

PROFESSIONAL DRIVERS' KNOWLEDGE ABOUT THE INFLUENCE OF MEDICINES THAT MAY IMPAIR DRIVING

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ABSTRACT

More knowledge about the impact of medication on driving are indicative of a lower likelihood of having a motor vehicle crash. The aim of this study was to investigate knowledge of professional drivers about the influence of driving impairing medicines in Serbia and Bosnia and Herzegovina.

This multicenter cross-sectional study was conducted in 6 cities in Serbia and Bosnia and Herzegovina, during first trimester of 2017, with 221 professional drivers, using questionnaire with 35 statements, where participants expressed their agreement according to Likert scale, from completely disagree to completely agree.

The average score related to the drivers' knowledge was 131,58 (range from 49 to 175), 22,6% were unaware that some medicines may influence psychophysical abilities and ability to drive. A high percentage of participants in the study don't know that a negative impact on the driving ability can be the result of the use of medicines from groups for which it is unexpected to have such effects, medicines that are dispensed without a medical prescription, herbal remedies, dietary supplements and medicines that affects eyesight or hearing. More than half didn't know that medicines labeled with warning symbols Δ, ▲ and § are not allowed to be used immediately before or during driving.

Professional drivers' knowledge about driving impairing medicines is not satisfactory. Labeling system of these medicines is inadequate. These findings could help to identify drivers, who are at increased risk for using potentially impairing medicines, to inform and educate them, and to prevent driving under the influence of medicines.

Keywords: Professional drivers, knowledge, driving impairing medicines, warning symbols.



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INTRODUCTION

Driving a motor vehicle continues to be the most popular means of transportation (1), although it is a multifaceted task (2), and complex and risky activity that requires good physical and mental health state and the ability (3) to interact simultaneously with both the vehicle and the external environment (4). Vehicles, which are characteristics of civilization, have turned into a big problem in various social and public health respects due to increasing the number of the road and city accidents with high mortality rate (5). Motor vehicle accidents represent a major health problem worldwide (6), and especially those due to prescription drug impairment have increased in the past decade (7). Drugged driving is a safety issue of increasing public concern (8), as well as driving under the influence of prescription and over-the-counter medication (9). Especially, drugs used in combination with alcohol are likely to produce a significant threat to traffic safety (10). Most often it is because medicines can cause drowsiness, make drivers less attentive or slow reflexes that some drugs increase the risk of accidents, but they can also affect the ability of judgment, impair the view or cause dizziness making the road dangerous (11). One recent study demonstrated that patients are not able to predict accurately their level of driving impairment (12). The impact of a drug on driving is an important consideration when designing a medication regimen (13), because drugs with potential to impair driving were consumed by a third of the general population (2). One in five drivers reported recent use of medication that may impair driving (14). Both illicit and licit drugs that affect the central nervous system (CNS) have the potential to impair driving performance (15). Knowing how medications affect the ability to drive is clearly a safety issue that is relevant to patients, physicians, drug manufacturers, drug legislators, and the general public (16). The DRUID project has as its aim to make a wide-reaching attempt, by using a uniform study design, to close the gap that still exists in knowledge about traffic safety in relation to the use of psychoactive drugs (17) and was an integrative effort to reduce the danger of alcohol, illicit drugs, and medicines in traffic (18).

According to national Act about road traffic safety professional driver is a person who is employed to drive a vehicle which transports people (within the public transport or else) or goods (19). Commercial drivers may also exhibit particular forms of unsafe driving behavior to cope with workload and time pressure (20). These drivers are at a greater risk of accident involvement (21), as commercial vehicles involved in approximately quarter of all road traffic fatalities (22). Impaired driving among commercial drivers is of particular public health importance (23). They are subjected to countless factors that influence their professional practice, among which the intake of psychoactive substances stands out (24). Truck drivers are especially vulnerable to psychoactive substance abuse (25). Higher utilization of sedating agents was positively associated with being a commercial driver (26). A significant proportion of commercial drivers reported use of stimulant as the most helpful fatigue

management strategy (27), and was also involved in drugs and alcohol abuse while driving (28). In spite of comprehensive drug testing in the trucking industry, some drivers are continuing to take illicit and other drugs with the potential of having a negative effect on their driving ability (29). Knowledge of professional drivers about driving impairing medicines is not satisfactory (30), as well as in general population of drivers (26; 31) and old drivers (32). Fifty-one percent (51.5%) of professional drivers were unaware of the existence of medicines that impair driving (30). More careful attitudes or more knowledge about the impact of medication on driving are indicative of a lower likelihood of having a motor vehicle crash (26). Evidence suggests that patients ignore or do not read prescription labels that warn of driving impairment (33). Regardless of the excellent results obtained by DRUID project and other studies, some data about this important issue are missing. There is a lack of data about drivers' knowledge and attitudes about driving impairing medicines, especially in a very significant and vulnerable population such as professional drivers, as well as data about factors that influence their knowledge and attitudes.

THE AIM OF THE PAPER

The aim of this study was to investigate knowledge of professional drivers about the influence of driving impairing medicines in Serbia and Bosnia and Herzegovina.

PATIENTS AND METHODS

Study settings

This multicenter cross-sectional study was conducted in 6 cities in Serbia and Bosnia and Herzegovina, during the first trimester of 2017. Approval for conducting the study was obtained by the Ethics Committee of the Faculty of Medical Sciences, University of Kragujevac. All participants gave their written consent after they have been thoroughly acquainted with the research protocol, respecting all ethical norms and principles according to Helsinki declaration and standards of Good Clinical Practice.

Study population

The study population was made of professional drivers, both genders, age from 20 to 65, who were employed in taxi associations, transport organizations, delivery services, auto-traffic companies where they drive car/truck/van/bus, or they spend most of their working time to operate the machinery, such as industrial workers, workers who handle cranes, forklifts and agricultural machinery. Participants, who expressed unwillingness to comply with the study protocol and who didn't currently work as professional drivers, because their driver's license were subtracted due to a traffic violation, health issues or for some other reasons, were excluded from the study.

Development of the questionnaire

The knowledge of professional drivers was examined using the questionnaire which consists of 35 items. The questionnaire for assessing professional drivers' knowledge about influence of medicines on driving abilities (QPDK-IMDA) was developed through several steps, according to the guidelines (34), by members of the research team. After the professional drivers were determined as an object of measurement, an item pool was generated through literature review about drug use among professional drivers and their awareness of adverse effects on driving ability. Next step was revision and correction of the initial pool of items, made by the three-member expert committee. Then, the initial pool of items was tested on 4 professional drivers (in Šabac, Serbia) for clarity and comprehension. Few minor changes were made after pilot, and then final Serbian version of the questionnaire was prepared for use. The questionnaire was filled by the researchers who interviewed the participants. Respondents expressed their agreement with the offered assertions according to the Likert scale: "completely disagree" (1), "partially disagree" (2), "neither agree nor disagree" (3), "partially agree" (4), and "completely agree" (5) (the questionnaire is provided as an Additional file 1).

Collected data

During the study data about the following factors that could affect the knowledge and attitudes of professional drivers about influence of medicines on driving ability were collected: socio-demographic characteristic (gender, age, educational and marital status and living area), length of driving experience, inclination to traffic violations and accidents, the presence of chronic diseases, the use of driving impairing medicines, alcohol and narcotic drugs and understanding the warning symbol on the outer package of medicines were collected as independent variables.

Dependent variables explored in the study were professional drivers' knowledge about influence of alcohol and narcotics, medicines that may impair driving, specific groups of medicines (medicines used in treatment of psychiatric, neurological, cardiovascular, gastrointestinal and infectious diseases, medicines used in treatment of severe pain, allergies, flu and colds and with an effect the vision or hearing), including non-proscription medicines, herbal remedies and dietary supplements, as well as knowledge about adverse drug reactions that affect the ability to drive, the system of labeling outer and inner medicines package as well as patients informational leaflet and information that should be given to drivers when issuing driving impairing medicines.

Statistical analysis

The predicted power of the study ($1-\beta$) was 95%, error type 1 (α) was 5%. The minimum number of participants, calculated using Gpower 3.1 (effect size $f^2 = 0.15$, number of predictors 16) was 204. All calculations in this study were performed by SPSS software, version 20. Before performing statistical analysis, the normality of the data distribution was examined by Kolmogorov-Smirnoff test. Data about the basic characteristics of the respondents were processed using descriptive statistics. For each item in the questionnaire, mean score, standard deviation and variance were calculated. Reliability and internal consistency of the questionnaire were established by calculating Cronbach's alpha coefficient and split half Cronbach's alpha. Kruskal-Wallis test was performed in order to compare respondents' knowledge scores in different groups formed on the basis of their demographic characteristics, driving behavior, health status, using of medicines on daily basis, potentially factors that may influence knowledge about driving impairing medicines. With this test, we obtained an indication whether the knowledge of the professional drivers statistically significantly differed in certain groups. Statistically significant results were those in which the probability of null hypothesis was less than 5% ($p < 0.05$).

RESULTS

In the study, 168 (76,02%) professional drivers participated from Serbia and 53 (23,98%) from Bosnia and Herzegovina, based on availability of participants for the study. The average age of the participants was 42,82 years (ranging from 21 to 65, standard deviation 11,26). Male sex was 216 (97,74%) of respondents, and only 5 (2,26%) were females. Response rate in the study was 94,01%. From 235 respondents at the beginning, 221 completed the study.

The knowledge of participants about driving impairing medicines, specific groups of medicines, including non-proscription medicines, herbal remedies and dietary supplements, as well as knowledge about labeling system of this medicines and adverse drug reactions that affect driving ability, was estimated by QPDK-IMDA. The average score related to the drivers' knowledge was 131,58 (range from 49 to 175; standard deviation 32,12; median 141,00). Cronbach's Alpha for the QPDK-IMDA was 0,984 (split half Cronbach's Alpha was 0,972 and 0,973). The main characteristics of the respondents and the results of comparing their knowledge scores in different groups formed on the basis of demographic characteristics are given in the Table 1.

Table 1. The main characteristics of the respondents

		FREQUENCY	PERCENTAGE	KRUSKAL-WALLIS test p	MEDIAN
GENDER	Male	216	97,74	0,648	141,00
	Female	5	2,26		133,00
EDUCATION LEVEL	Unfinished primary school	5	2,26	0,000	73,00
	Primary school	41	18,55		77,00
	High school	122	55,20		143,00
	Higher school	38	17,19		150,00
	Faculty	15	6,79		146,00
AGE	From 20 to 29	29	13,12	0,000	144,00
	From 30 to 39	65	29,41		144,00
	From 40 to 49	61	27,60		145,00
	From 50 to 59	45	20,36		86,00
	From 60 to 65	21	9,50		94,00
MARITAL STATUS	Not married (without children)	50	22,62	0,003	144,50
	Not married (with children)	19	8,60		131,00
	Married (without children)	16	7,24		147,00
	Married (with children)	134	60,63		139,50
	Other	2	0,90		147,00
LIVING AREA	Urban	97	43,89	0,000	147,00
	Suburban	48	21,72		141,50
	Rural	76	34,39		117,50
COUNTRY	Serbia	168	76,02	0,085	140,50
	Bosnia and Herzegovina	53	23,98		145,00
CITY	Šabac	120	54,30	0,000	140,00
	Belgrade	19	8,60		146,00
	Vranje	29	13,12		137,00
	Brod	16	7,24		124,00
	Derвента	15	6,79		145,00
	Brcko	22	9,95		163,50

The results of comparing the scores of professional drivers' knowledge in different groups formed on the basis of their driving behavior, health status, using of medicines on daily basis, potentially factors that may influence professional drivers' knowledge, are given in the Table 2.

Table 2. Potentially factors that may influence professional drivers' knowledge

		FREQUENCY	PERCENTAGE	KRUSKAL-WALLIS test p	MEDIAN
How long have you got a driving license?	Less than 1 year	0	0,00	0,000	
	1 to 5 years	9	4,07		141,00
	5 to 10 years	20	9,05		145,50
	10 to 20 years	76	34,39		145,50
	More than 20 years	116	52,49		133,50
Do you drink alcohol?	Yes	106	47,96	0,000	146,00
	No	115	52,04		127,50
How often do you drink alcohol?	Frequently (once per week or more)	34	32,08	0,000	71,50
	Occasionally (once per 2 months)	64	60,38		136,50
	Rarely (less than once per 2 months)	8	7,55		147,00

		FREQUENCY	PERCENTAGE	KRUSKAL-WALLIS test p	MEDIAN
Have you ever been driving under the influence of alcohol?	Yes, only once	24	10,86	0,000	148,00
	Yes, 2 to 5 times	30	13,57		137,50
	Yes, 5 to 10 times	8	3,62		141,00
	Yes, more than 10 times	56	25,34		121,00
	No	103	46,61		80,50
Have you ever been driving under the influence of a psychoactive substance?	Yes, only once	3	1,36	0,000	142,00
	Yes, 2 to 5 times	6	2,71		125,00
	Yes, 5 to 10 times	2	0,90		114,50
	Yes, more than 10 times	10	4,52		126,50
	No	200	90,50		66,50
Which psychoactive substances you used?	Medicines	12	85,72	0,264	70,00
	Narcotic drugs	1	7,14		136,00
	Other	1	7,14		66,00
Have you ever been treated for alcohol and / or psychoactive substance addiction?	Yes	8	3,62	0,000	141,00
	No	213	96,38		69,00
Have you ever had a traffic accident?	Yes, only once	67	30,32	0,000	145,00
	Yes, 2 to 5 times	35	15,84		139,00
	Yes, 5 to 10 times	10	4,52		131,00
	Yes, more than 10 times	1	0,45		79,50
	No	108	48,87		68,00
Have you made traffic violations so far and have you been punished by the competent state authorities?	Yes, only once	37	16,74	0,000	142,00
	Yes, 2 to 5 times	58	26,24		148,00
	Yes, 5 to 10 times	23	10,41		144,50
	Yes, more than 10 times	46	20,81		138,00
	No	57	25,79		75,00
Do you suffer from a chronic illness?	Yes	45	20,36	0,000	142,00
	No	176	79,64		85,00
Which chronic illnesses have respondents?	Neurological and psychiatric diseases	9	20,00	0,097	77,00
	Cardiovascular diseases	30	66,67		82,00
	Other diseases	6	13,33		142,50
Do you use prescribed therapy daily?	Yes	40	18,10	0,000	142,00
	No	181	81,90		82,00
Does the respondent in therapy have a driving impairing medicine?	Yes, only one	15	37,50	0,006	73,00
	Yes, several	7	17,50		68,00
	No	18	45,00		140,50
Do you recognize the warning symbol on the outer package of medicines?	Yes	72	32,58	0,000	133,00
	No	149	67,42		151,00

Driving impairing medicines were used by 9,95% of all participants. Among 18,10% of participants who were used prescribed therapy on daily basis, 37,50 have one, 17,50% have several, while 45,00% didn't have any driving impairing medicines. The most common was the use of anxiolytics (18 drivers) and antidepressants (7 drivers). Anxiolytic benzodiazepines were represented in 45,00% of the respondents who use the therapy every day. Detailed results of driving impairing medicines in daily therapy of study participants are given in the Table 3.

Table 3. Drugs that may impair driving in daily therapy of study participants

GROUP	INN	FREQUENCY	PERCENTAGE (all participants)	PERCENTAGE (participants who use daily therapy)
ANXIOLYTICS	alprazolam	8	3,62	20,00
	bromazepam	5	2,26	12,50
	diazepam	4	1,81	10,00
	prazepam	1	0,45	2,50
ANTIDEPRESSANTS	sertraline	2	0,90	5,00
	venlafaxine	2	0,90	5,00
	maprotiline	1	0,45	2,50
	paroxetine	1	0,45	2,50
	amitriptyline	1	0,45	2,50
ANTIEPILEPTICS	clonazepam	2	0,90	5,00
HYPNOTICS	midazolam	1	0,45	2,50
	zolpidem	1	0,45	2,50
ANTIMIGRENICS	sumatriptan	2	0,90	5,00
PROPULSIVES	metoclopramide	1	0,45	2,50
CENTRAL ANTIHY- PERTENSIVE	methyldopa	1	0,45	2,50

The vast majority of respondents were aware that the driving under the influence of alcohol and psychoactive substances is considered as violation according to the Act about road traffic safety. The fact that alcohol influence psychophysical abilities and the ability to drive motor vehicle or machines knew 84,1% of respondents, while 86,4 of them knew for such effects of narcotic drugs. About quarter of professional drivers wasn't familiar with fact that some medicines may influence driving ability (22,6%) and that some medicines have strongly influence on psychophysical ability and the ability to drive motor vehicle or machines (24,9%). Similar results were for medicines used in the treatment of psychiatric (25,3%), neurological diseases (32,1%) and severe pain (34,4%). The influence of medicines from other groups on driving ability was not so familiar: medicines used in the treatment of allergies, flu and cold (52,0%), infectious (66,5%), cardiovascular (59,7%) and gastrointestinal diseases (74,7%).

A high percentage of respondents didn't know that medicines that are dispensed without a medical prescription (64,7%), herbal remedies (73,3%) and dietary supplements (76,9%) can also influence psychophysical abilities and the ability to drive motor vehicle or machines. The influence of medicines that affects eyesight or hearing was known for 65,2% and 55,2% of respondents.

Majority of study participants knew that medications that have adverse drug reactions such as drowsiness, dizziness and mood swings (82,8%) and medications that reduce the power of observation, the power of reasoning and the rate (76,5%) of reaction can influence psychophysical abilities and the ability to drive motor vehicle or machines.

Only 32,6% of professional drivers recognized warning symbols on the outer package of medicines (Δ , $\blacktriangle$, $\S$), while more than half didn't know that medicines labeled with warning symbols Δ (50,7%), $\blacktriangle$ (52,5%), $\S$ (66,1%) are not allowed to be used immediately before or during driving. Majority of them (81,0%) agreed that medicines that may adversely influence the psychophysical abilities and the ability to drive motor vehicles and machines should be marked with clearer and more understandable symbols on the outer package, 83,8% agreed that in the patient's informational leaflet must be such information, while 72,0% agreed that medicines that are dispensed without a medical prescription, herbal remedies and dietary supplements, should be adequately labeled, by warning symbols, as medicines with a prescription regimen.

The most of respondents thought that it was necessary to contact a health professional for further information about driving impairing medicines (80,1%), must read patients' informational leaflet in the drugs box (76,9%) and that health professional should give the additional information and educational leaflet (72,9%) during the process of dispensing or selling those medicines. Also, three quarters of them (75,1%) considered that it is necessary to periodically conduct educational campaigns in the written and electronic media about the negative impact of medicines on driving ability.

Over 70% of surveyed professional drivers agreed that they should never drive motor vehicles or machines under the influence of alcohol, driving impairing medicines and narcotic drugs (78,7%), if they feel tired, stressed, have fever or severe pain (74,2%). Also, they agreed that if drowsiness, dizziness, vision or hearing disturbances are felt during driving, it is necessary to immediately discontinue driv-

ing (79,2%) and not try to remove those symptoms by using energy and /or alcoholic beverages (74,7%).

DISCUSSION

Our study has shown that professional drivers' knowledge about driving impairing medicines, specific groups of medicines, including non-prescription medicines, herbal remedies and dietary supplements, as well as knowledge about labeling system of these medicines and adverse drug reactions that affect driving ability is insufficient. Also, we found that there is a statistically significant difference between professional drivers' knowledge scores in different groups formed on the basis of their demographic characteristics, driving behavior, using of medicines on daily basis and recognition of warning symbols. This study also demonstrated that usage of driving impairing medicines in the examined population of drivers is high.

About quarter of participants in this study were unaware that some medicines may influence or strongly affect psychophysical abilities and ability to drive. This is much better than in the study of Kagashe i Saleman (30), where more over the half is not familiar with those adverse effects of medicines. The problem may be, that a high percentage of participants in the study don't know that a negative impact on the driving ability can be the result of the use of medicines from groups for which it is unexpected to have such effects, like medicines used in the treatment of allergies, flu and cold, infectious, cardiovascular and gastrointestinal diseases, medicines that are dispensed without a medical prescription, herbal remedies, dietary supplements and medicines that affects eyesight or hearing. Studies conducted by Del Rio and Alvarez (6) and Giroto et al. (25) have confirmed that drivers often use medicines from these groups for acute problems or chronic illness. The full extent of impaired driving due to prescription drug use has yet to be elucidated, especially with prescription agents that are not traditionally thought of as impairing (7). The number of professional drivers who knew that medicines labeled by warning symbols (Δ , $\blacktriangle$, $\S$) have driving impairment as adverse effects was not satisfactory. Respondents who were recognized warning symbols have high score of knowledge than those who don't. This indicates the necessity of changing the labeling system of driving impairing medicines and implements more understandable symbols that clearly indicate that the drugs have a negative impact on driving (35-37), with which most respondents agreed. Proper warning labels can be useful as a support tool to provide tailor-made information to patients consuming DIMs (38). They also think that information about driving impairment must be indicated in the patients' information leaflet and that all driving impairing medicines must be labeled in the same way. More than 70% of professional drivers in our study agreed that health professionals are relevant source of information about driving impairing medicines, which is slightly better than in the study of Smyth et al. (39). In the study of Kagashe and Saleman (30), about half of participants said that they had never been warned on the effects of medicines on

driving. Similar results were shown in a study done by Brooke et al. (40) where patients were not informed about their fitness to drive. Study by Laaksonen et al. (41) shown that patients want to be informed about their medications, the risks of their administration and adverse effects. So it is the responsibility of the pharmacist to attract the attention of the patient during the provision these medicines, to inform and educate them. (11). Dispensing support tools with information on the potential impairing effect of a medicine on the fitness to drive increases awareness, reported risk communication behavior as well as knowledge of pharmacists on this topic (42). Respondents mostly support the launch of educational campaigns in the written and electronic media about the negative impact of medicines on driving ability, with the aim of raising awareness of all categories of drivers on this topic. A systematic review done by Elder et al. (43) confirmed that mass media campaigns that are carefully planned, well executed, attain adequate audience exposure, and are implemented in conjunction with other ongoing prevention activities, are effective in reducing alcohol-impaired driving and alcohol-related crashes. Over one in five respondents didn't agree with fact that they shouldn't operate motor vehicles and machines if they feel physically or emotionally unable to drive. This is slightly better than in the study of Alonso et al. (3), where 37.5% decided to use the vehicle although they were not in perfect conditions to drive.

A statistically significant difference between professional drivers' knowledge scores were found in groups based on participants age, level of education, marital status, living area and city of living. Also, results shown difference in groups formed by length of driving experience, drivers' behavior (use of alcohol, narcotic drugs, inclination to traffic violations and accidents), the presence of chronic diseases, the use of driving impairing medicines and understanding the warning symbol on the outer package of medicines. Only country, sex, type of used narcotic drugs and types of chronic diseases as grouping factor did not show any difference in drivers' knowledge. This is similar with results of studies of Monteiro et al. (31) and MacLennan et al. (32), who also showed that drivers' knowledge depends on age and educational level. Studies of Okamura et al. (26) and Elayeh et al. (44) demonstrated that less knowledge about medication and road safety, were suggestive of higher likelihood of at-fault crash involvement.

About 10% of all participants use driving impairing medicines. More over the half (55%) among drivers who used prescribed therapy on daily basis have at least one, while 17,5% used two or more driving impairing medicines. These data support the fact that drivers are not sufficiently informed about the effects of medication on driving, which can negatively contribute to traffic safety. In the study Giroto et al. (25), with professional drivers, 72.9% and 18.6% used one and two drugs, respectively. In the study Smith et al. (39), 73.2% of respondents used some of the driving impairing medicines, and 56.1% used them in the previous year, while in the study Kelley-Baker et al. (14),

almost 20% of respondents used some of the driving impairing medicines in the previous two days, all of this was found in the general population of drivers. About 8% of all respondents and almost the half of respondents who used therapy every day has anxiolytic benzodiazepines, which is significantly more than in study by conducted Labat et al. in France (45), where only 0,4% used these medications and in study of Herrera-Gómez et al. (46), where 1,13% of drivers used these medicines every day. This is probably due to the excessive presence of benzodiazepines in therapy. Study done by Drummer and Yap showed a tendency for benzodiazepine-positive drivers to have an increased crash risk (47).

The limitation of the study

This study has the characteristic constraints that have cross-sectional studies. The questionnaire used in the study was not previously validated (validation of the questionnaires was performed during this study). Limitations of this study could be in the domain of interpreting the results. According to our knowledge, very few studies have attempted to address the drivers' knowledge and attitudes about the effects of medicines on the ability to drive and use machines, as well as the analysis of factors that influence the knowledge and the attitude of professional drivers, so adequate comparisons with other research is limited. One of the limitations of the study could be the sincerity of the participants during research and their random sampling for the research.

CONCLUSION

Driving under the influence of alcohol, narcotics and driving impairing medicines is an important risk factor for the safety of traffic, especially for professional drivers; however, their knowledge about this important issue is not satisfactory. The questionnaire developed in this study could help to identify drivers who are at increased risk for using potentially impairing medicines. Health professionals are in a position to ensure that patients fully understand the risk of impaired driving, to increase driver awareness of the negative effects of medicines on driving ability and by providing additional information to medicinal drug users may prevent driving under the influence of medicines.

CONFLICT OF INTEREST STATEMENT

We have no conflicts of interest to disclose.

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