

INCIDENCE OF TRAUMA IN SULAIMANIA IN RAMADAN COMPARED WITH TWO
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ABSTRACT

Background: As per the Islam tradition, Muslims obliged to fast during the period of Ramadan. Ramadan is one of the five pillars of Muslims. Number of trauma patients admitted in Sulaimania and the rate is comparatively lower during Ramadan than the two consecutive months. **Aims:** The study aims to compare the emergency department trauma admitted cases during the Ramadan and the consecutive two months in Sulaimania. **Patients and method:** An observational prospective study and data collected from 15th of May to 15th of August / 2023 from Sulaimania Emergency Hospital. Total Number of Patients were 446 in the study period. **Results:** Both male and female patients have been selected. Number of Traumatized patients has increased in post-Ramadan period to 160 and 166 in the next two consecutive months respectively. The number of male patients admitted in Sulaimania were more than the female patients. Most of the trauma occurred during the night time in Ramadan, most of the trauma patients were having blunt trauma and RTA. **Conclusion:** In post-Ramadan period, the occurrence of trauma in Sulaimania has increased. Therefore, it can be inferred that violence in the period of Ramadan was less compared to the post-Ramadan period.

KEYWORDS: Emergency; Ramadan; Sulaimania; Trauma.**1- INTRODUCTION**

Ramadan is the ninth month of the Islamic calendar, during this month adult fasting Muslims stop eating, drinking, and smoking each day between dawn and sunset. Reports state that the incidence of road traffic accidents (RTA) increase during Ramadan.^[2-3] The cause of the increase was related to the possible decrease in the psychomotor and physical performances of the fasting subjects, especially during the daytime.^[4] According to official and disciplinary sources, a lower number of injuries and incidents occur during Ramadan.^[5-6] Some experts further argue that not only are the rate of crimes significantly reduced, but also some basic social harms can be prevented in this month.^[7] Nowadays, car accidents, which constitute one of the top ten common causes of death in the world, are regarded as one of the major social harms.^[8-10] Lack of attention and concentration is the main factor leading to these

accidents. Because of the specific conditions of Ramadan, drivers' concentration may differ (in comparison with other months).^[8] Studies have implied that fasting during the period of Ramadan has a massive influence over the emergency departments as far as the trauma care is concerned.^[11] The prime aim of this study is to determine the incidence of trauma in Sulaimania during Ramadan compared to two consecutive months.

2-PATIENTS AND METHODS

An observational prospective study used and data collected from 15th of May to 15th of August / 2023 from Sulaimania Emergency Hospital. Total Number of Patients were 446 in the study period, 120 patients in Ramadan, 160 patients and 166 patients for the next two months after Ramadan.

The demographic aspects of age and gender have been taken into consideration. The timeframes of occurrence of the trauma have also been analysed accordingly by appropriate collection and analysis of the relevant data. The factors relating to stability have also been taken into consideration in order to determine that whether the patient was stable or unstable. It would help in deriving a comparison appropriately and accordingly.^[12] The kind of management such as conservative and operative have also been taken into account with regard to healthcare industry as far as the hospital in Sulaimania. The disposition of the patients has also been accounted in with regard to the factors such as discharging from the hospital, admission to Intensive Care Unit or admission to ward for a specific period of time in order to ensure trauma care done.

The methods have implied the analyses of the collected data in Statistical Package for Social Science (SPSS version 29), Microsoft Excel 2016 data analysis and P value obtained using chi square and was considered significant if < 0.05.

3- RESULTS

The study includes 446 patients, among them, 120 (27%) patients admitted in Ramadan, 160 (36%) patients and 166 (37%) patients admitted in the next two months after Ramadan. It can be seen that the number of patients increased in the consecutive months of Ramadan. As shown in figure 1.

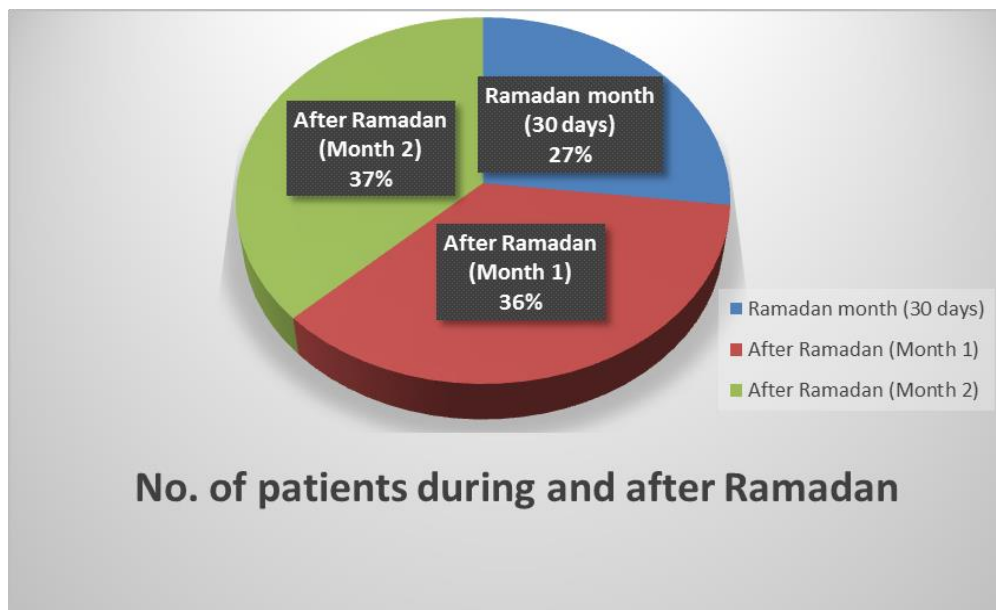


Figure 1: Number of people during Ramadan and in two consecutive months.

Table 1 shows age of the patients admitted during the study period. It shows that there were a greater number of patients between the age group 20-29 in the month of Ramadan. There was a rise in the number of patients

between the age group 30-39 in the 1st consecutive month of Ramadan. It was seen that the number of patients increased between the 20-29 age group in the 2nd consecutive month of Ramadan.

Table 1: Age distribution of the study's patients.

Age (years)	Ramadan	%	Month 1	%	Month 2	%
1 to 9	12	10%	14	9%	14	8%
10 to 19	20	17%	26	16%	30	18%
20 to 29	30	25%	32	20%	34	20%
30 to 39	24	20%	34	21%	32	19%
40 to 49	18	15%	26	16%	30	18%
50 to 65	16	13%	28	18%	26	16%
Total	120	100%	160	100%	166	100%
standard deviation	5.773503	5%	6.394442	4%	6.574361	4%
Mean age group	20 to 29	25%	30 to 39	21%	20 to 29	20%
P-Value 1 (Ramadan and Month 1)	0.03 (Statistically Significant)					
P-Value 2 (Ramadan and Month 2)	0.01 (Statistically Significant)					

As seen in the table 2, the majority of patients in all study period sustained upper limb injuries followed by lower limb injuries. Also, abdominal injury Patients increased in the 1st and 2nd months after Ramadan. Percentage of patients with injury in their head and neck

area are more in the Ramadan. The patients with chest injury increased in the consecutive months. The number of patients with pelvic injury was less in Ramadan as compared to other months. Also, pelvic injuries were the least site of injuries in all months.

Table 2: Site of trauma.

Trauma site	Ramadan	%	Month 1	%	Month 2	%
Head & Neck	18	15%	22	14%	24	14%
Chest	12	10%	18	11%	18	11%
Abdomen	12	10%	26	16%	28	17%
Pelvis	8	7%	12	8%	12	7%
Upper Limb	40	33%	48	30%	48	29%
Lower Limb	30	25%	34	21%	36	22%
Total	120	100%	160	100%	166	100%
P-Value 1 (Ramadan and Month 1)	0.01 (Statistically Significant)					
P-Value 2 (Ramadan and Month 2)	0.006 (Statistically Highly Significant)					

Table 3 shows the mechanism of trauma patients during the study period. The majority of patients in all study period sustained blunt injury due to the Road Traffic Accidents (RTA). Percentage of Patients with the Road Traffic Accidents (RTA) increased in the 1st and 2nd months after Ramadan. Percentage of patients with Fall

from height (FFH) is the same in Ramadan and 1st month are the same and there is a slight increase in the 2nd month. Blast injuries are less in the consecutive months as compared to the month of Ramadan while gunshots increased in the 1st month and decreased in the 2nd month compared to Ramadan.

Table 3: Type of trauma.

Type of Trauma	Ramadan	%	Month 1	%	Month 2	%
RTA	30	25%	46	29%	48	29%
FFH	18	15%	24	15%	26	16%
Blast injury	6	5%	4	3%	4	2%
Gun shot	4	3%	6	4%	4	2%
Blunt injury	62	52%	80	50%	84	51%
Total	120	100%	160	100%	166	100%
P-Value 1 (Ramadan and Month 1)	0.01 (Statistically Significant)					
P-Value 2 (Ramadan and Month 2)	0.003 (Statistically Highly Significant)					

From the table 4, the number of vitally stable patients are more than 3/4 compared to non-stable patients in all

study period. The percentage of non-stable patients was lower in the 1st and 2nd months after Ramadan.

Table 4: Vital signs stability.

Vital signs stability	Ramadan	%	Month 1	%	Month 2	%
Stable	92	77%	128	80%	132	80%
Non stable	28	23%	32	20%	34	20%
Total	120	100%	160	100%	166	100%
P-Value 1 (Ramadan and Month 1)	0.001 (Statistically Highly Significant)					
P-Value 2 (Ramadan and Month 2)	0.0002 (Statistically Highly Significant)					

Table 5 shows that near 1/3 of patients underwent operative management in Ramadan, while 1/4 of patients

underwent operative management in 1st and 2nd months after Ramadan.

Table 5: Management plan of the study patients.

Management	Ramadan	%	Month 1	%	Month 2	%
Conservative	82	68%	120	75%	124	75%
Operative	38	32%	40	25%	42	25%
Total	120	100%	160	100%	166	100%
P-Value 1 (Ramadan and Month 1)	0.0004 (Statistically Highly Significant)					
P-Value 2 (Ramadan and Month 2)	0.0001 (Statistically Highly Significant)					

Table 6 shows different timings when people were admitted to the Emergency hospital. It can be analysed that most of the patients in the study period were admitted between 4 pm to 10 pm. The Percentage admitted at this time decreased in the months after

Ramadan. The percentage of patients admitted between 7am to 12 pm increased in 1st and 2nd months after Ramadan. The percentage of patients admitted between 10pm to 7am were more in Ramadan compared to the next two months.

Table 6: Timing of trauma.

Timing	Ramadan	%	Month 1	%	Month 2	%
7am – 12pm	20	17%	50	31%	54	33%
12pm-4pm	14	12%	18	11%	20	12%
4pm-10pm	64	53%	74	46%	70	42%
10pm-7am	22	18%	18	11%	22	13%
Total	120	100%	160	100%	166	100%
P-Value 1 (Ramadan and Month 1)	0.00009 (Statistically Highly Significant)					
P-Value 2 (Ramadan and Month 2)	0.00002 (Statistically Highly Significant)					

Table 7 shows that majority of the patients in all study period were taken to the laboratory for tests for further diagnosis to analyse their issues. The percentage of patients sent to X-Ray increased in the 1st and 2nd months

after Ramadan. Patients need ultrasound also increased after Ramadan. Percentage for patients need CT scan increases in 1st month after Ramadan but the 2nd month was the same as Ramadan.

Table 7: Investigations done for the patients.

Investigations	Ramadan	%	Month 1	%	Month 2	%
Laboratory tests	104	43%	120	38%	126	40%
X-Ray	66	28%	98	31%	96	30%
Ultrasound	56	23%	76	24%	78	25%
CT scan	14	6%	22	7%	18	6%
Total	240	100%	316	100%	318	100%
P-Value 1 (Ramadan and Month 1)	0.0001 (Statistically Highly Significant)					
P-Value 2 (Ramadan and Month 2)	0.0001 (Statistically Highly Significant)					

Table 8 shows the number of patients being discharges, admitted to the ICU and admitted to the wards during the study period. It can be seen that during the month of Ramadan, percentage of patients who are discharged

home in Ramadan was higher than the next two months while admission to ICU (Intensive Care Unit) and surgical ward were less in Ramadan.

Table 8: Disposition of the study patients.

Disposition	Ramadan	%	Month 1	%	Month 2	%
Discharge home	84	70%	108	68%	112	67%
Admission to ICU	4	3%	8	5%	6	4%
Admission to Ward	32	27%	44	28%	48	29%
Total	120	100%	160	100%	166	100%
P-Value 1 (Ramadan and Month 1)	0.004 (Statistically Highly Significant)					
P-Value 2 (Ramadan and Month 2)	0.001 (Statistically Highly Significant)					

4- DISCUSSION

Muslims are considering Ramadan as a holy month, and they start fasting from dawn to sunset, when the family gathers to eat their dinner. Those fasting people are avoiding problems, compared with others. Also, they stay at home for wasting day time while getting out after dinner for shopping malls, picnic and visiting people. The traffic rush hours are more after 4 p.m., when people are driving home.

It can be seen that the number of patients increased in the consecutive months of Ramadan. This study Not goes with Saudi Arabia and UAE studies which state that the incidence of road traffic accidents (RTA) increases

during Ramadan.^[2-3] This study goes with Iranian and Turkey studies which state that lower number of injuries and incidents occur during Ramadan.^[5-6]

The results of the current study indicates that, in general, the mean score of accidents and trauma patients during the Ramadan month was lower compared to those occurring in the following months. These results are in line with Taktak's et al. findings, emphasizing that the number of social harms, including car accidents, reduce in Ramadan.^[13]

The study findings showed that the number of accidents and other injuries are higher among men in comparison

with women in both Ramadan and non-Ramadan months. These results are in line with Mohseni Gh and Yousefian Molla R study findings.^[14]

Apart from the demography, it can be observed that most of the patients admitted in the emergency hospital of Sulaimania, have been sustained upper limbs injuries. Percentage of patients with Fall from height (FFH) is the same in Ramadan and 1st month and there is slightly increase in the 2nd month. Blast injuries are less in the consecutive months as compared to the month of Ramadan while gunshots increased in the 1st month and decreased in the 2nd month compared to Ramadan. If we considered Blast injuries and Gun shot as Crimes our results not goes with Jesse DE & Reed PG who state that rate of crimes significantly reduced in Ramadan.^[7]

The specific times when patients were admitted to the hospital have also been analysed. Majority of patients of emergency hospital of Sulaimania have been admitted to the hospital between 4:00 p.m. to 10 p.m. and patients admitted between 10pm to 7am were more in Ramadan compared to the next two months. This mean that more patients are presenting to the ED during the night in Ramadan. These results are same as Patricia Kilian results.^[15]

Also, it can be seen that most of patients were discharged home immediately after being treated. Looking at the scenario during the Ramadan months, admission percentage to the Intensive Care Unit and surgical ward was less compared to non-Ramadan months. Which shows that there were not much possibilities of major trauma within that period of time.

Limitation of the study

Due to the shortages of time, the researcher would not be able to determine the number of traumas during the Ramadan and post Ramadan of other places apart from emergency hospital of Sulaimania. It would be beneficial to identify the difference between the effects of Ramadan and post Ramadan period trauma on the residents of Iraq.

5-CONCLUSION

Contrary to several previous studies, this study found no evidence for an increased number of trauma cases during Ramadan in Sulaimania. The most significant finding from this study was the shift in the time of patient admission to the ED during Ramadan.

However, a more comprehensive study covering all the months of the year and looking into various factors of trauma could better reflect its rate and results and compare it with the fasting month of Ramadan.

In this chapter, we would link the objectives of the research with the discussion. On the other hand, in this section, we would provide some important recommendations in order to deal with the shortcomings of the paper. Furthermore, in this section the researcher

would highlight the limitation of the paper. With the help of the analysis of the study, other researchers would get opportunity to accomplish the research paper on the similar topic. It would be wise to ensure adequately trained staff working in the later hours of the evening in Ramadan in order to maintain effective patient flow through the ED, minimizing the wait times and increasing patient satisfaction. In addition to the support ED staff with a working knowledge of the effects of Ramadan fasting and the cultural belief systems will make for a well-functioning and competent Emergency Department with satisfied patients. More comprehensive study covering all the months of the year and looking into various factors of trauma could better reflect its rate and results and compare it with the fasting month of Ramadan.

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