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**A Comprehensive Analysis of Brought-in Dead Cases in the Accident and Emergency Department of the University of Port Harcourt Teaching Hospital, Rivers State Nigeria**

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**Abstract**

Brought-in-dead (BID) cases are a significant challenge in emergency medical services, reflecting broader socio-economic and public health issues. This study analyses BID cases at the Accident and Emergency Department of the University of Port Harcourt Teaching Hospital (UPTH) in Rivers State, Nigeria, aiming to identify patterns and potential intervention areas. A review of medical records was undertaken for all cases reported as Brought in dead at the UPTH Accident and Emergency Department from January 2022 to December 2023. Data included demographic details (age, gender, marital status), source of admission, residence, occupation, and cause of death. Statistical analysis identified trends and correlations. In a review of 54 BID cases, males accounted for 61.1% and females 38.9%. The age distribution showed a majority (48.15%) between 18-39 years, followed by those over 60 (29.63%) and 40-59 (22.22%). Most cases were reported by relatives (48%) and police (35%). Urban areas accounted for 43% of cases, with unknown occupations (40.74%) being the largest group. Extrajudicial killings (20.37%) and hypertension (7.41%) were leading causes of death, with males more likely to be victims of extrajudicial killings and females more likely to die from hypertension. The prevalence among males and young adults, coupled with the notable impact of extrajudicial killings and hypertension, underscores the urgency for targeted public health measures and enhanced law enforcement practices. Addressing urban and semi-urban healthcare access, community awareness, and underlying causes is crucial to mitigating these incidents, warranting further exploration into socio-economic influences and healthcare policy implications.

**Keywords:** Brought-In Dead, Accident and Emergency, University of Port Harcourt Teaching Hospital

## **1. Introduction**

Hospital facilities are predominantly dedicated to the treatment of illnesses and fostering recovery. Nonetheless, instances arise where individuals arrive at the hospital already in a state of clinical death. This state is commonly referred to as "brought in dead" (BID).

Research has shown that individuals who are BID often contribute to the mortality statistics of hospital Accident and Emergency Departments (A&E)(1–3).

BID prevalence typically falls below 1 to 2 cases per 1,000 visits to the A&E in locations with well-developed and resourceful emergency healthcare systems(4,5). In a study conducted in Ghana over a three-year period, the prevalence of BID was between 26.7% to 33.3% (6). In Nigeria, this group represented between 2.2% to 21.3% of documented mortalities and sudden cardiac deaths, and in a single center, it comprised as much as 86.1% of all cases, highlighting its association with the clinical condition's severity or nature of injury. (1,3,7–9).

BID shows a strong correlation with pre-hospital variables such as proximity to the hospital and severity of condition upon arrival at the A&E (6). Unfortunately, a considerable portion of these BID instances could have been averted had the underlying cause of death been detected earlier. Frequently, the root causes of avoidable deaths are overlooked in low- and middle-income countries (LMICs), particularly if they occur before or shortly after reaching a healthcare facility(10–12). Examining the fundamental reasons behind such deaths in high-income countries (HICs) has significantly aided in the deployment of interventions aimed at averting untimely fatalities (4,5,13). So accurately identifying the characteristics and the causes of death in BID cases will inform possible future strategies for the prevention or reduction of their occurrence. It will also guide and enhance the A&E preparedness to deal with such cases when they arrive alive.

This study therefore aims to examine the patterns of BID in the A&E of the University of Port Harcourt Teaching Hospital, Rivers State, Nigeria.

## **2. Method**

This was a retrospective observational study carried out in the Accident and Emergency Unit (A&E) of the University of Port Harcourt Teaching Hospital, Rivers State, Nigeria. Port Harcourt is the capital of Rivers State located in the South-South geopolitical zone of Nigeria Latitudes  $6^{\circ}58'N$  to  $7^{\circ}6'N$  and Longitude  $4^{\circ}40'E$  to  $4^{\circ}55'E$  with a population of 3,480,000 people.

A systematic random sampling technique was utilized to select BID cases from the hospital records. Data were collected from patients' records that were brought in dead from January 2023 to December 2023. The list of BID patients was collected from the death register and subsequently, patients' records were retrieved from the records department. Information on the

age, sex, date, time, and month brought to the hospital and any clinical ailment being suffered by the patient, if any, were also recorded. Resident location was also collected from the patient's records. Data were entered in Microsoft Excel 2016 version and SPSS version 21 and all statistical analyses were done using SPSS.

### Ethical Consideration

The study protocol was reviewed and approved by the Institutional Review Board (IRB) of the University of Port Harcourt Teaching Hospital. Patient confidentiality and anonymity were strictly maintained throughout the study process.

### 3. Results

Fig 1: Gender distribution of cases studied

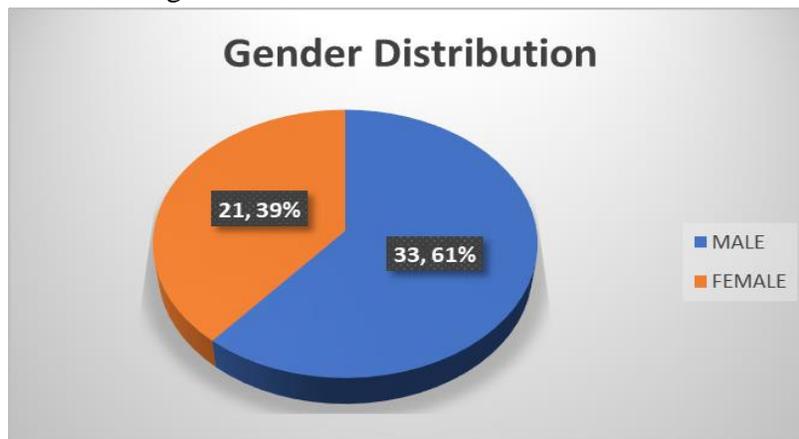
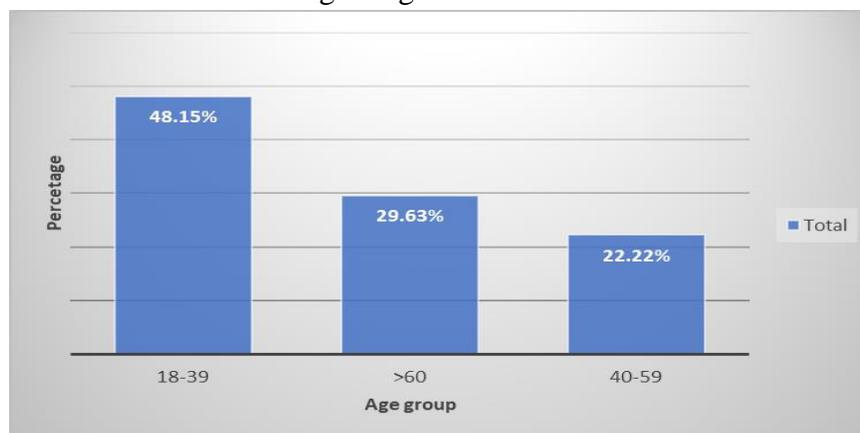


Figure 1 presents the gender distribution of BID cases.

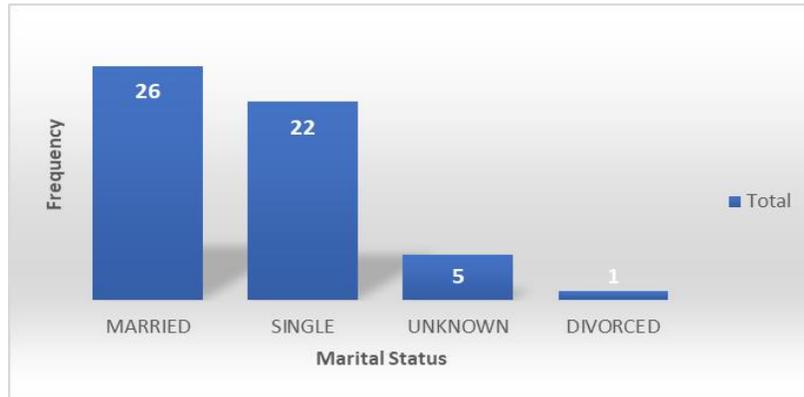
A total of 54 BID cases were recorded, with males accounting for 33 cases (61.1%) and females accounting for 21 cases (38.9%).

Fig 2: Age Distribution



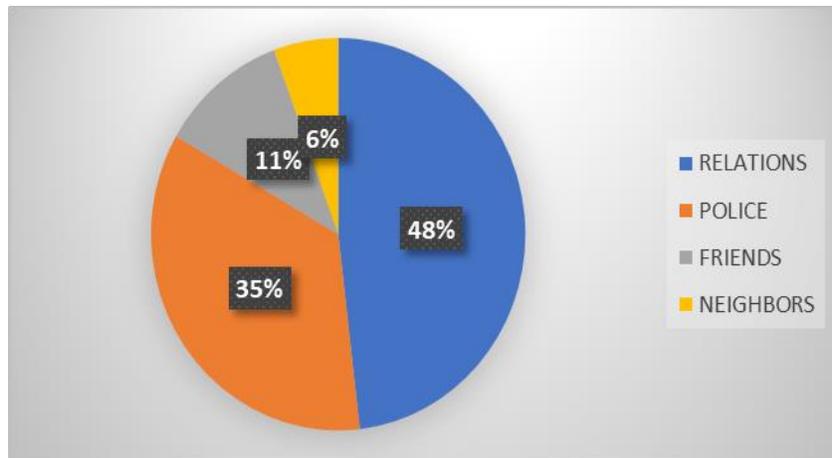
The age distribution analysis reveals that the highest incidence of BID cases occurs in the 18-39 age group (48.15%), followed by those over 60 years (29.63%), and then the 40-59 age group (22.22%).

Fig 3: Marital Status



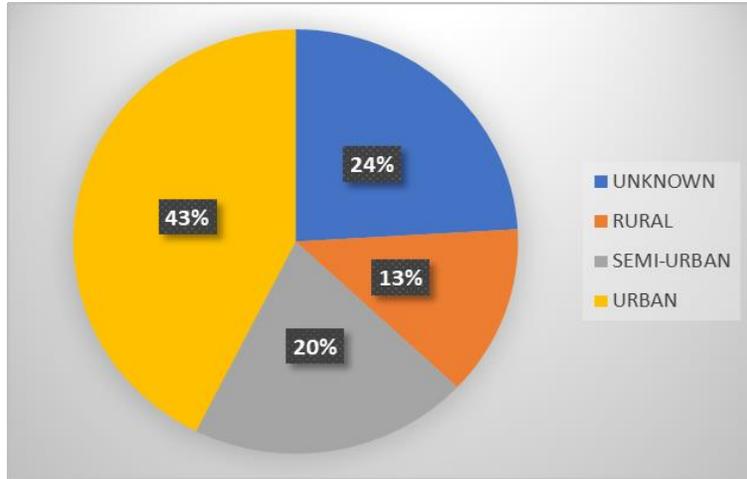
More married individuals were observed to be in this BID case however there isn't much difference in frequency between the married and single individuals (married n = 26, single n= 22). Very few of the cases had an unknown marital status.

Fig 4: Sources who brought in dead cases



From the data presented, the distribution of BID cases based on the sources who brought them in reveals that a higher percentage (48%) of the cases were brought in by their relations. Police personnel brought in 35% while Friends and neighbours brought in 11% and 6% of the BID cases, respectively.

Fig 5: Address distribution of BID cases



The analysis of the address distribution of BID cases highlights that urban areas have the highest incidence, with 43% of BID cases reported. Although the address of 24% of the BID cases was unaccounted for, semi-urban areas had the second largest distribution of BID cases (20%). Rural areas reported the lowest number of BID cases, accounting for 13%.

Table 1: Occupation of Deceased

OCCUPATION	COUNT
UNKNOWN	22
ENTREPRENEUR	10
RETIREE	3
ARTISAN	2
CIVIL SERVANT	2
ENGINEER	2
POLICE OFFICER	2
SELF EMPLOYED	2
STUDENT	2
TRADER	2
CLERGY	1
DREDGING	1
DRIVER	1
RTD NURSING OFFICER	1
SURVEYOR	1
TOTAL	54

This distribution indicates that a significant portion of BID cases involved individuals with unknown occupations (n=22). Among the known occupations, entrepreneurs had the highest incidence of BID cases (n=10).

Table 2: Cause of Death

<b>CAUSE OF DEATH</b>	<b>FREQUENCY</b>
<b>UNKNOWN</b>	19
<b>EXTRA JUDICIAL KILLING</b>	11
<b>HYPERTENSION</b>	4
<b>CVD</b>	2
<b>COLLAPSE</b>	2
<b>TRAUMA</b>	2
<b>ROAD TRAFFIC ACCIDENT</b>	2
<b>ANAEMIA</b>	2
<b>GUNSHOT WOUND</b>	1
<b>CARDIO RESPIRATORY FAILURE</b>	1
<b>BURN</b>	1
<b>SEPSIS</b>	1
<b>LOW BLOOD PRESSURE</b>	1
<b>DOMESTIC TRAUMA</b>	1
<b>ECCLEMPسيا</b>	1
<b>RUPTURED APPENDIX</b>	1
<b>EPILEPTIC FIT</b>	1
<b>ABORTION</b>	1
<b>CHRONIC LIVER DISEASE</b>	1
<b>DIABETES</b>	1
<b>FIGHT</b>	1

Many of the BID individuals had an unknown cause of death (n=13) followed by those who were victims of extrajudicial killing (n=11). Hypertension was also more frequent than other clinical causes (n=4)

Table 3: Causes of Death based on Gender

<b>CAUSE OF DEATH</b>	<b>MALE</b>	<b>FEMALE</b>
<b>UNKNOWN</b>	12	7
<b>EXTRA JUDICIAL KILLING</b>	11	-
<b>HYPERTENSION</b>	1	3
<b>CVD</b>	-	2
<b>COLLAPSE</b>	-	2
<b>TRAUMA</b>	2	-
<b>ROAD TRAFFIC ACCIDENT</b>	1	1
<b>ANAEMIA</b>	1	1
<b>GUNSHOT WOUND</b>	1	-
<b>CARDIO RESPIRATORY FAILURE</b>	-	1
<b>BURN</b>	1	-
<b>SEPSIS</b>	-	1
<b>LOW BLOOD PRESSURE</b>	-	1
<b>DOMESTIC TRAUMA</b>	1	-
<b>ECLAMPSIA</b>	-	1
<b>RUPTURED APPENDIX</b>	1	-
<b>EPILEPTIC FIT</b>	1	-
<b>ABORTION</b>	-	1
<b>CHRONIC LIVER DISEASE</b>	-	1
<b>DIABETES</b>	-	1
<b>FIGHT</b>	1	-

This table reveals that extra-judicial killings were a prominent cause of death among males (n=11), while females exhibit higher instances of mortality due to hypertension and cardiovascular disease (n=3),(n=2) respectively.

**4. Discussion**

The gender distribution of brought-in-dead (BID) cases, as illustrated in Figure 1, reveals a significant predominance of males, constituting approximately 61.1% of the total cases, compared to females, who comprise about 38.9%. This observed gender disparity prompts an examination of the underlying factors that may contribute to such a difference.

One plausible explanation for the higher proportion of male BID cases is the variation in risk-taking behaviours and occupational exposures between genders. Studies indicate that males are more inclined to engage in high-risk activities, such as driving under the influence of alcohol or drugs, substance abuse, and involvement in violent altercations, all of which elevate the likelihood of fatal accidents or incidents leading to BID cases(14,15). Furthermore, occupational

hazards that predominantly affect males, including industrial accidents and fatal injuries in high-risk professions, may also contribute to this gender disparity in BID cases (16,17).

Social and cultural factors may also contribute to the observed gender distribution. Societal expectations and norms regarding masculinity and femininity can significantly influence health-seeking behaviours and perceptions of risk. For example, males may be more inclined to downplay symptoms or delay seeking medical attention due to perceived notions of toughness or stoicism, potentially leading to more severe health outcomes and higher rates of BID cases (18). However, it is important to note that these explanations are speculative and require further empirical investigation to establish causality definitively.

The predominance of BID cases in the 18-39 age group, as depicted in Figure 2, can be attributed to several factors. Individuals in this demographic are more likely to engage in high-risk behaviors, such as reckless driving, substance abuse, and participation in violent activities (19,20). This age group is frequently involved in traffic accidents, which are a leading cause of death among young adults globally (21). Additionally, young adults are more susceptible to mental health issues, including depression and suicide, which can contribute to higher BID rates (22). The significant proportion of BID cases among individuals over 60 years can be linked to factors such as chronic health conditions and physical frailty.

The elderly are more likely to suffer from chronic illnesses such as heart disease, diabetes, and respiratory conditions, which can lead to sudden health deterioration and death (23). Increased physical frailty and susceptibility to falls and other accidents can also contribute to the higher BID rates in this age group(24).

Although the 40-59 age group has the lowest incidence of BID cases (22.22%), it still presents important considerations. In concordance with the statement by the World Health Organisation, this age group is at a higher risk for lifestyle-related conditions such as hypertension, obesity, and heart diseases which can lead to sudden deaths if not effectively managed(25,26) Middle-aged adults often experience significant stress from work and family responsibilities, which can exacerbate health issues and contribute to higher mortality. (27,28)

The highest number of BID cases involves married individuals (fig. 3). Married individuals may experience higher levels of stress due to family and financial responsibilities.(29) Chronic stress is a known risk factor for various health conditions, including cardiovascular diseases, which can lead to sudden death (30)

Married individuals might also prioritize their family's needs over their own health, leading to delayed healthcare seeking and management of chronic conditions. This delay can result in acute health crises and higher BID cases (31).

Single individuals account for 22 BID cases, which is slightly fewer than the number of married individuals. Single individuals, especially younger ones, might be more prone to risk-taking

behaviours such as reckless driving, substance abuse, and involvement in violence, leading to fatal incidents (19,20).

These individuals may also have less social support, which can negatively impact their mental health and lead to issues such as untreated depression or suicide, contributing to BID cases (32).

The highest number of BID cases comes from urban areas, with 23 cases recorded. Urban areas typically have higher population densities, which can lead to increased stress, pollution, and exposure to infectious diseases. These factors can contribute to higher mortality rates (33). Urban lifestyles often involve sedentary behaviours, unhealthy diets, and higher rates of smoking and alcohol consumption, which increase the risk of non-communicable diseases such as heart disease, diabetes, and hypertension. These conditions can lead to sudden deaths if not managed properly (33,34).

While urban areas generally have better access to healthcare facilities, the quality and timeliness of care can vary significantly. Overburdened health systems may result in delayed treatment, contributing to BID cases (35).

The 7 BID cases from rural areas highlight different challenges. Rural areas often lack healthcare infrastructure, including hospitals, clinics, and healthcare professionals. This can result in delayed or inadequate medical care, leading to higher mortality rates (36). Higher poverty levels and lower education levels in rural areas can contribute to poorer health outcomes. Individuals in these areas might have limited access to information about preventive health measures and less ability to afford healthcare (37).

The difficulty in accessing healthcare facilities due to poor road conditions and lack of transportation can also contribute to higher BID rates. Emergencies that could be managed in an urban setting might result in fatalities in rural areas due to delays in reaching medical help (38).

Although the occupation of most BID cases was unknown (Table 1), Entrepreneurs constitute the second largest group, with 10 cases. Entrepreneurs often experience high levels of stress and long working hours, which can lead to chronic health issues such as hypertension, cardiovascular diseases, and mental health problems (39).

Extrajudicial killings account for 11 cases (Table 2). Extrajudicial killings in Nigeria are typically defined as the unlawful and deliberate killing of individuals by government officials, including police officers and soldiers, without any form of judicial proceeding or legal sanction. These actions often occur in the context of crime control, counter-insurgency operations, and political repression. This high number underscores significant issues related to violence and security in the region. Addressing the root causes of violence, including law enforcement practices and social instability, is critical (40).

The high number of extrajudicial killings among males highlights significant issues related to violence and security, particularly affecting men (Table 3). This may be attributed to societal roles and higher exposure to violent situations. Addressing these issues requires comprehensive

law enforcement reforms and community-based violence prevention programs (41). Strengthening legal frameworks and ensuring accountability for security forces can help reduce instances of extrajudicial killings. Community policing and conflict resolution programs may also be beneficial (42).

The presence of hypertension and CVD as significant causes of BID highlights the burden of non-communicable diseases (NCD) in the population. These conditions are often linked to lifestyle factors such as diet, physical inactivity, and stress (43).

Table 3 reveals that females appear to have higher mortality from hypertension and cardiovascular diseases compared to males. This suggests that women may face greater challenges in managing these chronic conditions, potentially due to gender disparities in healthcare access and utilization (44).

Implementing community health programs focusing on NCD prevention, such as promoting healthy diets, regular exercise, and routine health screenings, can help manage and reduce the incidence of these conditions.

### **Conclusion**

This study on Brought-In Dead (BID) cases at the University of Port Harcourt Teaching Hospital identifies key risk groups—young adults, males, urban residents, and the elderly—with contributing factors including violence, chronic diseases, poor health-seeking behaviour, and limited access to care. High BID incidence among entrepreneurs and cases linked to extrajudicial killings highlight the need for occupational health policies and law enforcement reform. Reducing BID cases requires expanded healthcare access, strengthened NCD prevention, and targeted public health education. Further research should explore socio-economic and policy factors to inform more effective interventions in Rivers State.

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