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Original article

Prevalence and risk factors of alcohol and substance abuse among motorcycle drivers in Fars province, Iran

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ABSTRACT

Purpose: The aim of this present study is to investigate the prevalence of alcohol and substance abuse (ASA) and its relationship with other risky driving behaviors among motorcycle drivers.
Methods: This is a cross sectional study which is performed at Shiraz city of Iran. Data from motorcycle drivers were collected using a standard questionnaire in eight major streets at different times of the day. The data includes consumption of alcohol and other substances two hours before driving and some of the risky behaviors during driving.
Results: A total of 414 drivers with a mean ± SD age of (27.0 ± 9.3) years participated in the study. Alcohol or substance consumptions two hours before driving was significantly associated with risky driving behaviors such as using mobile phone during driving, poor maneuvering, and driving over the speed limit (both $p < 0.001$). It was also associated with carelessness about safety such as driving with technical defects ($p < 0.001$) and not wearing a crash helmet ($p = 0.008$).
Conclusion: Screening for alcohol and substance consumption among motorcycle drivers is an efficient way to identify drivers that are at a greater risk for road traffic accidents.

Introduction

A road traffic accident (RTA) is a serious public health problem in the world. It is estimated that 1.24 million human lives are lost annually worldwide, and it is projected to increase up to 65% over the next 20 years. It is predicted that road traffic accidents will rise enough to become among the five leading causes of mortality by 2030.[1] Iran is among the countries with the highest rate of RTA causing high mortality and morbidity.[2] During the past two past decades the health burden of traffic accidents in Iran increased by sixty percent.[3] According to World Health Organization (WHO) reports on traffic accidents in 2009, the RTA death rate per one hundred thousand people was 31.1 in Iran, while the average was 18.8 in the rest of world.[4]

Although the number of motorcycle drivers is less than car drivers in Iran, a major part of mortality and morbidity belongs to motorcycle drivers especially in rural areas.[5,6] Motorcycle accidents are the most common cause of injuries, accounting for 49.1% of all trauma cases each year worldwide. The risk of morbidity and mortality is approximately ten times more than users of four-wheeled vehicles. Thus WHO has classified motorcyclists as a group with a high risk of injuries.[7]

Different risk factors for incidence of RTA have been identified. Two main factors that increase the risk of RTA in drivers are alcohol and substance abuse (ASA).[8] A large proportion of road traffic crashes are related to driving under the influence (DUI) of alcohol

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or drugs.[9] The risk of accidents can increase with ASA by impairing the driver's awareness and problem solving skills. Furthermore, drivers who are under the influence of substances or alcohol do not consider the consequences of their behaviors and actions on others. These can increase the risk of being involved in or causing an accident.[10,11] Statistics demonstrated that this matter is more remarkable among fatally injured victims of RTA.[12] Also some studies indicated that ASA among fatally injured motorcyclists is significantly associated with risky driver behavior such as not wearing a motorcycle helmet.[13] It seems that a large portion of RTAs would be preventable if more efficient limitations against driving after intake of substances or alcohol could be applied. The permanent monitoring of all drivers for this risk factor is not cost-effective and also not applicable in some settings. Thus there is a need to identify high risk drives for ASA in order to design a more effective monitoring system.[14]

Most studies have investigated the prevalence of ASA in drivers who experienced RTA[15–17] and in the general population of drivers[18,19]; no study focused on this issue among motorcyclists in Iran. Some former studies on motorcycle drivers suggested further research in order to determine the best predictors of motorcyclists' risky behaviors.[20] The aim of the present study is to investigate the prevalence of ASA among motorcycle drivers and its associated RTA factors in Fars province of Iran.

Materials and methods

This cross-sectional study was conducted in Shiraz, capital of Fars province, Iran. Shiraz is the fifth largest city of Iran and located in southwest of the country with a population of about 1,700,000 people in 2011 according to the Statistical Center of Iran.

A total of 414 motorcyclists participated in this study. All motorcycle drivers were selected randomly based on their presence in a particular area of the city at specific times. The goals of study were explained to the drivers who were asked to fill out the questionnaire after giving their written informed consent in the space provided in the questionnaire.

Data from motorcycle drivers were collected using a standard questionnaire in eight major streets at different times of the day. The questionnaire was designed by university faculty members, experts from the traffic and transportation organization and the traffic police.

The first part of the questionnaire contained baseline characteristics including age, marital status, living location (city or rural areas), education level, income level, having driving license and type of motor. Also this part included information about wearing a crash helmet in the past three months, reasons for riding a motorcycle, RTA in the past year, driving motorcycle with a technical defect, strange maneuvering, using a mobile phone while driving and speeding over the limit. In the second part of the questionnaire, motorcycle drivers were asked for substance usage (cigarettes, alcohol, opium, heroin, water pipe, cannabis, Lysergic acid diethylamide (LSD), crystal meth, and hypnotic drugs). Also the frequency of substance usage was recorded and categorized as occasional (less than one times consumption per week for narcotics and alcohol) and continual (more than one times consumption per week for narcotics and alcohol) use. Moreover, the drivers' use of narcotics or alcohol was less than two hours before driving.

Statistical analysis

Statistical Package for the Social Sciences Version 15.0 (SPSS Inc., Chicago, IL, USA) was used to analyze the data. Frequency (%) and mean ± standard deviation were used as descriptive indices. Chi-square test, odds ratio (*OR*) and corresponding confidence interval (95% *CI*) were used to assess the relationships between independent variables and consumption of narcotics and alcohol less than two hours before driving as dependent variable. *p*-values less than 0.05 are considered statistically significant.

Results

A total of 414 motorcyclists participated in the study. All participants were males, 16–64 years of age with mean age of (27.0 ± 9.3) years. The prevalence of drivers who used alcohol, opium, and cannabis was 150 (36.2%), 29 (7.0%) and 15 (3.6%) respectively (Table 1).

The prevalence of narcotics and alcohol usage less than two hours before driving was 64 (15.5%). A crash helmet was worn by 137 (33.1%) motorcycle drivers always or most of the time. Only 129 (31.2%) drivers had a valid driver license with 33 (8.0%) of the drivers being under 18 years of age, the minimum legal age for getting a drivers license in Iran.

Table 2 shows the association of baseline driving-related variables with consumption of narcotics and alcohol less than two

Table 1
Prevalence of substance abuse among motorcycle drivers ($n = 414$).

Substance		Consumption		
		Never(*n*, %)	Occasional(*n*,%)	Continual(*n*,%)
Cigarette smoking		260 (62.8)	3 (0.7)	152 (36.7)
Hookah		252 (60.8)	8 (1.9)	155 (37.4)
Alcohol		264 (63.8)	66 (15.9)	84 (20.3)
At least one narcotic used		224 (54.1)	85 (20.5)	105 (25.4)
Narcotics	Opium	385 (93.0)	4 (1.0)	25 (6)
	Heroin	413 (99.8)	0 (0.0)	1 (0.2)
	Cannabis	399 (96.4)	5 (1.2)	10 (2.4)
	Crystal methamphetamine	410 (99.0)	0 (0.0)	4 (1.0)
	Hypnotic and sedative drugs	404 (97.6)	8 (1.9)	5 (0.5)
	Tramadol	403 (97.3)	7 (1.7)	4 (1.0)
	Other	407 (98.3)	0 (0.0)	7 (1.7)