

# The Relationship between Ramadan and the Number of Accidents or Other Injuries: A Comparative Study of Men and Women Admitted to Emergency Wards of Hospitals in Kermanshah, Iran (2001 to 2008)

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## Abstract

**Background and Objective:** Improving community health is the most important concerns of judicial authorities in every society. Previous research has yielded conflicting results in terms of changes in the rates of social harms in Ramadan (in comparison with the rest of the year). Therefore, the primary objective of this study was to investigate the relationship between Ramadan and the number of accidents or injuries reported by emergency wards of hospitals in Kermanshah, Iran, during a seven year period (2001 through 2008). The study also aimed at examining the possible differences between men and women in this regard.

**Method:** The current study had a retrospective, quasi-experimental nature. All male and female patients (whose age ranged from 15 to 45 years) who were admitted to emergency departments of Taleghani and Imam Reza hospitals of Kermanshah due to car accident injuries and three other injuries caused by gunshot, fighting, and fall from height during Ramadan and non-Ramadan months of the years 2001 through 2008 were included in our study. Convenient sampling was used for data collection. Kolmogorov-Smirnov test, paired samples t-test and ANOVA were exploited for data analysis. In this study, The ethical issues were all considered and the authors declared no conflict of interest.

**Results:** For both males and females, a large number of accidents were generally recorded in non-Ramadan months compared with Ramadan (0.001). Nonetheless, no statistically significant differences were found between mean scores obtained for Ramadan and non-Ramadan months in either group (0.743 and 0.773 for women and men, respectively). On the other hand, the mean values of men's injuries were higher than those of women's in all cases ( $0.05 \geq \alpha$ ).

**Conclusion:** The results of this study showed that, on average, the number of accidents and other injuries in non-Ramadan months is greater than that of Ramadan (though the difference is not statistically considerable). Furthermore, the number of injuries in women during Ramadan and other months of the studied years were lower than that of men.

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## Summary

**Background and Objective:** Promoting social health and reducing crime rate are two major concerns of the

judicial system in every society (1). Ramadan, the ninth month in the lunar calendar, is a holy month for all Muslims throughout the world. In this month, Muslims avoid eating and drinking from morning through night prayer. They also do not smoke, take

drugs, or have sexual relations while fasting (2,3). Muslims are expected to be spiritually and physiologically calm during this month (4,5). However, some people believe that Muslims get more aggressive and sensitive during Ramadan given that their lifestyle changes and they do not eat or drink anything (6). According to official and disciplinary sources, a lower number of injuries and incidents occur during Ramadan (7-9). 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 (10). 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 (2,11,12). Lack of attention and concentration is a main factor leading to accidents. Because of the specific conditions of Ramadan, drivers' concentration may differ (in comparison with other months) (2). The number of social harms and car accidents are annually growing in Iran, causing various social problems like crimes, violence, fight, damage to children, etc. On the other hand, recent research has indicated that the vulnerability of women to such harms is on the rise (7). Additionally, no published study has focused on the relationship between Ramadan and the occurrence of these harms among women and men in Iran or other countries. Therefore, the present study aimed at examining the relationship between Ramadan and the number of accidents or injuries reported by emergency wards of hospitals in Kermanshah, Iran, during an eight year period (2001 through 2008). The second objective of the study was exploring the possible differences between women and men in terms of the number of accidents/injuries.

**Method:** The statistical population of this retrospective, quasi-experimental study consisted of 168753 patients who referred to the emergency ward of Taleghani and Imam Reza hospitals in Kermanshah, Iran, during Ramadan and non-Ramadan months from 2001 to 2008. The sample included 13048 female and male patients with an age range of 15 to 45 years who proceeded to the hospitals in Ramadan due to car accidents or three other injuries (gunshot, fall from height, and fighting). Also, 155705 patients who had the same injuries during non-Ramadan months participate in the study. Convenient sampling technique (equal number of people in the population and subjects in the sample) was utilized in the current research. The patients were divided into four groups: (1) female patients admitted during Ramadan months of the 8-year period; (2) female patients admitted during non-Ramadan months of the 8-year period; (3) male patients admitted during Ramadan months of the 8-year period; and (4) male patients admitted during non-Ramadan months of the 8-year period.

First, descriptive statistics (i.e. mean, standard deviation, and median) were calculated. Then, Kolmogorov-Smirnov test was exploited to check the normality of distribution in the collected data. In addition, independent samples t-test was used to compare the number of injuries among men and

women in Ramadan and non-Ramadan months. Finally, ANOVA was conducted to make a comparison between the number of accidents/injuries reported in Ramadan and non-Ramadan months of different years.

**Results:** The participants of this study included 168753 patients admitted to the emergency wards of the two state hospitals in Kermanshah during an eight-year period (2001-2008). Throughout this period, 155705 patients were admitted during non-Ramadan (with mean and standard deviation of  $442.34 \pm 436.077$ ). Further, 13048 patients were admitted during Ramadan (with mean and standard deviation of  $407.75 \pm 427.016$ ). The mean and standard deviation of admitted women were  $283.41 \pm 269.54$ , whereas those of men were  $305.36 \pm 262.82$ . The number of car accidents and three other injuries (gunshot, fall from height, and fighting) were also recorded in the present study. The mean scores of accidents/injuries were higher among both women and men during non-Ramadan months; however, the results of t-test showed no significant difference between the number of accidents/injuries reported during Ramadan and non-Ramadan months. The results of ANOVA indicated that significantly larger numbers of accidents and two injuries (gunshot and fighting) were observed in men rather than women for both Ramadan and non-Ramadan months.

**Discussion:** Various studies have investigated the effect of spiritual occasions, conditions, and months on the number of accidents and social harms (6,13,14). However, no study has investigated the effect of Ramadan on the number of accidents and harms occurring to women and men admitted to the emergency wards of hospitals. Some studies have generally focused on the influence of Ramadan on the number of traumas, including accidents (5,15,16). The results of the current study indicated that, in general, the mean score of accidents and various social harms among women and men during the 8 studied years was higher in non-Ramadan months compared to that in Ramadan. Nevertheless, no significant difference was found between the two groups. These results are in line with Taktak's findings, emphasizing that the number of social harms, including car accidents, reduce in Ramadan (4). Moreover, some researchers have indicated that social deviations is not a natural or gender-based phenomenon among women and that, as a form of behavioral pathology, it should be attributed to the current dual conditions: on the one hand, as a new experience, women have more opportunities to be present in big urban environments through being involved in social and economic activities; on the other hand, many social, cultural, and organizational factors make women commit crimes (15). The results of the present study, however, do not support the idea that women commit more crimes. In fact, the 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. This can be attributed to women's more important role in families during Ramadan. More specifically, they try to provide better conditions for the family during morning and

evening prayers on Ramadan days. Thus, their presence in the society dwindles and they try to take part in spiritual ceremonies, hence their lower crime rates.

**Conclusion:** The results of this study is in contrast with the findings of many research projects which have demonstrated that fasting may lead to more aggression, less concentration, and further harms due to reduction in blood and brain glucose level. The findings of this study can be attributed to the change in people's lifestyle during Ramadan; that is, they try to conduct a more spiritual life, hence avoiding crimes.

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