

# BURNS: Effects of Lockdown Due to COVID-19 on Burn Cases on Indian Population

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**Abstract:** Background: Corona virus (COVID-19) forced all the union governments across the world to shutdown their country and stay at home. In India Lockdown started on 24 March 2020 due to which activity outside home was restricted and people of all ages in a family were staying together under one roof. In this study we aim to find out the effects of National Lockdown on the patients of Burn during lockdown period in India. Methodology: We studied the demography in patients of burn before lockdown, during the Lockdown period (last week of March 2020-mid June 2020) and compared with the three months post Lockdown data (July to September 2020). The data was compiled in an excel sheet and was analysed to see the changes. The statistical analysis was done using SPSS 28.0 software. This retrospective study was conducted at Burn Unit in Tertiary care centre in India (December to September 2020). Result: In our study it was observed that there was significant difference between adult burn patients in pre-lockdown, lockdown and post lockdown. Majority of patients i.e. 80% adult patients were observed during lockdown period, followed by 68% adult patient were observed in pre-lockdown and 48% in post lockdown. There was no significant difference in etiology of burn patients in pre-lockdown, lockdown and post lockdown. There was no significant difference in proportion of discharged and died patients in pre lockdown, lockdown and post lockdown. Majority of patients i.e. 42.8% were died in lockdown and minimum patients (37.6%) were died in pre-lockdown. Conclusion: There was significant difference between adult burnt patients in pre-lockdown, lockdown and post lockdown. These findings may be explained by the presumably busier kitchen and dining areas during the lockdown. The study results can assist with building a stronger understanding of varying burn injuries, and with developing educational and preventive strategies.

**Keywords:** COVID-19, Pre lockdown, Lockdown, Post Lockdown Burns

## 1. Introduction

WHO declared COVID-19, a pandemic on 11 March 2020<sup>1</sup>. Since it was a new virus and we did not have any specific preventive and treatment guidelines available, It was suggested worldwide to stay home and maintain social distance with the use of sanitizers and masks. India declared lockdown on March 24, 2020<sup>2</sup>. All the industry malls, cinema complexes, educational institutions were closed and guidelines containing preventive measure were released by ICMR<sup>3</sup> from time to time. Due to all the restrictive movements imposed lots of patients took treatment at home for their diseases with tele-consultation. Only acute injuries like severe burns, High velocity trauma, cardiac care and neurological emergencies were treated in the hospital. Though there are lots of studies in literature of Pre-lockdown period depicting the demographic data of burns but there is paucity of data on effects of lockdown on burns cases. Our study is the first of its kind from Indian subcontinent highlighting and comparing the same in a high volume Burn centre.

## 2. Methods

The data was collected from our Hospital files from December 2019 to September 2020 with December to March representing as pre-lockdown period and March to June 2020 as lockdown period. The post-lockdown period was taken from June to September. Ours is a tertiary care referral centre in the state with a specialized burns and plastic unit. All the collected data was compiled in an excel sheet. Demographic details including age, sex, type of burns, % of burn, mortality etc were collected. Statistical analysis was performed using SPSS 28.0. Software.

Categorical variables were analysed by chi square test and fischer t test. Two tailed values were used and p value of < 0.05 was considered significant

## 3. Results

**Table 1:** Characteristics of Patients

	Pre Lockdown	Lockdown	Post Lockdown	P Value
Admissions	371	98	275	
Adult Patients	253 (68%)	79 (80.6%)	192 (48%)	P value=0.045 Chi square=9.23
Adult Male	166 (45%)	71 (51%)	133 (48.3%)	
Adult Female	87 (23%)	47 (29.5%)	59 (21.4%)	
Pediatric Patients	118 (32%)	19 (19.3%)	84 (30%)	P value=0.99 Chi square=0.05
Pediatric Male	71 (19%)	11 (11.2%)	51 (18.5%)	
Pediatric Female	47 (12%)	8 (8%)	33 (12%)	

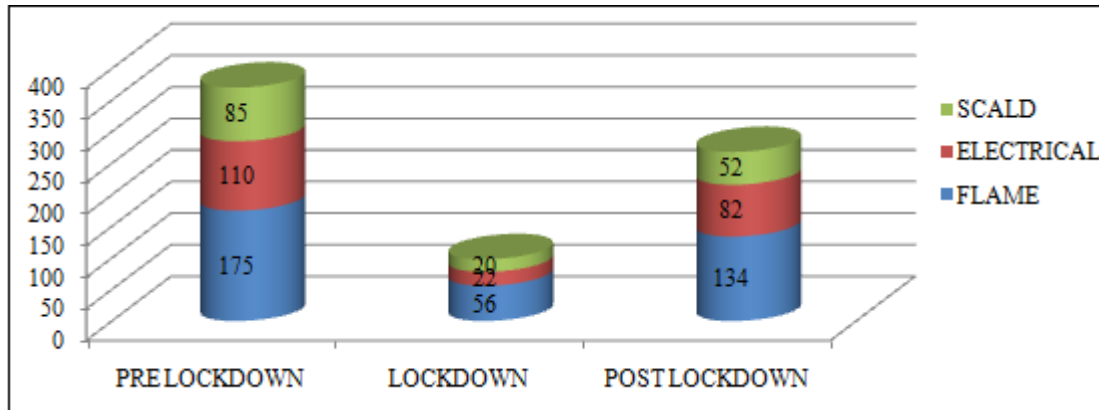
Above table states that there is significant difference between adult burn patients in pre-lockdown, lockdown and post lockdown. Majority of patients i.e.80% adult patients were observed during lockdown period, followed by 68% adult patient were observed in pre-lockdown and 48% in post lockdown. Majority of burn patients in adults were male in lockdown period.

On the contrary there is no significant difference in pediatric burn patients. Minimum patients' i.e.19.3% were seen in

lockdown period, and almost same proportion of pediatric burn patients was seen in pre and post lockdown period.

**Table 2: Etiology of Patients**

	Pre Lockdown	Lockdown	Post Lockdown	P Value= 0.3 Chi square=4.2
Flame	175 (47.5%)	56 (57%)	134 (48.7%)	
Electrical	110 (29.9%)	22 (22.4%)	82 (29.8%)	
Scald	85 (23%)	20 (20.4%)	52 (18.9%)	



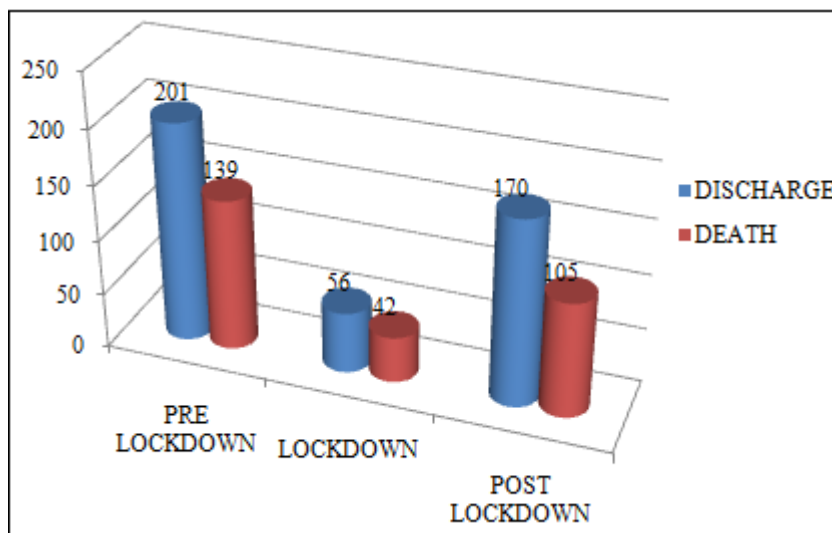
**Graph 1: Etiology of Burn Patients**

In above table major cause of burn was flame and it was maximum (57%) in lockdown period, followed by 48.7% in post lockdown period, 47.5% in pre lockdown period. Then electrical burn was observed in patients. Minimum patients were of scald burn (18.9%) in post lockdown period.

There was no significant difference in etiology of burn patients in pre-lockdown, lockdown and post lockdown.

**Table 3: Discharge and Death In Patients**

	Pre Lockdown	Lockdown	Post Lockdown	P Value= 0.66 Chi square=0.8
Discharge	201 (54.6%)	56 (57.1%)	170 (58.1%)	
Death	139 (37.6%)	42 (42.8%)	105 (38.1%)	



**Graph 2: Proportion of Discharge and Died Burn Patients**

There was no significant difference in proportion of discharged and died patients in pre lockdown, lockdown and post lockdown. Majority of patients i.e.42.8% were died in lockdown and minimum patients (37.6%) were died in pre-lockdown.

#### 4. Discussion

##### Adult Age Group

During the Lockdown period there is a 66% decrease in adult patient population admitted with burns but adult population constitutes 80 % of the burn patients in lockdown period as compared to pre-lockdown period (58%). There is significant difference between adult burn patients in pre-lockdown, lockdown and post lockdown. As male to female ratio among burn patients in pre-lockdown period was 2: 1 as compared to 1.5: 1 in lockdown period, which may be explained by the fact that males could not go outside for work and thereby decrease in profession related burns. This

finding consistent with previous studies conducted by Williams FN et al<sup>4</sup> and Johnson DM et al<sup>5</sup>, which transcribed that burn was observed maximum in male patients.

The large part of Indian females are household workers, and increase cases of in house cooking related accidents and domestic violence during the lockdown period were reported. This finding is similar to previous studies conducted by Verey et al<sup>6</sup> and Peck et al<sup>7</sup>, which demonstrated that adult burns were commonly the result of occupational activities.

### Paediatric Age Group

During the Lockdown period 19 pediatric patients were admitted in the burn unit which is 13 % less as compared to the pre-lockdown period. There is no significant difference in pediatric burn patients. Minimum patients i.e.19.3% were seen in lockdown period, and almost same proportion of pediatric burn patients was seen in pre and post lockdown period.

Similarly in study of **Dani Kruchevsky et al<sup>8</sup>** no significant decrease in burn injuries was observed among the pediatric population (21-16,  $P = .17$ ). This finding is supported by prior studies wherein most pediatric burns took place at the domestic environment.<sup>9-10</sup>

Flame burn constituted the major reason for burn during the lockdown period which is same as in pre and post lockdown period but the noticeable change was decrease in electric burn as compared to pre and post lockdown period, which can be explained by the fact that the work was suspended during the lockdown period. There was no significant difference in etiology of burn patients in pre-lockdown, lockdown and post lockdown. On the contrary with regard to different etiologies of burn injuries during the COVID-19 lockdown, **Dani Kruchevsky et al** observed that the vast majority of pediatric patients were injured by scalds (93.8%). Meanwhile, causes of burn injuries in the paralleling periods between 2017 and 2019 were more diverse. Namely, they included contact (11.1%), fire (9.5%), sunburn (4.8%), and chemical (3.2%) injuries, as consistent with previous studies. Also most cases of electrical burn cases in lockdown period belonged to the government employees.

### 5. Conclusion

In our study it was observed that there was significant difference between adult burn patients in pre-lockdown, lockdown and post lockdown. Majority of patients i.e.80% adult patients were observed during lockdown period, followed by 68% adult patient were observed in pre-lockdown and 48% in post lockdown. Majority of burn patients in adults were male in lockdown period. On the contrary there is no significant difference in pediatric burn patients. Minimum patients' i.e.19.3% were seen in lockdown period, and almost same proportion of pediatric burn patients was seen in pre and post lockdown period.

There was no significant difference in etiology of burn patients in pre-lockdown, lockdown and post lockdown.

There was no significant difference in proportion of discharged and died patients in pre lockdown, lockdown and post lockdown.

**Conflict of interest:** The authors declare no conflict of interest

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