#### Original article:

# Knowledge, Attitude and Practice Towards Burn Patients Admitted in Madina Hospital Mogadishu Somalia

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#### **Abstract:**

Background: Burns are among the most devastating forms of trauma, and also the most common types of injury affecting children in home environment. There are a major cause of morbidity and mortality all over the world for both children and adults, especially for developing countries like Somalia because of inadequate medical treatment. Objective: The main objective is to gain knowledge, attitude and practice towards burn patients admitted to Madina Hospital between October 2017 and October 2018. Methods: Throughout the study,researchers utilized both quantitative and qualitativemethods of data collection which were achieved from patients included in the study. A briefintroduction was made to the respondents before distributing the questionnaires with the explanation about the significance of the study. Results: 404 participants had been included in the study of which were divided into two groups such as 'case' (n=202) and 'control' (n=202) groups of each having equal number of patients. Burn injuries had beenfound most frequent in children less than 4 years of age (42.6%), and secondlyingadults between 20 and 40 years of age (38.6%). The male-female ratio had been found similar. Significant risk factors regarding burn injuries were such as; low level of education (OR=2.32, 95% CI: 1.28-4.22, p<0.005),kerosene usage for cooking (OR=1.935; 95% CI:1.303-2.874, p<0.005) and lack of knowledgeconsidering prevention and safety (OR=1.885, 5% CI:1.559-2.279, p<0.005). *Conclusion:* Ways of tackling the hazards posed by fire and othercauses of burns in homes, institutions and all work places should be taught in primary, secondary and tertiary levels of education. Low level of education as a risk factor for burns is a complex issue involving communities, non-governmental organizations and government. Theministry of education should incorporate health education in the curriculum of primary and secondary schools.

**Keywords:** Burn injury, education, poverty, prevention

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# Introduction

Burns mostly end up with tissue injuries due to direct contact with flames, hot liquids, gases, electricity, chemicals etc. Among them, skin is themost commonly injured organwhich loses its primitive function as a protective barrier against physical threads, and also as a cardinal coordinator of body temperature, fluid loss and sensation<sup>1, 2, 3</sup>. Morbidity patterns and mortality rates considering burn injuries in Somalia are not documented till this date, but these are believed to contribute heavily topublic health burden<sup>4</sup>. Poverty and poor

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housing are known risk factors worldwide though which may differ for every country according to their sociocultural differences<sup>1, 5, 6</sup>.

Many of the burns seen in Africa are as a result of poverty, illiteracy and migration to urban areas. Children are at greatest risk and sustain burns in preventable home accidents <sup>7</sup>. Children are the most vulnerable because they have less perception about jeopardy and inadequate ability to react appropriately <sup>8,9</sup>.

In Somalia, there are burn injuries as a result of fire disasters on roads, in supermarkets, industries and schools as a result of accidents and in some occasions and unfortunately most of them lead to arson attacks or riots. In a study conducted by Ndiritu S. et al. in 2006,accidental burn injuries in Kenya had been found to be mostly due to hot fluid. Home environment had been found as the commonest site of accident according to their research <sup>10</sup>.

Management of burn injuries is costly as it entails frequent change of dressing, multiple drug usage and need of prolongedhospitalization in certain cases.

Madina Hospital (MH) is a multidisciplinary hospital in Somali having a 'Burns Unit' in which approximately200 burn injury patients are being admitted every year. Many burn injuries are preventable especially if the risk factors can be identified accurately. The main objective ofthis study therefore was to identify the risk factors for the study population so that they can be eliminated byprevention programs.

# **Material and Methods**

The present study was conducted in Madina Hospital, Mogadishu, Wadajir district of Somalia between years of October 2017 and October 2018. Random sampling had been chosen to collect data to prevent bias from accessible population of burn patients who had been treated in Madina Hospital, Mogadishu, Somalia.

The data was collected according to answers given by respondents during the questionnaire interview. Before that,a brief introduction had beengiven to the respondents about the content and main objective of the present study.

Patients having burn injuries and those admitted with the diseases other than trauma as the control group were included in the study after their informed consents were taken. All study participants had to be able to communicate or to have a person (parent or caretaker) to answer questions on their behalf.

# **Statistical Analysis**

Multiple regression analysis had been conducted for independent variables which are identified as risk factors according to their Odd Ratios or Pearson Chi-square test. 'p' values less than 0.005 had been found statistically significant. All statistical analyses were performed using SPSS statistical package version 23.0 (SPSS Inc., Chicago, IL, USA).

#### Results

A sum of 404 patientshad been included in the present study of which had been divided into two subgroups such as 'case' and 'control' groups that had consisted of equal number of patients (n=202). The number of participants for each subgroup had been found close to each other(M/F=106/96 (52,4% vs 47,6%)). Considering patient population up to 4 years of age, males had sustained more burn injuries compared to female population. However between 4 and 25 years of age, females were more in count considering burn injuries compared to male population.

Age distribution for the test and control groups had been found similar. Range of distribution was between 1 month and 58 years of age, and calculated mean age of the whole study was 15. Median age had been found as 11. Age groups most affected by burn injuries in decreasing order were such as 0-4 years (42.6%), followed by 25-29 years (11.4%), 20-24 years (10.9%) and 30-34 (10.4%).

There were 85 (n=85, 42.7%) and 92 (n=92, 47.9%)patients of the case and control groups respectively who were non-school going children respectively. The difference in level of education between the two groups had been found to be statistically significant. There were more primary school educated among the cases (n=68, 34%) than the controls (n=42, 22%). In the matter of secondary and tertiary level education, the control grouphad been found bigger in number (n=54, 28%) compared to the case group (n=39, 20%). When those with a lower level of education (pre-school,nursery or primary school) were compared with those with higher level of education (secondary or a higherlevel), the difference was found to be statistically significant using the Chi-square test. The odds of sustaining a burn injury was 2.32 times higher where the level of education was less (Table 1), (OR=2.32,95% CI: 1.28-4.22, p< 0.005).

The risk of burn injury was 4.009 higher among the cases due to lack of fire safety and burn injury prevention knowledge (OR = 4.009. 95% CI:

0.243-0.438, p<0.005).

A total of 152 study participants from both case andcontrol groups had knowledge ofmanagement protocols regarding fire safety and injury prevention. The majority from both groups (n=109, 71.7%) had been taught at home or in school. The control group had consisted of a larger number (n=107, 52.9%) of participants who were knowledgeable. Only 22.3% (n=45) of the case group had received information about the related issue. The difference between the two groups with regard to place where the knowledge was acquired was analyzed with Chi-square test and was found to be statistically significant (X2=39.096,95% CI). A significant difference was also found when kerosene use was analyzed against all other cooking modes using Chi-square and logistic regression analysis (Table 3). The probability of sustaining a burn injury was found to be 2.027 times higher when kerosene was compared to other modes of cooking (OR=2.027, 95% CI: 1.361-3.019). This result is statistically significant and therefore, exclusive use of kerosene turns outas a risk factor for burn injury (p<0.05).

The majority of burn injuries had been sustained in home environment (n=161, 80.9%), which was followed by work place injuries (n=15, 7.5%). Only one person had sustained burn injury due to motor vehicle accident (n=1, 0.5%) and the remainder had sustained burn injuries in other places such as neighbor's place or the roadside etc. (n=22, 11.1%). The risk of burn injury was however only 1.032 times more among the cases as a result of living in slums/informal settlements (OR = 1.032, 95% CI: 0.182-0.010, p>0.005). Living in a slum or informal settlement was therefore not a risk factor for burn injury.

# Discussion

Single hospital-based, case-control design had been chosen for this study to minimize the effects of any unrelated independent variables and to enhance the reliability of the results. This is imperative sincethere has to be accurate risk factors in order to establish an effective prevention program. A similar study design had been utilized by Delgardo et al.which was conducted in Peru stating certain risk factors for childrenhaving burns. However, their study differed from the present study in that it focused on children and furthermore, the independent variables under consideration were socio-economic status and maternal education<sup>11</sup>.

Present study has identified three risk factors to be important in the causation of burn injuries in the study population such as; not to have prior knowledge about the safety protocols and management strategies regarding burn injury, preference ofkerosenefor cooking, and inadequate education respectively. This is a significant contribution to knowledge because burn injuries in Mogadishu are a public health issue like in other under-developed countries around the world. It is necessary to know the risk factors of burns before embarking on preventive measures.

First of all, ways of tackling the hazards posed by fire and other causes of burns in homes, institutions and all work places should be taught in primary, secondary and tertiary levels of education. The ministry of education should incorporate health education in the curriculum of primary and secondary schools. In addition to having fire-fighting equipment in institutions, offices, industries and other work places, it should be mandatory to have annual fire safety and injury prevention seminars or workshops. This would in the long term result in a large proportion of the population being well informed on burn injury prevention. People should also be encouraged to have fire-fighting equipment in homes or residential areas.

Secondly, level of education is major risk factor for burnsand is a complex issue involving communities, non-governmental organizations and government itself. Burn injury prevention strategies should be aligned with government plans and should include advocacy for the highest level of education and especially for women who are key caregivers for children smaller than five years of age.

This study has identified the use of kerosene as fuel for cooking which is a risk factor for burn injuries sustained in homes. The study by Ombati et al.had identified two risk factors specific to kerosene stove explosion burns <sup>12</sup>.Health education measures targeting home appliances that use kerosene should therefore be instituted by the Ministry of Health and also by stakeholders such as the Burn Society of Mogadishu. Efforts to manufacture safer home should be made through collaboration with stakeholders including oil companies, stove and lamp manufacturers, researchers, relevant government ministries and engineers.

Low and middle income countries should come up with burn injury prevention models most suitable for their environments and in line with WHO's "Burn injury prevention program". Risk factors vary from one country to another and therefore it is imperative that the adopted or implemented management strategies should be established according to the demographic properties and sociocultural factors of the related region<sup>13</sup>.

Limitations might have arisen due to use of a hospital based control group. The accuracy of the data could have been improved by having a community-based control group but this idea was shelved for this study because of the logistic and financial difficulties that this would have entailed. Biases may have arisen due to use of surrogate (parents and caregivers), some respondents for cases might not have been entirely truthful as a result of guilty feeling. In other words, the parent, guardian or caretaker could have felt that he/she would be viewed as having been responsible for the injury if he/she told it as it actually happened. Recall and information biases were also likely especially within the control arm of the study.

# Conclusion

The World Health Organization has a conceptual

framework in place for addressing the burden of injury in the developing world and a specific plan for prevention and care of burn injuries. The three risk factors identified by this study can be tackled through public health strategies and advocacy for formulation of new policy and legislation.

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