

# The Comparison of the Rates of Fight-Related Trauma Admissions in Ramadan and Non-Ramadan Months during 8 Years in Public Hospitals in Kermanshah, Iran

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p> <hr/> <p><i>Article History:</i> Received: 6 Dec 2016 Accepted: 16 Dec 2016 Published: 20 Dec 2016</p> <hr/> <p><i>Keywords:</i> Fight Ramadan month Trauma</p>	<p><b>Introduction:</b> Ramadan is a time when Muslims are expected to be calm and peaceful in daily life both mentally and physiologically. Some people believe that they should try their best not to be involved in bad and deviant behaviors during Ramadan. Considering social safety increase and crime reduction among the most important social concerns, authorities, psychologists, sociologists and governments are looking for ways to increase the intended social safety and decrease the crime rates. The present study aimed at investigating the rate of traumas caused through fight and the rate of deviant behaviors during Ramadan compared to non-Ramadan months (2001 to 2008) in public hospitals in the city of Kermanshah, Iran.</p> <p><b>Methods:</b> Our study was a prospective study. It included patients who were involved in four types of traumas including beating, gunshot, falling from height and car-accident during Ramadan and non-Ramadan months of the years from 2001 to 2008 admitted to Emergency Trauma Center Departments (ETCDs) of Taleghani and Imam Reza Hospitals in Kermanshah, Iran.</p> <p><b>Results:</b> The study included 168753 patients, 155705 of whom (442.34 mean <math>\pm</math> 436.77 SD) were admitted in non-Ramadan months and the remaining (13048 patients) (407.75 mean <math>\pm</math> 427.16 SD) were admitted in Ramadan months. As indicated by the results, the average of trauma instances in non-Ramadan months was higher, though no statistically significant difference was noted between the two groups. We did not observe significant differences for types of traumatic events in Ramadan compared to non-Ramadan months; however, for non-Ramadan months, all types of traumas except for gunshot and beating were significant.</p> <p><b>Conclusion:</b> Although Ramadan is not a special controlling factor for trauma admissions, as indicated by the reports of admissions in ETCD of hospitals Ramadan can have an important effect on the reduction of numbers and types of fight-related traumas.</p>

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## Introduction

In spite of the rise in the general crime rate during recent years, most Islamic countries are still considered as low-crime-rate societies. Several investigations carried by institutes or academia indicate that in some seasons the crime rate may increase or decrease (1). Ramadan is a sacred month for Muslims all around. During Ramadan, Muslims are obligated to abstain from any type of medication, smoking, sexual intercourse, and alcohol intake from sunrise to sunset (2). Month of Ramadan is a calm period for

mental and physiological activities (3) so that some people believe that they try their best not to be involved in bad affairs and deviant behaviors in Ramadan and are careful not to annoy anyone (4). As reported by many sociologists and police officers, decrease in the amount of deviant behaviors and traumas has remarkably been witnessed in this month (1). Moreover, many studies prove that faith and prayer can physically heal people and influence crimes abstinence. Additionally, religious times and occasions

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influence the behavior of religious people and even non-religious ones, who have more balanced behavior in Ramadan than in non-Ramadan months (5). N. Tavakoli studied the effect of spirituality on decreasing crimes and social damages and declared that the rate of the social crimes related to trauma decreases considerably in Ramadan. Additionally, in comparison to non-Ramadan months, the crime rates fall in this month (4). M. Sohrabzadeh's study was about crimes in Islamic countries and the role of Muharram and Ramadan (two holy months for Muslims) in decreasing the offences. His study also insists that the rates of social crime and victimization greatly decrease in Ramadan, when most people do not have tendency toward improper and contrary-to-norms behaviors because of religious reasons (6). Among these papers, we faced some researches stating that irritability is significantly higher in Ramadan and anxiety level increases in people, so the rates of fight-related trauma may become more in this month (2, 7).

Considering social safety increase and crime reduction among the most important social concerns, authorities, psychologists, sociologists and governments are looking for ways to increase social safety, decrease crime rates and create a context for a sense of identity and socialization among young generations (6). To the best of our knowledge, there have not been any study investigating possible changes in the nature of traumas that happen following fights in different years in Ramadan and other seasons, so the purpose of the present study was to investigate statistical analysis of the influence of Ramadan on fight-related trauma admissions' rate, including beating, gunshot, falling from height and car accident, and to compare them with non-Ramadan months from 2001 to 2008 in ETCDs in Kermanshah public hospitals, Iran.

## Material and methods

Our study was a prospective study whose population consisted of all patients from 15 to 45 years of age, involved in four types of traumatic events including beating, gunshot, falling from height and car accident (most common trauma admissions in selected hospitals) during Ramadan and non-Ramadan months of the years from 2001 to 2008 admitted to ETCDs of Taleghani and Imam Reza

Hospitals in Kermanshah, Iran. Patients in this study were divided into two groups including those admitted to ETCD during Ramadan months (A) and patients who were admitted during non-Ramadan months (group B) from 2001 to 2008. The collected data included daily census, diagnosis, demographic variables, time of injury, mechanism and severity of injury, organs involved in the trauma and clinical characteristics of trauma patients admitted to ETCDs. All data were recorded before discharge visits and all traumas required treatment in ETCD or needed admission to hospital for a continuous treatment procedure. Institutional ethics board approval was obtained before the commencement of the study. Statistical analyses were performed by using SPSS Version 22 for Windows package program. The patients' demographic and clinical features were shown as mean  $\pm$  standard deviation and median. Normal distribution was tested with Kolmogorov-Smirnov. The student's t-test was used for comparing the averages of traumas instances between Ramadan and non-Ramadan groups, and Duncan post hoc test was also used for comparing the average numbers and differences between types of traumatic events in Ramadan and non-Ramadan months.

## Results

Study population of the present study consisted of 168753 patients admitted during 8 years from 2001 to 2008. Among population, 155705 patients (442.34 mean  $\pm$  436.77 SD) were admitted in non-Ramadan months and the remaining 13048 patients (407.75 mean  $\pm$  427.16 SD) in Ramadan months. Four kinds of traumas including car accident, beating, Gunshot and falling from height were recorded and investigated in this study. The total numbers of traumas (NOT) in Ramadan and non-Ramadan months during 8 years are shown in Table 1 (In order to compare the rates of traumas in 8 none-Ramadan months with 8 Ramadan months during 8 years, means of trauma rates in 8 of non-Ramadan months are given in Table 1).

Although the average of trauma instances in non-Ramadan months per-years was higher, no statistically significant difference was noted between the two groups of A and B regarding diagnosis in ETCDs of the hospitals ( $P=0.750$ ) (Table 2).

**Table 1.** Total NOT from 2001 to 2008

Types of traumatic events	Sum of NOT in Ramadan Months	NOT in Non Ramadan Months	
		NOT average of 11 Months in 8 years	Sum of NOT in 8 years
Car accident	4922	4923.909	54163
Beating	1168	1325.364	14579
Gunshot	101	305.0909	3356
Falling From Height	6857	7600.636	83607
Total	13048	14155	155705

\* In order to compare the rates of traumas in 8 none-Ramadan months with 8 Ramadan months during 8 years, means of trauma rates in 8 of non-Ramadan months are also given.

**Table 2.** Comparison of mean between Ramadan and non-Ramadan traumas with student's t-test

Types of traumatic events	Ramadan months			non Ramadan months			P
	Total			Total			
	Numbers of years	Mean	SD	Numbers of years	Mean	SD	
Falling from height	8	857.13	484.44	8	950.08	471.70	0.703
Gunshot	8	12.63	4.93	8	38.14	68.49	0.311
Beating	8	146.00	68.29	8	165.67	68.71	0.575
Car accident	8	615.25	178.84	8	615.49	99.17	0.997
Total	32	407.75	427.16	32	442.34	436.77	0.750

In order to investigate the significant differences between types of trauma admitted in ETDCs of the hospitals, we used Duncan's post hoc test. As indicated by the results of Duncan's post hoc test, totally in the two groups (Ramadan and non-Ramadan months), there were not significant differences regarding the

trauma of falling from height and that of car accidents, nor for gunshot and beating. However, for non-Ramadan months, all the differences except for gunshot and beating were significant (Table 3- in each row, different letters show significant differences between different traumas).

**Table 3.** Comparison of the averages of four kinds of trauma admissions in two groups through Duncan's post hoc test

Samples	Month	types of traumatic events								P
		Falling from height		Gunshot		Beating		Car Accident		
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Patients	Ramadan	857.13 <sup>b</sup>	484.44	12.63 <sup>a</sup>	4.93	146.00 <sup>a</sup>	68.29	615.25 <sup>b</sup>	178.84	<0.001
	Non Ramadan	950.08 <sup>c</sup>	471.70	38.14 <sup>a</sup>	68.49	165.67 <sup>a</sup>	68.71	615.49 <sup>b</sup>	99.17	

\*In each row, different letters show significant differences between trauma types

## Discussion

There is a belief that Ramadan, Muslims' holy month, has an influence on trauma numbers or patterns, compared with non-Ramadan months. Several studies have also evaluated Ramadan's effect on general health in Muslim populations. However, studies that evaluate and compare the differences between Ramadan and non-Ramadan in ETCDs are very rare, but states of some surveys like Longford et al. showed that ETCD rates were higher during Ramadan among Muslim populations (8), though Topacoglu et al. stated that ETCD admission rates did not significantly increase during Ramadan (9). In our study, the average of trauma rates in ETCD were totally higher in non-Ramadan groups than in Ramadan groups (Table 1), though no significant difference was found between them (Table 2). The results of the present study are similar to

some surveys like Gomen's study suggesting a decrease in violence-induced penetrating injuries such as stab and gunshot wounds during Ramadan, compared to other time periods (10).

Moreover, we found that there were significant differences between the numbers of all types of traumatic events separately in Muslim populations in Ramadan and non-Ramadan months during 8 years indicating that the average number of traumas in non-Ramadan months was more in A group than in Ramadan group (Table 2). Although we did not find any similar study that investigated and compared these types of trauma during years in Muslim populations, Alnasser et al. declared that there were no significant differences between other types of traumas in Ramadan and non-Ramadan months (11). The last result of our study was about comparison between the averages of types of traumatic events, and we could not find

any study in this regard. However, according to Table 3, the prevalence of these traumas decreased in patients admitted in Ramadan compared to those admitted in non-Ramadan months in quantity or rates during 8 years.

The present study was a retrospective cohort study with some inherent limitations. As for one limitation, this study included only patients who were admitted at ETCDs of Taleghani and Imam Reza Hospitals in Kermanshah, Iran and didn't include other patients who were admitted elsewhere. Was additionally, this survey was conducted just in the west of Iran (Kermanshah) and did not include other regions in Iran or other countries. In addition, the role of human errors in counting and recording patients admitted in ETCDs of the selected hospitals should not be neglected.

## Conclusion

To conclude, according to the results of statistical analysis of patients-related trauma in this study, no significant difference was found in data analysis. Therefore, we can say that Ramadan may not be taken into account as a controlling factor. However, quantitative data analysis showed declines in types of traumas in Ramadan compared to non-Ramadan months and the probable effects of Ramadan on numbers and types of different trauma admissions in hospitals. The results of the present study can also be attributed to change of lifestyle factors and the spiritual influence of controlling factors on calmness of man's life in Ramadan months. This survey can be applied as a statistical analysis in prevalent traumas happening in Ramadan and non-Ramadan months regarding the comparative reduction in fight-related trauma between two periods. However, the study limitation influencing statistical analyses should not be neglected, so further investigations with different designs that include more patients, locations, cities and countries can improve the accuracy of the results.

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