Factors Affecting the Severity of Accidents within the City of Isfahan Province in the Years 2018 to 2020

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ABSTRACT

Introduction: Traffic accidents are the third leading cause of death worldwide and the second leading cause of mortality in developing countries. This study investigated the factors influencing the severity of urban accidents in Isfahan Province.

Methods and Materials: This cross-sectional study utilized data from all registered road traffic accidents in Isfahan Province from 2018 to 2020. With a dataset of 26,313 accurate accident records, statistical modeling was performed to determine the contribution of various factors to accident severity. The results were evaluated using chi-square tests and logistic regression.

Results: Among gender-related factors, males had the highest frequency (85.2%). Motorcyclists and bicyclists constituted the majority of injured individuals (41.8%). The most common causes of accidents were failure to yield the right of way (29.1%), inattention (28.3%), and safety violations (22%). Most accidents occurred between 1 PM and 7 PM (36.1%). Accident rates increased over the three years, with 49.7% in 2020, 33.7% in 2019, and 16.9% in 2018. Chi-square tests revealed significant associations between accident severity and factors such as time of day, responsible vehicle type, non-responsible vehicle type, and accident cause. Logistic regression results indicated that safety violations had the highest odds ratio (1.93) among accident causes, contributing to increased accident severity.

Conclusion and Discussion: Cultural awareness and strict enforcement against violators (especially among bicyclists and motorcyclists) are recommended to reduce the severity of accidents.

Keywords: Accidents, Developing countries, Mortality

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