some critics argue that the term "complete" sets an unattainable standard, especially for individuals with chronic illnesses or disabilities. This has led to the development of alternative models that emphasize adaptability and functionality over an idealized state of well-being. Physical health pertains to the optimal functioning of the body's physiological systems. It involves maintaining a healthy lifestyle through balanced nutrition, regular exercise, adequate sleep, and preventive healthcare measures. The emergence of "diseases of modernity," such as obesity, type 2 diabetes, and cardiovascular disorders, underscores the impact of contemporary lifestyles on physical health. These conditions highlight the paradox wherein technological and societal advancements have led to both improved longevity and new health challenges. Mental health encompasses emotional, psychological, and social well-being. It affects cognition, perception, and behavior, influencing how individuals handle stress, relate to others, and make decisions. The increasing prevalence of mental health disorders, including depression and anxiety, has prompted a reevaluation of traditional treatment approaches. Holistic psychology, which considers mental, physical, emotional, relational, social, and spiritual aspects as interconnected components of a whole system, has gained traction as a comprehensive method for addressing mental health concerns. This approach advocates for understanding individuals in their entirety rather than focusing solely on symptomatic treatment.

Social health refers to an individual's ability to form satisfying interpersonal relationships and adapt to social situations. Strong social connections have been linked to increased longevity, improved immune function, and better mental health outcomes. Conversely, chronic loneliness and social isolation pose significant health risks, comparable to those associated with smoking or excessive alcohol consumption. The COVID-19 pandemic underscored the importance of social health, as lockdowns and social distancing measures led to increased feelings of isolation for many individuals. Initiatives aimed at fostering community engagement and social resilience have become integral to public health strategies.

Environmental health examines how environmental factors—such as pollution, climate change, and exposure to hazardous substances—affect human well-being. The concept of "planetary health" has emerged, emphasizing that human health is inextricably linked to the health of the Earth's ecosystems. Environmental degradation has been associated with a rise in zoonotic diseases, including COVID-19, highlighting the need for sustainable interactions with our environment. Recognizing environmental well-being as a critical component of human health advocates for policies that promote ecological balance and reduce environmental risks.

The traditional tripartite model of health—encompassing physical, mental, and social dimensions—has been expanded to include environmental well-being, reflecting the growing

awareness of the interplay between human health and ecological systems. This holistic perspective aligns with the "One Health" approach, which integrates human, animal, and environmental health considerations. By acknowledging the interconnectedness of these domains, health professionals can develop more effective strategies to address complex health challenges.

THE PREVALENCE OF BUSH BURNING IN NIGERIA

Bush burning remains a prevalent practice in Nigeria, particularly during the dry season, leading to significant environmental, economic, and social consequences. Recent studies and reports have highlighted the extent and impact of this issue across various regions of the country.

- Agricultural Practices

A substantial portion of bush burning in Nigeria is attributed to agricultural activities. Farmers often resort to this method to clear land for cultivation, eliminate crop residues, and control pests. For instance, a study in Asa Local Government Area of Kwara State revealed that approximately 80% of bush burning incidents were related to agricultural purposes. This practice, while cost-effective for land clearing, poses significant risks of uncontrolled fires spreading to unintended areas.Izah, Angaye, Aigberua&Nduka(2017), Nigeria.Similarly, in Delta state, indiscriminate bush burning as the major cause of conflict between nomadic herders and farmers. Bush burning by nomads is probably carried out to kill the browning vegetation cover in the dry season and give room for regrowth of green vegetation

- Hunting Activities

Hunters frequently engage in bush burning to flush out game, a practice that, although traditional, can lead to extensive and uncontrolled wildfires. The use of fire in hunting not only threatens wildlife populations but also endangers surrounding vegetation and human settlements. The Kwara State Fire Service has reported multiple fire incidents resulting from such activities, emphasizing the need for awareness and regulation.(Oyekola, 2024)

- Pastoral Practices

Nomadic herders often use fire to rejuvenate pasturelands by burning old vegetation to promote the growth of fresh grass for livestock. However, this practice can inadvertently lead to uncontrolled fires affecting adjacent farmlands and natural habitats. In Delta State, for example, indiscriminate bush burning by nomads has been identified as a major cause of conflict between herders and farmers, highlighting the broader social implications of this practice.(Angaye, 2017)

- Land Clearing for Development

In both urban and rural areas, individuals and developers sometimes resort to bush burning as a quick method for clearing land for construction and other developmental projects. Without proper control measures, these fires can spread rapidly, causing damage to nearby properties and ecosystems. Recognizing the dangers, the Federal Capital Territory Administration (FCTA) banned indiscriminate bush burning in rural communities to mitigate fire outbreaks and protect the environment.

- Waste Disposal

Improper waste management practices, including the burning of solid waste, contribute to the prevalence of bush fires. Individuals often ignite fires to dispose of refuse, which can escalate

into larger uncontrolled bush fires, especially during the dry season when vegetation is highly flammable. The National Emergency Management Agency (NEMA) has cautioned the public against such practices during the harmattan season to prevent property damage and loss of lives.(Bello, 2024)

THE EFFECTS OF BUSH BURNING

Bush burning in Nigeria has many negative effects on the environment, health, and economy, such as:

Air pollution: According to Ogunjobi, Ajayi and Adefisan, (2010). Bush burning produces large amounts of smoke, ash, and particulate matter that pollute the air and reduce visibility. The smoke can also contain harmful substances, such as carbon monoxide, nitrogen oxides, sulfur dioxide, and volatile organic compounds, that can affect human and animal health. The smoke can also contribute to the formation of ozone and smog, which can aggravate respiratory and cardiovascular diseases.

Soil degradation: Study by Oluwatosin and Ogunkunle, (2011). Bush burning destroys the organic matter and nutrients in the soil, making it less fertile and productive. It also reduces the soil moisture and increases the soil temperature, making it more susceptible to erosion and compaction. It also alters the soil pH and microbial activity, affecting the soil quality and health.

Loss of biodiversity: Bush burning destroys the habitat and food sources of many plants and animals, reducing their diversity and abundance. It also kills or displaces many species, especially those that are rare, endangered, or endemic. It also affects the genetic diversity and evolutionary processes of the surviving species.

Greenhouse gas emissions: Bush burning releases large amounts of greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, that contribute to global warming and climate change. These gases can also affect the regional and global climate patterns, such as rainfall, temperature, and wind.

Damage to infrastructure and livelihoods: Bush burning can damage or destroy infrastructure, such as roads, bridges, buildings, power lines, and communication networks, affecting the transportation, communication, and service delivery. It can also damage or destroy livelihood assets, such as crops, livestock, food stocks, and equipment, affecting the food security, income, and well-being of the people.

Increased vulnerability to climate change: Bush burning reduces the resilience and adaptive capacity of the ecosystems and communities to cope with the impacts of climate change, such as drought, flood, heat wave, and disease outbreak. It also reduces the potential of the ecosystems and communities to mitigate climate change, such as by sequestering carbon, regulating water, and providing ecosystem services

THE CONTROL STRATEGIES TO BUSH BURNING IN NIGERIA

Bush burning in Nigeria poses significant environmental challenges, including deforestation, soil degradation, and air pollution. To address these issues, various strategies have been implemented focusing on policy enforcement, community engagement, and sustainable agricultural practices.

- **Policy and Regulatory Measures**

The Nigerian government has reinforced regulations to control bush burning. The National Environmental (Control of Bush, Forest Fire and Open Burning) Regulations, 2011, provide a

legal framework for managing and preventing bush and forest fires. These regulations outline the requirements for obtaining permits, obligations of permit holders, and penalties for violations. Although established earlier, these regulations have been actively enforced in recent years to curb indiscriminate bush burning.

At the state level, Enugu State implemented the Bush Burning (Prohibition) Law, which prohibits unapproved burning of bushes and forests and prescribes penalties for offenders, including imprisonment. This law aims to prevent environmental degradation and promote sustainable land use practices.

- Community-Based Initiatives

Community involvement has been pivotal in combating bush burning. In Benue State, the Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) Project established Forest Management Committees across various communities. These committees empower local residents to actively participate in protecting and managing afforestation and reforestation efforts, fostering a sense of ownership and responsibility towards the environment.

Similarly, Landmark University conducted a Community Sensitization Campaign on Bush Burning and Land Management Practices in several communities in Kwara State. The campaign targeted farmers, market women, and traditional rulers, emphasizing the adverse effects of bush burning and promoting sustainable land management techniques. As part of the initiative, tree seedlings were donated to traditional rulers to support reforestation efforts. (Bankole, 2024)

- Promotion of Sustainable Agricultural Practices

The Federal Government, in collaboration with NGOs like Self Help Africa, has advocated for the adoption of climate-smart agriculture to reduce reliance on bush burning. The "Abatement of Short-Lived Climate Pollutants (SLCPs) in the Nigerian Agricultural Sector" project, initiated in 2024, aims to educate farmers on the detrimental effects of open field burning and introduce alternative practices such as conservation agriculture and briquette making. The pilot phase targets 500 farmers and 35 extension officers in Gboko, Benue State, with plans to scale successful approaches nationwide.

The Nigerian Conservation Foundation (NCF) has also emphasized the adoption of smarter agricultural practices devoid of bush burning to enhance the ecosystem and biodiversity. In 2021, NCF officials highlighted the negative impact of bush burning on climate change and soil fertility, advocating for alternatives like the Farmers Managed Natural Regeneration (FMNR) system. FMNR involves planting trees on farmland without deforestation and bush burning, promoting sustainable land use.

- Enforcement Actions

To deter bush burning, authorities have implemented enforcement measures. In 2020, the Federal Capital Territory Administration (FCTA) banned indiscriminate bush burning in rural communities and within the FCT. The FCT Fire Service launched campaigns to educate communities on the dangers of bush burning and emphasized the enforcement of regulations to prevent fire outbreaks.

CONCLUSION

In conclusion, bush burning remains a prevalent practice in Nigeria, with significant adverse effects on human health, particularly through respiratory and cardiovascular diseases. Despite regulatory efforts, enforcement challenges and a lack of awareness continue to hinder effective control. Sustainable alternatives, such as improved agricultural practices and waste management, are crucial to reduce the reliance on open burning. Public health campaigns and strengthened healthcare systems are essential for treating those affected by bush burning. Collaborative efforts between government, NGOs, and local communities are necessary to safeguard both human health and the environment. Effective action can mitigate the harmful impacts and promote a healthier, more sustainable future.

RECOMMENDATIONS

- Foster partnerships between government agencies, non-governmental organizations, and local communities to implement programs that address both the environmental and health impacts of bush burning.
- It provide financial and technical support to farmers for the adoption of alternative land management practices that reduce reliance on bush burning, such as the use of machinery for land clearing or organic waste composting.
- It enable the establish health surveillance systems to monitor the incidence of respiratory and cardiovascular diseases linked to bush burning, allowing for early diagnosis and effective treatment.

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