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## Investigation of the psychological disorders of the drivers admitted to maxillofacial surgery ward of Bahonar hospital in Kerman, Iran, in 2016

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### Abstract

**Background and objectives:** Despite using various devices to improve the safety of motor vehicles, traffic accidents are still among the leading causes of maxillofacial injuries. Understanding the etiology and mechanisms of these injuries may be helpful in trauma prevention. The present study is aimed to investigate the psychological disorders in drivers admitted to the maxillofacial surgery ward.

**Materials and Methods:** The present study is a case-control study in which 120 patients admitted to the maxillofacial ward of Bahonar Hospital in Kerman from June 2016 to August 2016 were investigated. The case group included 60 drivers admitted to the ward due to maxillofacial injury, and the control group included 60 non-drivers (driver assistant or pedestrian) admitted to the ward. A random convenient sampling method was used. Patients were asked to carefully complete Minnesota Multiphasic Personality Inventory -71 (MMPI-71) scale. Collected data were analyzed using SPSS software.

**Results:** Mean age of participants in the case and control groups were  $25.83 \pm 4.08$  and  $24.95 \pm 4.40$  years, respectively, which showed no statistically significant difference ( $p > 0.05$ ). Fifty-two patients (86.7%) in the case group and 54 patients (90%) in the control group were men, which implied no significant difference in terms of gender distribution ( $p < 0.05$ ). Also, the mean mania scale score was  $55 \pm 9.02$  in the case group and  $52 \pm 7.02$  in the control group, which showed no statistically significant difference ( $P < 0.05$ ).

**Conclusion:** Findings of the present study suggest no relationship between the road injuries in drivers admitted in the maxillofacial surgery of Bahonar Hospital in Kerman and the prevalence of the psychological disorders.

**Keywords:** maxillofacial surgery, driving, trauma, psychological disorder

### Introduction

Traumatic injuries are among the major predictable health-related issues in today's society. Maxillofacial traumas are caused by different causes such as rape, falling, occupational injuries, and traffic accident based on geographical region, lifestyle, population density, and economic status<sup>[1]</sup>.

Road injuries cause 2.1 million deaths and more than 50 million injuries or disabilities each year. World Health Organization estimated that road injuries would be the third leading cause of morbidity in the world. Road injuries are in a critical state in Iran, i.e., an accident occurs every 3 minutes. Nearly one-third of patients with road injury have maxillofacial trauma<sup>[2, 3]</sup>.

Maxillofacial traumas lead to a great burden and are among the major economic problems and human injuries which impose harmful effects on society. Different approaches are used in the treatment of patients with maxillofacial trauma combining imaging technologies and surgical techniques to improve outcomes of the patients. On the other hand, the majority of trauma studies are focused on finding the risk factors of traumas, though limited studies have been conducted on the psychological background of traumas<sup>[4, 5]</sup>.

The relevance of psychological disorders is 10.8% in Iran, while the prevalence of 30% has been reported in some countries. Psychological disorders are not limited to any socioeconomic group and affect all the society<sup>[6, 7]</sup>.

WHO director-general stated that 5.1% of patients referring to health care centers are affected with some sort of psychological disorders, and 100 million patients with depression refer to clinics and psychiatrists [7].

In a retrospective study, a group of researchers found that personality diseases and disorders, in addition to drug abuse, is independent risk factor of unwanted injuries and repeatable crimes [8-10]. Patients with personality disorders and psychological diseases have experienced twice as many unwanted injuries compared with mentally-healthy patients. Additionally, patients with psychological disorders had a significantly higher position in the repeated unwanted injuries and trauma compared with drug abusers and homeless people [10]. Studies have shown that clinicians have not accurately recorded the psychological disorders of patients with maxillofacial injuries. Moreover, it seems that the health care staff of the trauma centers have limited knowledge on the potential personality disorder related to the occurrence of a traumatic injury [11].

Consequently, the present study was conducted to assess psychological disorders of the drivers admitted to the maxillofacial surgery ward of Bahonar Hospital in Kerman, Iran.

## Methods

The present study is a cross-sectional study in which 120 patients admitted to the maxillofacial ward of Bahonar Hospital in Kerman from June 2016 to August 2016 were investigated. The case group included 60 drivers admitted to the ward due to maxillofacial injury, and the control group included 60 non-drivers (driver assistant or pedestrian) admitted to the ward.

Participants were selected using a random convenient sampling method. Study inclusion criteria included patients with a minimum age of 18 years who had the ability of verbal and written communication in Persian. Patients with mental disorders or difficulty in communication were excluded. Participating patients were asked to carefully complete the study questionnaire. The researcher was present to help participants and answer their questions. Minnesota Multiphasic Personality Inventory -71 (MMPI-71) scale was used in this study [12]. Patients who were not willing to participate in this study due to any reason were excluded.

The original MMPI was developed by Hathaway and McKinley, the University of Minnesota, in 1943, which included 565 items. This questionnaire had some shortcomings, including too many questions and taking much time for completion; moreover, interpretation and scoring of this questionnaire was very tough for the psychologist. On the other hand, some questions were not modified for Iranian culture.

Therefore, Okhovat *et al.* selected 71 questions of the MMPI scale and formed a short-form scale, and started a series of studies. This short-form scale is being widely used in clinical

researches. Moreover, this test has a mean of 50 and a standard deviation of 10 in all scales, i.e., a balanced score of 50 determines healthy individuals. Note that the Iranian form of the questionnaire has acceptable validity and reliability (0.70 to 0.80).

The scoring of the questionnaire included two groups of scales. The first group included validity scales including lying detection, incoherence, and defensive resistance, which were scored and interpreted before the clinical scales. The other group included clinical scales which investigated the different aspects of personality characteristics. The short-form MMPI includes eight scales:

The hypochondriasis (HS) scale includes 14 statements regarding self-morbidity. Individuals with high scores on this scale show increased attention to their physical problems and often have the feeling of sickness and discomfort without actually having a physical problem.

The depression (D) scale include 20 statement, the score of which shows the level of depression. The hysteria (Hg) scale includes 25 statements that show the tendency to attract attention and show demonstrative behaviors. The psychopath (anti-social) (Pd) scale includes 19 statements reflecting the anti-social reactions of the individual. The paranoia (Pa) scale consists of 14 statements that investigate individuals' trust or distrust regarding others. Higher scores on this scale show that the individual does not generally trust others, and their behaviors demonstrate high suspicion. PT or Picastin scale (anxious) includes 16 statements referring to fatigue, mental weakness, anxiety, obsession, and morbid fears. The schizophrenia (SC) scale consists of 20 statements and examines psychotic symptoms. Mania (Ma) Scale includes 11 statements measuring the symptoms as opposed to depression. Individuals with higher scores on this scale are happier and more energetic, which to some degree is known as a disorder. The collected data were analyzed using SPSS software. To evaluate the normality of the distribution of scores of research variables, the Kolmogorov-Smirnov test was performed on the mentioned data.

Independent t-test was used for variables with normal distribution, and Mann-Whitney U test (the non-parametric equivalent of comparing two independent groups) was used to assess the differences between case and control groups.

## Results

In the present study, the mean age of participants was  $25.83 \pm 4.08$  years in the case group and  $24.95 \pm 4.40$  years in the control group, showing no statistically significant difference ( $p > 0.05$ ).

Fifty-two patients (86.7%) in the case group and 54 patients (90%) in the control group were men, which implied no significant difference in terms of gender distribution ( $p < 0.05$ ).

The demographic information of study participants is presented in Table 1.

**Table 1:** Demographic information of study participants in case and control groups

Variable		group	Frequency	percentage
Level of Education	High school	Case	24	39.9
		Control	9	15
	Diploma and above	Case	36	60.1
		Control	51	85
Marital status	Single	Case	24	40
		Control	21	35
	Married	Case	32	53.3
		Control	33	55

	Other (divorced)	Case	4	6.7
		Control	6	10
Certificate	Certified	Case	37	61.67
		Control	30	50
	No certification	Case	14	23.33
		Control	18	30
	Has a license, no driving experience and intention	Case	9	15
		Control	12	20

**Table 2:** Descriptive statistics of study variables

Variable	Group	Minimum	Maximum	Mean	Standard Deviation
Self-sick seems	Case	38	78	58.83	8.14
	Control	38	73	57.75	9.5
Depression	Case	37	70	52.87	8.26
	Control	40	77	53.4	10.07
Hysteria	Case	28	75	48.37	9.83
	Control	32	68	47.3	8.96
Unti social	Case	42	62	51.7	5.65
	Control	38	68	52.2	8.34
Paranoia	Case	41	71	56.83	8.93
	Control	41	86	63.25	12.3
Anxiety	Case	37	73	52	8.67
	Control	30	73	53.15	11
Schizophrenia	Case	41	78	57.7	10.42
	Control	41	78	60.95	10.95
Mania	Case	40	75	55	9.02
	Control	40	65	52	7.02

As shown, excluding hypochondriasis, hysteria, and mania, the mean score of psychologic disorders is higher in the control group compared with the case group.

**Table 3:** Results of independent T-test of comparing mean of the variables regarding depression, paranoia, and anxiety in the case and control groups

Variable	F-Levin	Levin significance	T	Degree of freedom	Significance
Paranoia	6.78	0.01	-3.27	118	0.00
Anxiety	4.53	0.03	-0.64	11.91	0.53
Depression	3.20	0.08	-0.32	113.65	0.75

Table 3 shows a significant difference between drivers admitted to the maxillofacial surgery ward of Bahonar Hospital in Kerman compared with the control group regarding paranoia disorder score.

Moreover, Table 3 shows that there is no significant difference in terms of depression disorder scores between drivers admitted to the maxillofacial surgery ward of Bahonar Hospital in Kerman compared with the control group.

To compare the mean of the case and control group in the hypochondriasis, hysteria, anti-social, schizophrenia, and mania, Mann–Whitney U test (the non-parametric equivalent of comparing two independent groups) was used.

**Table 4:** Results of Mann–Whitney U test for comparing the means of hypochondriasis, hysteria, anti-social, schizophrenia, and mania in the case and control groups

Variable	U value	Z value	Significance level
Hypochondriasis	1656	-0.77	0.44
Hysteria	1635	-0.87	0.38
Antisocial	1794	-0.03	0.97
Schizophrenia	1455	-1.82	0.07
Mania	1452	-1.86	0.06

Table 4 shows no significant difference in terms of hypochondriasis, hysteria, anti-social, schizophrenia, and

mania between drivers admitted to the maxillofacial surgery ward of Bahonar Hospital in Kerman compared with the control group.

**Discussion**

In this study, eight psychological disorders were investigated in drivers and non-drivers in road injuries.

The mean mania scale score was  $55 \pm 9.02$  in the case group and  $52 \pm 7.02$  in the control group, which showed no significant difference. This finding is consistent with the findings of Dicker *et al.* study (2011), in which only 1% of unintentional injuries had mania, and there was no significant difference between patients in the case and control groups [8].

The mean depression scale score was  $52.87 \pm 8.26$  in drivers and  $53.40 \pm 8.26$  in non-drivers, which demonstrated no significant differences. In Dicker *et al.* study, 18% of patients with unintentional injuries had major depression, while only 7% of the control group had depression. In their study, 75% of psychological disorders, especially depression, were accompanied by drug abuse, and no significant difference was observed by removing drug abuse. The results of this study are inconsistent with our study. In Meaghan’s study (2007), the rate of depression was 30.1% in the case group (patients with unintentional injuries) and 16.6% in the control group, which showed a statistically significant difference [13]. This difference may be attributed to alcohol consumption which was significantly higher in the case group (35.7%) compared with the control group (13.2%).

Mean anti-social scale scores were  $51.70 \pm 5.65$  and  $52.20 \pm 8.34$  in the case and control groups, respectively, which did not show any significant difference. Novaco *et al.* (1989) investigated the available literature and found that individuals with frequent road accidents had anti-social traits [14]. They investigated the correlation of road injuries with anti-social personality disorder while, in our study, the difference between drivers and non-drivers was evaluated. Thus, no previous study was available to compare the case

and control groups in terms of this scale. On the other hand, no robust evidence is available on the lack of anti-social behaviors in the control group (who may possibly belong to a lower socioeconomic level due to not having a personal car). For instance, disobeying traffic regulations such as not using the pedestrian bridge and not paying attention to the pedestrians' red light may occur due to anti-social traits besides other reasons. Since the role of anti-social behaviors is confirmed in the driving violations and accidents, it may be stated that anti-social behaviors may similarly occur in case and control groups, which is not contrary to the findings of previous studies.

Mean Picastin scale scores were  $52 \pm 8.67$  in the case group and  $53.15 \pm 11$  in the control group, which did not show a significant difference between the two groups. Porabedian and Azmoun (2013) reported a significant direct relationship between anxiety and driving faults in road accidents which is not consistent with the findings of the present study [15]. This inconsistency may be caused since they have used specific tools for anxiety assessment while the PT scale of the MMPI test is a general indicator of all anxiety disorders (including obsession, irritability, etc.). Considering the variety of anxiety disorders, MMPI is not expected to act similarly to specific tests of anxiety measurement.

Mean Schizophrenia scale scores were  $57.70 \pm 10.42$  in the case group and  $60.95 \pm 10.95$  in the control group, which did not show a significant difference between the two groups. In Dicker *et al.* study, 6% of patients showed psychotic symptoms, and no significant difference was observed between the case and control group after removing drug abuse.

Mean Hypochondriasis scale scores were  $58.83 \pm 8.14$  in the case group and  $57.75 \pm 9.50$  in the control group, which did not show a significant difference between the two groups. Moreover, mean Hysteria scale scores were  $48.37 \pm 9.83$  in the case group and  $47.30 \pm 8.96$  in the control group, which did not show a significant difference between the two groups. The hypochondriasis scale and Hysteria scale were not investigated in previous studies.

The paranoia scale was the only scale with a significant difference between case ( $56.83 \pm 8.93$ ) and control ( $63.25 \pm 12.30$ ) groups. On the other hand, 23.33% of patients in the control group did not have a driving license, and 15% of them did not have driving experience or intention despite having a driving license. This unwillingness to get a driving license or driving may be attributed to their suspicion. Gharaei *et al.* (2007) investigated the psychological health of drivers with an accident resulting in injury or death using the SCL-90-R test [16]. Results of their study indicated that the mean score of paranoid, obsession and compulsion, sensitivity in relationships, and depression dimensions was higher compared with other dimensions, yet, no significant difference was observed between professional and amateur drivers in terms of SCL-90-R test scores, which somehow supports the findings of our study.

Results of this study demonstrated that most injured patients are young people, as the mean age of patients in the case and control groups were 25.83 and 24.95 years, respectively. This finding is in line with the Faryabi *et al.* study (2014) in Kerman, in which the mean age of patients with maxillofacial trauma was 25.88 years [17].

Moreover, participants of this study were mainly men (86% in

the case group and 90% in the control group), which is similar to the Faryabi *et al.* study in which 85% of the patients with maxillofacial injury were men. This finding may be due to the fact that in developing countries, men are more involved in the transportation systems compared with women; also, driving bikes and bicycles are not usual among Iranian women due to cultural limitations.

In this study, the majority of the injured cases were married (53% in the case group and 55% in the control group). Increase the risk of accidents in married individuals may be due to different marital stressors, inappropriate occupational status, and higher work responsibilities. Sadeghi *et al.* showed that, contrary to other parts of the world, psychologic disorders are more common among married people in Iran [6].

## Conclusion

The findings of the present study suggest no relationship between the road injuries in drivers admitted in the maxillofacial surgery of Bahonar Hospital in Kerman and the prevalence of the psychological disorders.

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