

DEMOGRAPHICS OF INHALATION TRAUMA IN BURN PATIENTS AT DR SUTOMO HOSPITAL IN 2020-2023

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ABSTRACT

Inhalation injury is a serious complication that frequently accompanies burn injuries and can significantly increase patient morbidity and mortality. Identifying the characteristics of burn patients who experience inhalation injury is essential to support prevention efforts and improve management strategies. This study is a descriptive retrospective design utilizing secondary data from the medical records of burn patients at Dr. Soetomo General Hospital, Surabaya, during the period of 2020–2023. A total of 86 patients who met the inclusion criteria were analyzed. The majority of patients were male (73.3%; 63 patients), and most were in the adult age group (19–59 years; 77.9%; 67 patients). The most common total body surface area (TBSA) burned was within the 31–40% range (20.9%; 18 patients). The primary cause of burn injuries was fire (93.0%; 80 patients). Most patients were hospitalized for 2–10 days (47.7%; 41 patients). Adult males who sustained burns from fire were the most at risk of developing inhalation injuries. Educational initiatives and fire prevention strategies targeting high-risk populations are crucial in reducing the incidence of inhalation injuries and improving patient outcomes.

Keyword: Demographics; inhalation injury; burn injuries

INTRODUCTION

Inhalation trauma is one of the serious complications that can occur in patients with burns, often resulting in high morbidity and mortality. According to data from the World Health Organization (WHO), every year there are around 180,000 deaths due to burns worldwide, and inhalation trauma is one of the main causes of these deaths (World Health Organization, 2021). In Indonesia, the incidence of burns continues to increase, with Dr. Sutomo Hospital being one of the main referral hospitals in Surabaya handling such cases.

Preliminary data obtained from patients' medical records at Dr. Sutomo Hospital show that between 2020 and 2023, there was an increase in the number of burns with inhalation trauma. This suggests that the treatment of patients with burns should be more comprehensive, focusing not only on physical injuries but also on the impact of inhalation of smoke or hazardous materials. Inhalation trauma can lead to a variety of complications, including airway edema, pneumonia, and even death, so understanding the demographics of patients with this condition is critical for the development of better treatment strategies (Harrison et al., 2021).

This phenomenon is interesting to study in more depth, considering that demographic factors such as age, gender, and the cause of burns can affect the prognosis and treatment of patients. Data obtained from medical records show that the majority of patients are men in the productive age range, who are often involved in industrial accidents or household fires. According to research by Sari et al. (2022), about 60% of cases of inhalation trauma occur in men between the ages of 20 and 40.

Inhalation trauma can occur as a result of inhalation of smoke or hazardous substances resulting from a fire can cause significant lung damage, trigger inflammatory reactions, and potentially result in respiratory failure. For example, in the case of house fires, the smoke produced often contains toxic particles such as carbon monoxide and volatile organic compounds, which can cause damage to lung tissue and interfere with the patient's respiratory function. Research by Zhang et al. (2020) showed that patients with burns who also experienced inhalation trauma had a higher risk of death compared to burn patients without inhalation trauma. Therefore, a deep understanding of the demographics of burn patients with inhalation trauma at Dr. Sutomo Hospital is essential to improve clinical management and patient outcomes.

This condition is exacerbated by the lack of public awareness about the dangers of fire and the preventive measures that can be taken. For example, household fires are often caused by negligence in the use of heating appliances or unsafe electrical installations. In this context, educational and socioeconomic factors also play an important role. Research by Prasetyo et al. (2021) shows that families with low educational backgrounds tend to be more susceptible to fires due to a lack of knowledge about safety. Therefore, based on the description above, the researcher is interested in conducting research related to "Demographics of Inhalation Trauma in Burn Patients at Dr Sutomo Hospital in 2020-2023".

RESEARCH METHODS

This study uses a quantitative approach with descriptive analysis. This analysis was chosen to provide a clear picture of

the demographics of inhalation trauma in burn patients at Dr. Sutomo Hospital during the period 2020 to 2023. Descriptive research allows researchers to identify data obtained from patients who have experienced inhalation trauma and burns, as well as identify patterns. According to Sugiyono (2020), descriptive research aims to describe the characteristics of the population being studied and provide a better understanding of the phenomenon that occurs.

In the context of this study, inhalation trauma is the main focus because it is one of the serious complications that can worsen the condition of burn patients. The data collected will include demographic information, such as gender, age, extent of burns (TBSA), cause of burns (EC) and length of stay . This research is expected to provide deeper insights into the characteristics of patients who experience inhalation trauma, as well as help in the development of more effective treatment strategies. This study uses secondary data, namely using medical record data available from hospitals.

Data analysis in this study was carried out using appropriate statistical methods to describe the demographic characteristics of patients. The data collected uses statistical software with SPSS for Windows, which allows researchers to perform descriptive analyses. The descriptive analysis will provide an overview of the demographic characteristics of burn patients who have experienced inhalation trauma in patients at Dr. Sutomo Hospital in 2020–2023.

RESEARCH RESULTS

This research was carried out at Dr. Sutomo Hospital, Surabaya. The study was conducted on burn patients who experienced inhalation trauma to determine the demographic characteristics of these patients. Data collection used secondary data in the form of medical records of wound patients who experienced inhalation trauma for the 2020-2023 period. The number of samples that met the inclusion criteria was 86 patients.

Univariate Analysis

The following is a presentation of the frequency distribution table of characteristics of burn patients who have inhaled at Dr. Sutomo Hospital, Surabaya

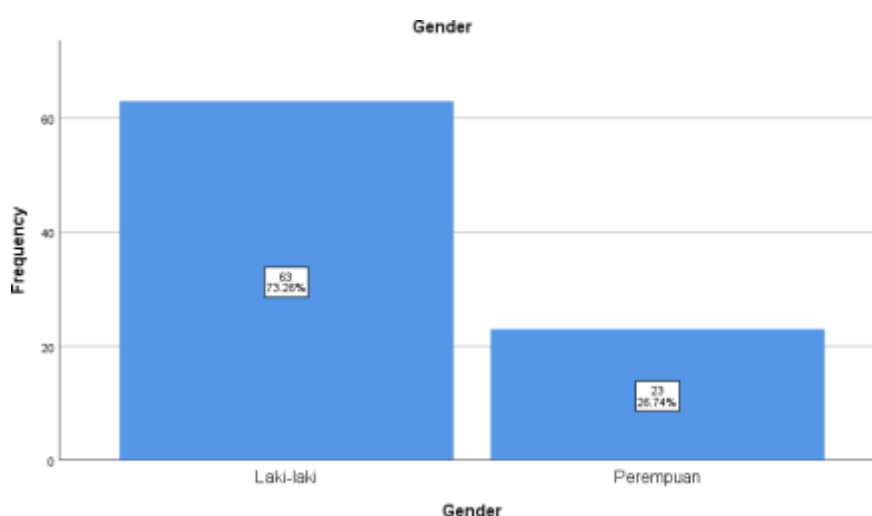
1. Demographic of patients by gender

Burn patients who experienced inhalation trauma at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on gender, as follows:

Table 1. Distribution of Burn Patients Who Have Inhaled by Gender at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

Gender	Frequency	Percentage %
Male	63	73.3%
Women	23	26.7%
Total	86	100%

Source : Secondary Data processed, 2025



Graph 1. Distribution of Burn Patients Who Have Inhaled by Gender at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

In this study based on Tables and Graphs, it is known that based on gender, the majority of burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period were 63 patients or 73.3% of the male patients and burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period with 23 patients or 26.7% of the female gender.

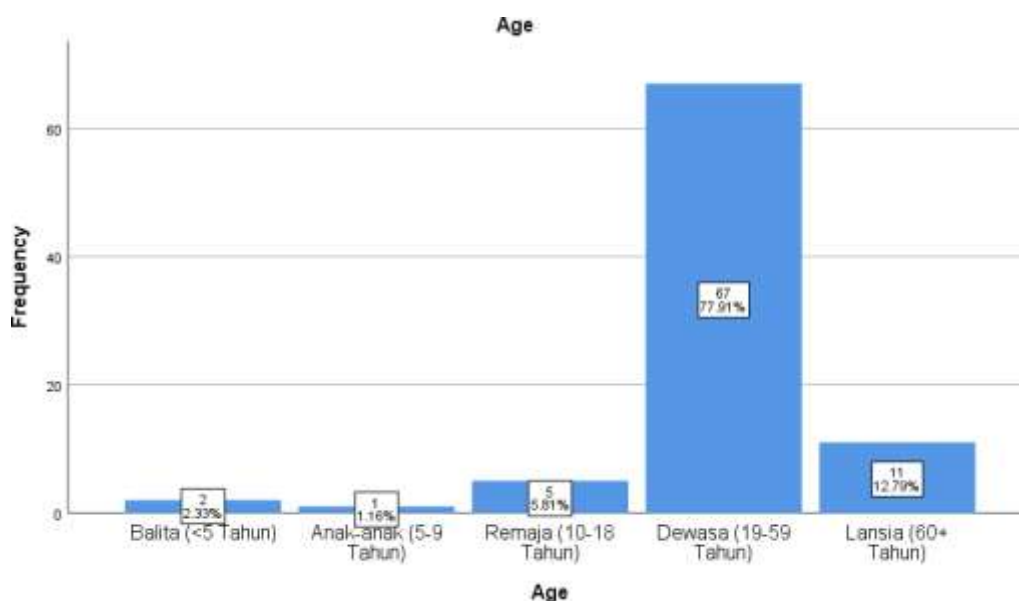
2. Demographic of patients by age

Burn patients who experienced inhalation trauma at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on Age, as follows:

Table 2 Distribution of Inhalation Burn Patients by Age at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

Age	Frequency	Percentage %
Toddler (<5 Years)	2	2.3%
Children (5-9 Years)	1	1.2%
Teenagers (10-18 Years)	5	5.8%
Adults (19-59 years)	67	77.9%
Senior (60+ Years)	11	12.8%
Total	86	100%

Source : Secondary Data processed, 2025



Graph 2. Distribution of Burn Patients Who Have Inhaled by Age at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

In this study based on Tables and Graphs, it is known that based on Age, the majority of burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period were 67 patients with adult age (19-59 years) or 77.9%, patients with toddlers (<5 years old as many as 2 patients or 2.3%, patients with children age (5-9 years) as many as 1 patient or 1.2%, patients with adolescent UISA (10-18 years) as many as 5 patients or 5.8% and patients with elderly age (60+ years) as many as 11 patients or 12.8%.

3. Patient demographic based on burn area (TBSA)

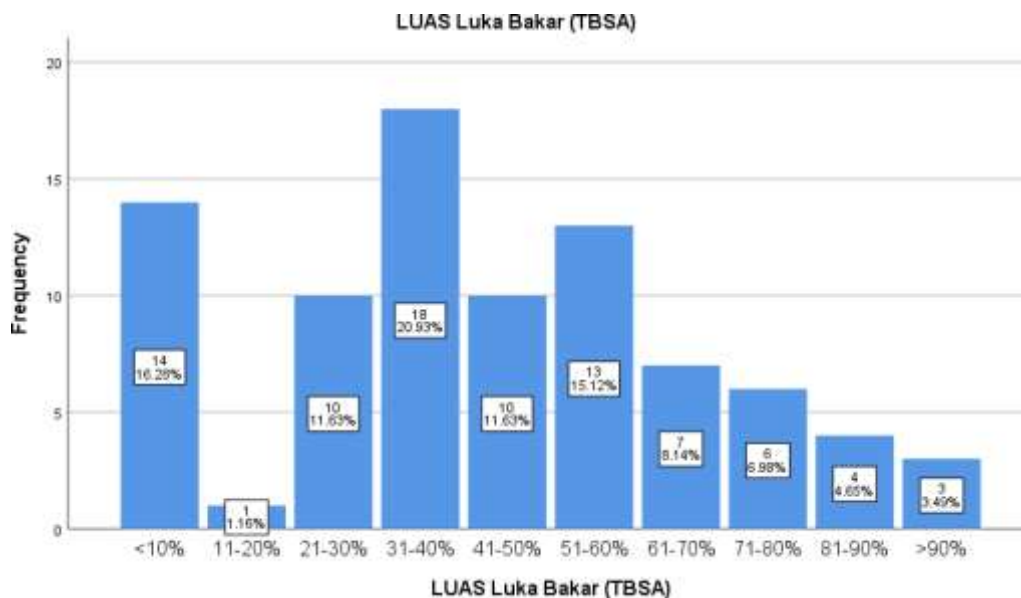
Burn patients who experienced inhalation trauma at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on the Burn Area (TBSA), as follows:

Table 3. Distribution of Burn Patients Who Have Inhaled by Burn Area (TBSA) at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period.

Burn Area (TBSA) Frequency Percentage %

<10%	14	16.3%
11-20%	1	1.2%
21-30%	10	11.6%
31-40%	18	20.9%
41-50%	10	11.6%
51-60%	13	15.1%
61-70%	7	8.1%
71-80%	6	7.0%
81-90%	4	4.7%
>90%	3	3.5%
Total	86	100%

Source : Secondary Data processed, 2025



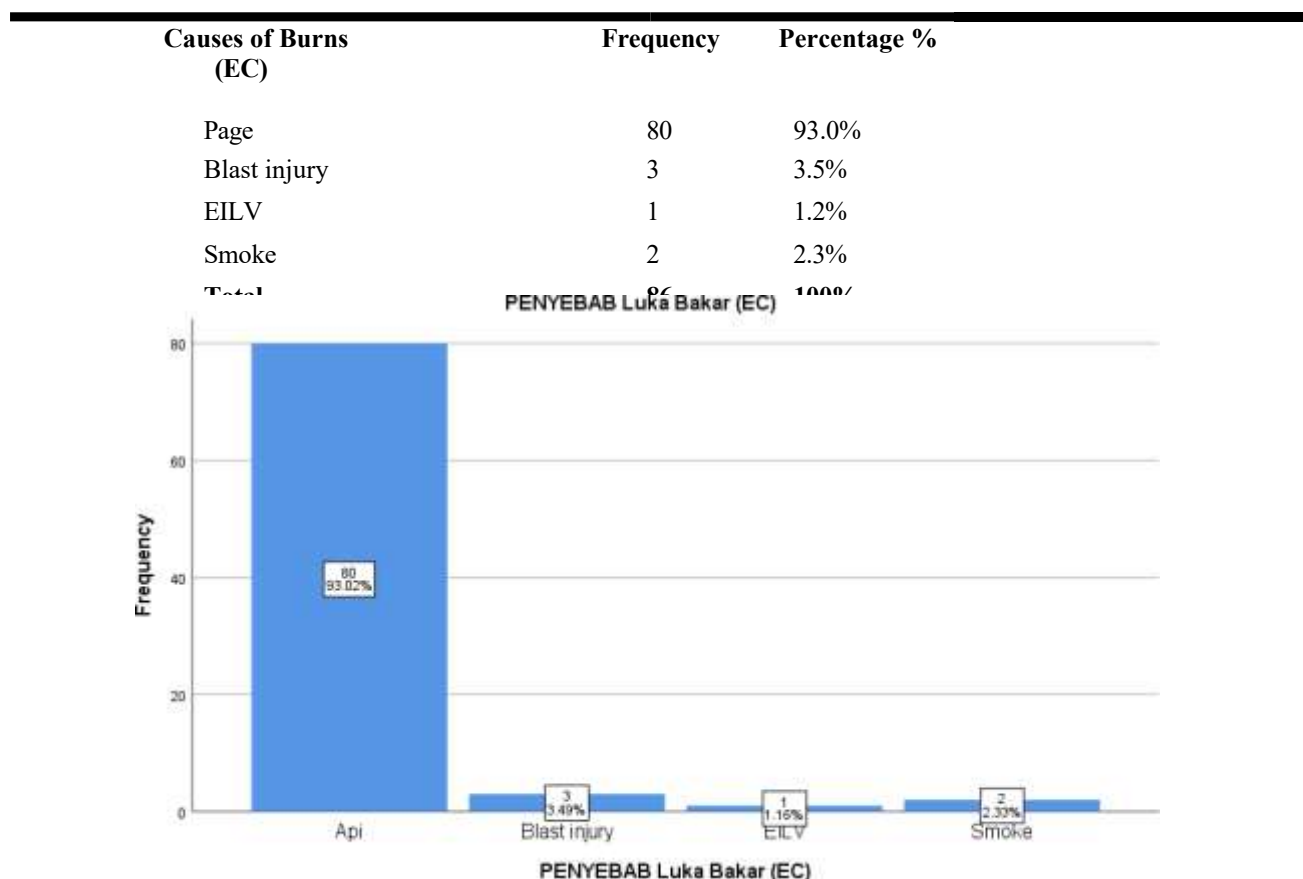
Graph 3. Distribution of Burn Patients Who Have Inhaled by Burn Area (TBSA) at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

In this study, based on Table and Graph 5.3, it is known that the distribution of burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on the Burn Area (TBSA), the majority had a burn area of 31-40% as many as 18 patients or 20.9%, patients with burn areas <10% as many as 14 patients or 16.3%, patients with burn areas of 11-20% as many as 1 patient or 1.2%, 10 patients with 21-30% burn area, 10 patients or 11.6%, patients with 41-50% burn area, 10 patients or 10.6%, patients with burn area 51-60% as many as 13 patients or 15.1%, patients with burn area 61-70% as many as 7 patients or 8.1%, patients with burn area 71-80% as many as 6 patients or 7.0%, patients with burn area 81-90% as many as 4 patients or 4.7% and patients with burn area above 90% as many as 3 patients or 3.5%.

4. Patient demographic based on the cause of the burn (EC)

Burn patients who experienced inhalation trauma at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on the Cause of Burns (EC), as follows:

Table 4. Distribution of Burn Patients Who Have Inhaled by Cause of Burn (EC) at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period.



Graph 4. Distribution of Burn Patients Who Have Inhaled by Cause of Burn (EC) at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

In this study, based on Table and Graph 5.4, it is known that the distribution of burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on the Cause of Burns (EC), the majority was caused by fire as many as 80 patients or 93.0%, burns caused by blast injuries as many as 3 patients or 3.5%, burns patients caused by EILV as many as 1 patient or 1.2% and burn patients who experienced inhalation trauma caused by smoke as many as 2 patients or 2.3%.

5. Patient Demographic Based on Length of Stay or Length of Stay

Burn patients who experienced inhalation trauma at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on the Length of Stay or length of treatment, as follows:

Table 5 Distribution of Burn Patients Who Have Experienced Inhalation by Length of Stay or Length of Treatment at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

Length of Stay or old Treatment	Frequency	Percentage %
Outpatient	1	1.2%
2-10 Days	41	47.7%
11-20 Days	20	23.3%
21-30 Days	12	14.0%
31-40 Days	3	3.5%
41-50 Days	5	5.8%
51-60 days	2	2.3%
61-70 days	2	2.3%
Total	86	100%

Source : Secondary Data processed, 2025

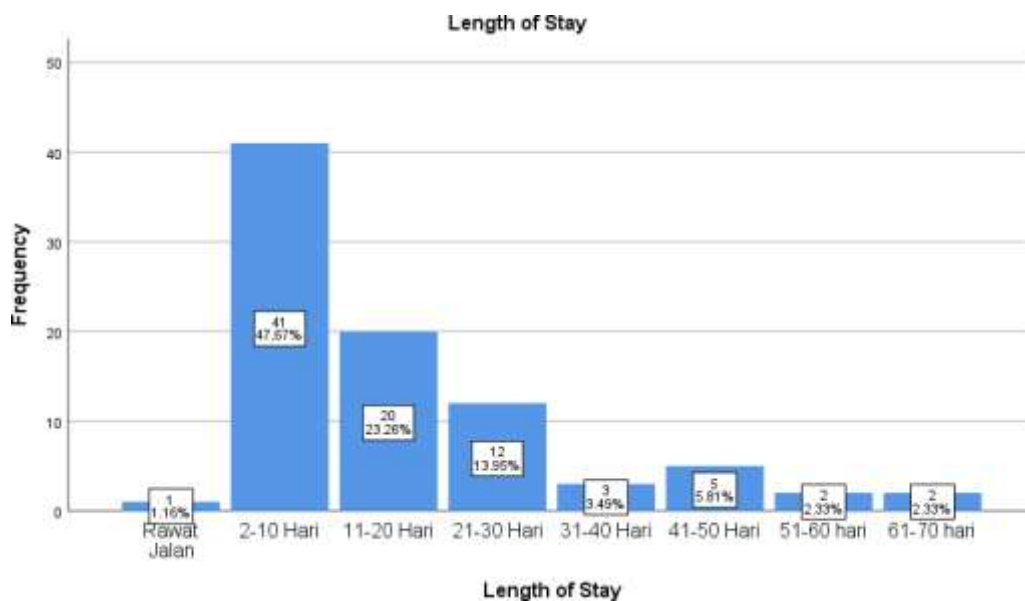


Chart 5. Distribution of Burn Patients who have experienced inhalation according to Length of Stay or length of treatment at Dr. Sutomo Hospital, Surabaya for the 2020-2023 Period

In this study, based on Table and Graph 5, it is known that the distribution of Burn Patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period based on the Length of Stay or duration of treatment, it is known that the majority of Burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period were treated for 2-10 days as many as 41 patients or 47.7%, 1 patient received outpatient treatment or 1.2%, 20 patients received treatment for 11-20 days or 23.3%, 12 patients received treatment for 21-30 days or 14.0%, 3 patients received treatment for 31-40 days or 3.5%, 5 patients received treatment for 41-50 days or 5.8%, Patients who were treated for 51-60 days were 2 patients or 2.3%, patients who were treated for 61-70 days were 2 patients or 2.3%.

DISCUSSION

This study was carried out for 1 month from December 16, 2024 to January 16, 2025 in the Medical Records section of Dr. Sutomo Hospital, Surabaya regarding the prevalence of burn patients from the period 2020 to 2023. The results of the study obtained that the number of burn sufferers registered was 261 people in 4 years. In this study, what we want to know is the prevalence and demographics of burn sufferers who experience inhalation trauma based on gender, age, area of injury (TBSA), cause of burns (EC) and leng of stay or length of treatment. For more details, the results of the study will be discussed in detail based on the following variables:

Distribution of Patients by Gender

The results of the study at Dr. Sutomo Hospital showed that the majority of burn patients who experienced inhalation trauma were men, with a percentage of 73.3% (63 patients), while female patients were only 26.7% (23 patients). This phenomenon not only reflects statistical figures, but also reflects broader patterns of behavior and social conditions. In many cases, men are more involved in high-risk activities, which in turn increases their chances of getting burns. This is in line with findings from several previous studies that show that men are more prone to burns due to risky behaviors, such as jobs in the construction sector or industries that are more dominated by men (Gonzalez et al., 2020).

Gender factors play a significant role in the distribution of burn patients. Men often engage in activities that have the potential to cause burns, such as the use of fuel, fire, or high-risk tools. For example, in a study by Kahn et al. (2019), it was found that men have a higher tendency to have work accidents that lead to burns than women. This tendency can be seen in the context of work where the use of heavy equipment and fuel is common. For example, a construction worker who uses electric welding to connect iron has a higher risk of burns when compared to his female colleagues who may be more involved in administrative or non-technical work.

Further, it is important to consider more gender-specific interventions. Safety education programs aimed at men in the workplace can reduce the incidence of inhalation burns. For example, training that teaches safe tool use techniques and emergency procedures can be very helpful. In addition, understanding the differences in behavior between genders can help in formulating more effective prevention strategies (Smith et al., 2021). A program successfully implemented in several construction companies in Europe showed a significant decrease in the number of occupational accidents, including burns, after more intensive and specific safety training for men.

From a demographic perspective, these differences can also be influenced by social and cultural roles that lead men to engage in riskier activities. According to research by Al-Shahri et al, (2022), cultural norms that require men to demonstrate courage and resilience can contribute to an increased risk of accidents leading to burns. For example, in many cultures, men are often taught not to show weakness or fear, which can encourage them to take greater risks when working with fire or hazardous materials. This creates a cycle in which risky behavior becomes the norm, and burns become frequent consequences.

In addition, an in-depth analysis of the gender distribution in burn patients is essential to design appropriate interventions and minimize the incidence of future burns. For example, workplace policy adjustments that encourage safety must take into account these gender dynamics. Policies that involve the active participation of male workers in designing safety programs can increase the effectiveness of such programs. By providing space for workers to share experiences and ideas, companies can create a safer and more responsive work environment to gender-specific needs.

In conclusion, the distribution of burn patients by gender shows a significant and complex pattern. Men, with a much higher proportion, are involved in accidents that lead to burns, which can be attributed to factors such as risky behaviors, social norms, and gender roles in society. Therefore, formulating appropriate and effective interventions requires a deep understanding of these dynamics. By taking a more gender-focused approach, we can not only reduce the incidence of burns, but also create a safer environment for all workers, regardless of their gender.

DISTRIBUTION OF PATIENTS BY AGE

Analysis of the distribution of patients by age provides important insights into the trends and patterns of burn incidence, especially those involving inhalation. Data shows that the majority of burn patients who experience inhalation are in the adult age category (19-59 years), reaching 77.9% or equivalent to 67 patients. This figure reflects that the adult age group is more susceptible to burn incidents compared to other age groups, such as children and the elderly. In this context, research by Wang et al. (2021) emphasizes that adult age groups are often involved in riskier activities, such as jobs that involve the use of heavy equipment, hazardous materials, or situations that increase the likelihood of accidents. For example, workers in the construction industry or chemical plants are often exposed to the risk of burns from fires or spills of hazardous materials that can cause serious burns.

Meanwhile, patients with the age of toddlers (<5 years) only amounted to 2 patients (2.3%), and children (5-9 years) patients only 1 patient (1.2%). Although these figures suggest that the incidence of burns in children tends to be lower, this does not mean that they are not at risk. Research by Liu et al. (2020) shows that burns in children are often caused by household accidents, such as hot water spills, contact with fire, or unsafe use of cooking utensils. For example, a child may suffer burns from boiling water spills while the parents are cooking, which shows the importance of adult supervision and the implementation of preventive measures in the home environment.

Elderly patients (60+ years) also showed a figure of 12.8% (11 patients), which highlights that although they are not as much as the adult group, they are still susceptible to burns. Research by Chen et al. (2019) shows that the elderly often suffer burns from house fires, which can be triggered by invigilance or health conditions that limit their mobility. For example, an elderly person who lives alone may not realize that his gas stove is on, which can cause fires and serious burns. Therefore, it is important to pay special attention to this age group and develop strategies that can reduce their risk, such as the installation of automatic fire extinguishers or smoke alarm systems that can provide early warning.

From a prevention perspective, it is important to develop educational programs targeted at different age groups. For example, home safety programs for parents and caregivers can help reduce the risk of burns in children. This program could include training on how to avoid household accidents, such as making sure that cookware is out of reach of children and keeping hazardous ingredients in a safe place. Meanwhile, occupational safety training for adult workers can minimize risks in the workplace. This training can include proper safety procedures when working with heavy equipment or chemicals, as well as the importance of using personal protective equipment.

Overall, understanding the age distribution of burn patients allows for the development of more effective and targeted prevention strategies. By knowing which age groups are most vulnerable, interventions can be designed to address the specific risks faced by each group. For example, for adult groups, companies can implement stricter safety policies, while for children, parents can be educated on preventive measures that can be taken at home.

In conclusion, the analysis of the distribution of patients by age revealed complex dynamics involving risk factors and causes of burn incidence. Although the adult age group dominates the incidence rate, attention should also be paid to children and the elderly who remain vulnerable. Further research and the development of targeted prevention programs are urgently needed to reduce the incidence of burns and protect all age groups from risks that could threaten their safety.

DISTRIBUTION OF PATIENTS BY BURN AREA (TBSA)

The distribution of burns patients who have inhaled based on the total body surface area (TBSA) is a crucial aspect in the management of burn patients. Research shows that the majority of patients treated for burns have a burn area between 31-40%, with a percentage of 20.9% or equivalent to 18 patients. These figures highlight the importance of understanding the relationship between burn area and the risk of complications, particularly inhalation trauma. Wider burns are often associated with higher exposure to smoke and toxic gases produced during fires. In this context, research by Jeschke et al. (2020) confirms that the larger the area burned, the more likely the patient is to develop serious complications. These

complications include not only breathing problems, but can also involve broader systemic disorders, such as hypovolemic shock due to fluid loss.

For example, a patient who suffered burns in 35% of TBSAs may not only face the risk of inhalation trauma, but also have to consider the impact of significant fluid loss. This can lead to a drastic drop in blood pressure and affect the perfusion of vital organs. As such, the medical team needs to conduct a thorough assessment and implement appropriate management strategies to prevent further complications.

On the other hand, patients with less than 10% burn area amounted to only 16.3% (14 patients). Although minor burns may seem less dangerous, it is important to remember that the risk of inhalation trauma remains, especially in the context of fire. Research by Gibran et al. (2019) shows that even seemingly minor burns can result in respiratory problems if patients are exposed to toxic fumes. For example, a patient who has a minor burn on the arm but is exposed to toxic fumes for a long time may still develop pulmonary edema or bronchospasm. This suggests that risk assessment should be carried out holistically, taking into account not only the extent of the burn but also the environmental conditions in which the injury occurred.

Patients with burn areas of 11-20% and 21-30% amounted to 1 patient (1.2%) and 10 patients (11.6%) respectively. Although this figure is lower compared to the broader category, it is still important to note that any patient with burns has the potential to experience complications. For example, patients with 15% of TBSA burns may experience more severe respiratory problems compared to patients with more extensive burns, depending on factors such as the duration of exposure to smoke and the patient's initial health status.

Meanwhile, patients with burns exceeding 50% showed a lower rate in the distribution of patients. This figure consists of 10.6% for burns area of 41-50%, 15.1% for 51-60%, 8.1% for 61-70%, 7.0% for 71-80%, 4.7% for 81-90%, and 3.5% for more than 90%. This indicates that severe burns, which involve more than 50% of TBSAs, often lead to death or serious complications, including inhalation trauma that can worsen the patient's condition. Research by Cohen et al. (2021) shows that patients with extensive burns often experience multiple organ failure, which is one of the leading causes of death in burn patients.

It is important to note that the treatment of patients with significant burn areas requires a multidisciplinary approach. A medical team trained in burn management, respiratory care, and rehabilitation is indispensable to optimize clinical outcomes. For example, in the case of patients with burns of more than 50%, prompt and appropriate early intervention can help reduce the risk of complications. The medical team must be prepared to perform intubation and mechanical ventilation if necessary to address inhalation trauma, as well as provide appropriate wound care to prevent infection.

Overall, understanding the extent of the patient's burn is essential for formulating appropriate treatment strategies and optimizing clinical outcomes. With a holistic and multidisciplinary approach, medical teams can increase patients' chances of recovering from severe burns and reduce the risk of potentially fatal complications.

PATIENT DISTRIBUTION BASED ON BURN CAUSE (EC)

The results of a study conducted at Dr. Sutomo Hospital showed that the majority of burn patients who experienced inhalation were caused by fire, with a percentage of 93.0% or 80 patients of the total patients studied. These findings confirm the fact that fires are the main cause of burns in these hospitals. Household fires, as one of the main causes of burns, are often rooted in accidents that occur in the domestic environment. A study conducted by Ziegler et al. (2020) revealed that many household fires are caused by cooking accidents, unsafe use of power tools, and negligence in maintaining the source of the fire. For example, a fire that occurs due to an abandoned stove burning or the unattended use of candles are concrete examples of situations that can lead to severe burns.

On the other hand, there are patients with burns caused by blast injuries, which amount to 3 patients or 3.5% of the total patients. Although this number is relatively small, it is important to note that blast injuries can cause very serious burns and significant inhalation trauma. Research by Hultman et al. (2019) shows that a gas or explosive explosion can cause a wide impact, not only on the individuals involved, but also on the surrounding environment. For example, in factory explosion incidents, it is not uncommon for burn victims to suffer complex injuries and require intensive medical treatment.

Furthermore, there was only 1 patient (1.2%) who suffered burns due to EILV (Electrical Injury and Lightning Victim). This suggests that although electrical burns and lightning strikes are rare, they remain an important concern in the context of safety. Electrical burns, for example, are often caused by the use of substandard electrical equipment or negligence in performing maintenance of electrical installations. In this context, it is important to raise public awareness of the risks associated with the use of power tools, as well as the importance of complying with applicable safety standards.

In addition, there were 2 patients (2.3%) who experienced inhalation trauma due to smoke. Inhalation trauma is a serious condition that can worsen the prognosis of burns, as it can cause damage to the respiratory tract and lungs. Research shows that smoke from fires can contain a variety of harmful substances that can cause irritation and damage to respiratory tissues. Therefore, understanding these risks is very important in efforts to prevent and treat burns.

Although fires remain the leading cause of burns, it is important to raise awareness regarding other risks that can cause burns. Educational programs on fire safety and accident prevention in households are essential to reduce the incidence of burns. For example, educational campaigns that emphasize the importance of checking electrical appliances regularly, maintaining a safe distance from fire sources, and not leaving children unattended when using cooking utensils can help reduce the incidence of burns.

From a prevention perspective, measures such as safety training, installation of fire extinguishers, and the safe use of electrical equipment can help reduce the risk of fires leading to burns. Safety training involving simulated emergencies and the use of fire extinguishers can improve community preparedness in dealing with fires. In addition, the use of electrical equipment that has been tested and certified can minimize the risk of accidents caused by electricity.

With a better understanding of the causes of burns, prevention strategies can be formulated more effectively to reduce the incidence of burns in the community. Further research and more comprehensive data collection regarding burn incidences can provide deeper insights into existing patterns and trends. In the long term, planned and integrated prevention efforts can have a significant impact on reducing the incidence of burns and improving overall public safety.

In conclusion, the distribution of burn patients by cause suggests that fire is the main cause, with a significant contribution from accidents in households. While other incidents such as blast injuries and electrical burns are also worth considering, the main focus should be on fire prevention. Through education, training, and increasing public awareness, it is hoped that the number of burn incidents can be reduced, and community safety can be better maintained in the future.

DISTRIBUTION OF PATIENTS BASED ON LENGTH OF STAY OR LENGTH OF TREATMENT

The distribution of inhaled burn patients based on the length of treatment is a very important topic in the context of health management, especially in the management of patients with complex burns. In this analysis, we will discuss in more depth the length of patient care, the influencing factors, and the implications for hospital management. Based on existing data, the majority of patients were treated for 2-10 days, which was 47.7% (41 patients). This shows that many patients require intensive care in a relatively short period of time, but still require intensive medical attention. Research by Barret et al. (2021) shows that the length of treatment for burn patients is greatly influenced by the extent of the wound as well as the complications that may arise, including inhalation trauma.

One of the factors that contribute to the length of treatment is the severity of the burn. Wider or deeper burns often require more complex medical interventions, including surgery, more intensive wound care, and close surveillance to prevent infection. For example, patients with burns involving more than 20% of the total body surface may require longer treatment compared to patients who have only minor burns. According to data from the American Burn Association, more extensive burns not only prolong the length of treatment but also increase the risk of complications such as sepsis, which can worsen the patient's condition and prolong the hospitalization.

Patients treated for 11-20 days amounted to 23.3% (20 patients), while patients treated for 21-30 days were 14.0% (12 patients). This suggests that some patients may have complications that require longer treatment. Research by Kagan et al. (2020) highlights that longer treatment lengths are often associated with more complicated wound care and the need for post-burn rehabilitation. In this context, rehabilitation is essential to help patients return to their daily activities. The rehabilitation process can include physiotherapy to improve mobility, occupational therapy to help patients restore functional skills, as well as psychological support to cope with the emotional impact of burns. For example, patients with severe burns on the hands may require intensive occupational therapy to restore their ability to perform daily activities.

In contrast, patients treated on an outpatient basis amounted to 1 patient (1.2%), and patients treated for more than 30 days showed a lower number, with 3 patients (3.5%) being treated for 31-40 days, 5 patients (5.8%) for 41-50 days, and 2 patients (2.3%) for 51-60 days. This suggests that although most patients can be treated in a relatively short period of time, there are also patients who have severe burns that require long-term treatment. Patients who are treated for more than 30 days often experience serious complications, such as uncontrolled infections or other medical problems that arise from burns. In cases like these, it's important to have a multidisciplinary team ready to handle various aspects of patient care, from surgeons, nurses, to nutritionists and psychologists.

From a hospital management perspective, it is important to have an efficient system in place in handling burn patients, including proper management of medical resources and rehabilitation. Research by Ashraf et al. (2022) shows that good management can reduce the length of treatment and improve clinical outcomes for burn patients. Efficient management includes good patient flow management, strict monitoring of the patient's condition, and the use of appropriate medical technology to support the treatment process. For example, the use of a good hospital management information system can help doctors and nurses in monitoring patient progress in real-time, so that interventions can be carried out quickly if there are signs of complications.

By understanding the length of care distribution, hospitals can plan better resources and treatment strategies for future burn patients. It can also help in the development of educational programs for medical personnel, so that they can be better prepared to deal with patients with complex burns. In addition, data on the length of treatment can be used to conduct further analysis of the effectiveness of various medical and rehabilitation interventions, so that hospitals can continue to improve the quality of care provided to patients.

In conclusion, the distribution of patients by length of treatment provides important insights into the dynamics of burn care. With the majority of patients being treated in a short period of time but with intensive care needs, as well as patients requiring longer care due to complications, hospitals need to have an effective management strategy. Further research and analysis of the factors that affect the length of treatment will be helpful in improving the clinical outcomes and quality of life of burn patients. Collaborative efforts between different disciplines in the care of burn patients will also be key to achieving better outcomes.

CONCLUSION

Based on research that has been carried out at Dr. Sutomo Hospital, Surabaya to find out the demographics of burn patients who have experienced inhalation trauma in the 2020 period so that 2023 can be drawn the following conclusions:

1. Based on gender, it was found that the majority of burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period were 63 patients with male gender or 73.3%. This shows that men are more susceptible to burns accompanied by inhalation than women. Social and behavioral factors may contribute to this phenomenon, such as men's tendency to engage in high-risk activities. According to previous research, men are more often involved in jobs with a high potential for accidents, such as construction and heavy industry (Sari et al., 2021).
2. Based on Age, it was found that the majority of burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period were patients with an adult age (19-59 years) as many as 67 patients or 77.9%. This suggests that this age group may be more active in engaging in risky daily activities, such as cooking or working in potentially hazardous environments. Meanwhile, only a small number of patients were from the age group of children and toddlers, suggesting that they may be better protected from the risk. Research by Prasetyo et al (2020) also confirms that adults are more likely to suffer burns due to accidents at home and at work.
3. Based on the Burn Area (TBSA), it was found that the majority had a burn area or TBSA of 31-40% as many as 18 patients or 20.9%. This suggests that extensive burns can contribute to the occurrence of inhalation. This is in line with research showing that the more extensive the burn, the higher the risk of complications, including inhalation trauma (Hidayat et al., 2019). The main cause of burns at Dr. Sutomo Hospital is fire, which accounts for 93% of the total cases. This shows the need for better education and prevention related to fires, both in the home and workplace environments.
4. Based on the Cause of Burns (EC), it was found that the majority was caused by fire in 80 patients or 93.0%. This shows that the main cause of burns in patients at Dr. Sutomo Hospital is fire, which accounts for 93% of the total cases. This shows the need for better education and prevention related to fires, both in the home and workplace environments.
5. Based on the Length of Stay or length of treatment, it was found that the majority of Burn patients who experienced inhalation at Dr. Sutomo Hospital, Surabaya for the 2020-2023 period were treated for 2-10 days as many as 41 patients or 47.7%. This suggests that although inhalation burns can be serious, many patients can recover in a relatively short time with proper treatment. However, some patients require longer treatment, which can indicate a higher severity of burns or complications that arise (Mulyani et al., 2021). Therefore, it is important to continuously monitor and evaluate the treatment of burn patients to improve clinical outcomes.

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