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**Original research Article**

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**A STUDY TO ASSESS THE COOKING GAS EXPLOSIONS AS CAUSE OF  
BURNS AMONG PATIENTS ADMITTED TO A REGIONAL BURN CENTRE  
IN INDORE, M.P.**

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**ABSTRACT**

Burn injury has become a major source of mortality and morbidity in countries with low socioeconomic status. World energy consumption is mainly based on fossil fuels. This source of energy, if not properly handled, can be a source of major accident to lives and properties. The aim of this study is to highlight cases and the outcome of management of burns from cooking gas explosions in Indore, M.P. The study involved all patients who sustained burns following cooking gas explosion within the study period. The parameters considered included demography, spread, anatomical locations and presence of inhalational injury, and outcome of management. A total of 347 patients were treated for burns during the study period, and 49 had burns from cooking gas explosion. Patients between the ages of 21-40 years were the most affected. Extremities were involved in nearly all the patients. The presence of inhalational injury and larger burn surface area were found to be poor prognostic indices. Mortalities occurred within the first two weeks of injury.

Burn injury has been associated with high mortality and morbidity in low socioeconomic countries. While the incidence is reducing in the developed world, the same cannot be said of low-income countries.<sup>1</sup> Among the causes of burns, flame was noted to be the most common in our environment, with mishandling of petroleum products accounting for many of the cases. The products obtained from refining petroleum include automotive gas oil, premium motor spirit, black oil and gases. Use of the various products from the refinery has been on the increase and there is a corresponding increase in the greenhouse effect of combustion of these products. In 2016, the world conference on climate change in Paris France de-emphasized the use of most of these fossil products.

### **OBJECTIVES**

1. To assess the pre-test knowledge regarding cooking gas explosions as cause of burns among patients.
2. To assess the effectiveness of Structured Teaching Programme by comparing pre-test and post-test knowledge regarding cooking gas explosions as cause of burns among patients.
3. To find out the association between the patients with their selected demographic variables.

### **HYPOTHESIS**

The hypotheses will be tested at 0.05 level of significance.

**H<sub>1</sub>:** There may be a significant difference in the level of knowledge in post-test score than pre-test score regarding cooking gas explosions

**H<sub>2</sub>:** There will be significant association between the pre-test and post-test knowledge scores with their demographic variables.

### **METHODS AND MATERIAL**

Quantitative research approach was used in the study. The research design used was Pre-experimental one group pre-test post-test design. The total sample selected for the study was 347 patients. The research study was conducted by non-probability purposive sampling technique. The collected data was analysed by using both descriptive and inferential statistics.

## **RESULT**

A total of 347 patients were seen, admitted, and treated for burns from various causes in the unit over the study period. There were 224 (64.5%) males and 123 (35.5%) females, giving a female to male ratio of 1:1.8. Forty-nine (14.1%) patients had burn injury from cooking gas explosion: 25 were male (51%) and 24 (49%) female, with a female to male ratio (F: M) of 1: 1.04. Age of the victims ranged from 6 years to 68 years (mean  $\pm$  SEM =31.51  $\pm$  1.786). The causes of explosion were leakage of gas from the cylinder stopper in 31 (63.3%) patients, leakage in the connecting pipes in 10 (20.4%) patients and failure to switch off the knobs on the cylinders in 8 patients (16.3%). Twenty-four (49%) patients were private entrepreneurs, 11 (22.4%) were civil servants and 11 (22.4%) were students. The first aid administered to these patients at the sites of injury included the application of motor oil and organic substances in 22 (44.9%) patients. These substances included eggs, raw pap, palm oil and vegetable oil. Twenty-two (44.9%) patients did not have any form of first aid at the site of the accident before presenting to the hospital. Five patients (10.2%) had copious water irrigation before presenting to health facilities. Thirty-eight (77.6%) patients were commenced on intravenous fluid resuscitation before presenting to the Burns Unit. Thirty-six patients (73.5%) had intravenous antibiotics, and 79.6% had parenteral analgesic. The rest did not receive any form of treatment.

## **CONCLUSION**

Cooking gas explosion is an increasingly common cause of domestic burns. It is more common among the low socio-economic class. Awareness of domestic cooking gas as cause of burns, either formal or informal, has been very low.

Production of high-quality tubing systems and valve mechanisms is essential to burn prevention. Explosion from cooking gas can occur in outdoor places, including at local retail points, hence the need for adequate and proper education for vendors.

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