Stress-inducing factors among occupational drivers in Karachi, Pakistan

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Abstract

Background: Work-related stress has become a global public health problem among occupational drivers. However, it is a highly neglected topic in the Pakistani population.

Aims: This study was conducted to identify the stress-inducing factors in occupational drivers in Karachi and to determine the relationship of stressors with sociodemographic and occupational factors among bus, minibus, rickshaw, taxi and private vehicle drivers.

Methods: A cross-sectional survey was conducted from February to October 2017 through a validated structured questionnaire. A total of 384 occupational drivers were recruited through non-probability quota sampling. Information on sociodemographic characteristics, medical history and stress-inducing factors in drivers was obtained. Statistical analysis was conducted using *SPSS*, version 21. The Chi-squared test was applied to see the association between categorical variables.

Results: Traffic jam was the most significant cause of stress (n = 377, 98.2%), followed by condition of the roads (n = 356, 92.7%) and the lights of other vehicles (n = 339, 88.3%).

Conclusion: Numerous stress-inducing factors are experienced by occupational drivers in Karachi. This could possibly result in decreased precision and judgment while driving resulting in increased number of accidents.

Keywords: occupational drivers, work-related stress, stress-inducing factors

Introduction

Stress is an adverse reaction, causes serious diseases and accelerates the biological aging process in humans (1). The effects of stress are not limited to physiological changes, it also affects mental and behavioural characteristics, including attitude, increased intolerance, eating pattern, quality of sleep, power of decision-making and memory and reduces a person's ability to perform at optimum levels (2,3). Stress at the work place has become a global public health problem and in comparison with other professions, absenteeism due to illness and rate of disability is higher among occupational drivers (4). The adverse health impact of driving may be due to the sedentary nature of the job, increasing the risk of noncommunicable diseases or as a result of lack of time for physical activity or other health promoting behaviours (5). Driving also acts as a cumulative chronic stressor contributing to negative health outcomes (6).

Among occupational drivers, work stress is directly correlated with driving stress, as a result of which they become dysfunctional and experience reduced efficiency, which is detrimental for their profession (7). Consequently, stress-inducing factors result in dangerous driving behaviour and road traffic accidents among professional drivers, which are associated with 50 million injuries per year worldwide, a considerable portion of global disability burden (8). In addition to work stress, sociodemographic factors, including personality traits, age and driving experience, also influence a driver's risky behaviour on the road (9,10). Recognizing different stress inducers among drivers is crucial as they result in different effects and require different strategies to counteract them (7).

In the setting of Karachi, which had a population of about 23.7 million in 2014, a total of 2.6 million vehicles were registered in 2011, and driving is considered to be a stressful occupation (11,12). However, there is scarcity of data evaluating the stressors among occupational drivers in Karachi. Unfavourable working environments have a definite impact not only on the work quality but also on the physical and mental health of occupational drivers and therefore it is crucial to identify stress-inducing factors in occupational drivers as the risk of having an accident increases under stressful condition (13,14).

The objectives of this study were to identify stress-inducing factors among occupational drivers (bus, minibus, rickshaw, taxi and private vehicle) in Karachi and to determine any correlation of stressors with sociodemographic and occupational factors among occupational drivers.

Methods

This cross-sectional study was conducted from February to October 2017 and included bus, minibus, rickshaw, taxi and private vehicle occupational drivers in Karachi. The drivers were selected through quota sampling technique which allowed comparison among stressors experienced by bus, rickshaw, taxi and private vehicle drivers. Four quotas were formed consisting of 96 occupational drivers in each quota, making a total sample size of 384 drivers; this was calculated using *OpenEpi* (at 50% anticipated frequency). Occupational drivers who were ≥ 18 years old and who drove vehicles as a part of their work for ≥ 6 hours daily and with ≥ 1 year of experience (irrespective of their vehicle ownership) were included. Drivers who refused to give informed consent or had any diagnosed mental illnesses or any history of psychological or emotional problems were excluded.

A self-administered questionnaire was used to collect detailed information on sociodemographic characteristics, medical history and stress-inducing factors. A Likert scale was used for checking the severity of the stressor (15). Questions were adapted and modified from relevant previous studies (16,17). For the face validity of the questionnaire, public health professionals were asked to review it. The questionnaire consisted of a total of 35 questions and took approximately 20–30 minutes to complete. Once the data were collected, they were verified by cross comparison of 10 randomly selected hard copies of the dataset with entered data.

Data were analysed using *SPSS*, version 21. Chi-squared and the Fisher exact test were used to assess the relationship between categorical variables and to check the correlation between socioeconomic variables and stress-inducing factors. The results were considered significant at $P < 0.05$.

Ethical approval was taken from the institutional review board of Jinnah Sindh Medical University, Karachi (approval letter no. JSMU/IRB/2015/-22). Before initiating the survey, we briefed the *munshi* (time keeper/focal person) who monitors the arrival and departure of buses at major bus stands/stops in detail to keep them informed regarding the purpose and objectives of the study. Informed consent (both verbal and written) was obtained from all participating drivers before administering the questionnaire, and participants were informed that they were free to withdraw their participation at any time during the study.

Results

A total of 384 occupational drivers completed the questionnaire. The mean age was 36.80 [standard deviation (SD) 10.74] years (Table 1); 220 (57.3%) of the drivers were ≤ 37 years old while 164 (42.7%) were > 37 years. The religion of 381 (99.2%) drivers was Islam; only 3 (0.8%) belonged to other religions. Among all the participants, 233 (60.7%) were able to read and write. The mean number of family members of the occupational drivers was 6.65 (SD 2.32); 253 (65.9%) with ≤ 7 family members and 131

Table 1 **Sociodemographic characteristics of the occupation drivers in the study sample (n = 384), Karachi, 2017**

Sociodemographic characteristics	No.	%
Age (years) (n = 384)	36.80 (0.74)[a]	
≤ 37	220	57.3
> 37	164	42.7
Religion (n = 384)		
Islam	381	99.2
Other	3	0.8
Education status (n = 384)		
No formal education	151	39.3
Formal education	233	60.7
No. household members (n = 384)	6.65 (2.32)[a]	
≤7	253	65.9
>7	131	34.1
Total monthly household income (PKR) (n = 384)	21507 (5552)[a]	
≤ 20 000	231	60.2
> 20 000	153	39.8
Mother language (n = 384)		
Urdu	158	41.1
Pushto	82	21.4
Punjabi	43	11.2
Hindko	50	13
Sindhi	24	6.3
Other	27	7
Any substance abuse (n = 384)		
Yes	259	67.4
No	125	32.6
Substance use (n = 259)		
Acacia catechu products	117	30.5
Quid (naswar)	73	19
Cigarettes	68	17.7
No. of packs (quids/cigarettes) per day (n = 261)	2.85 (2.55)[a]	
≤ 3	164	62.8
> 3	97	37.2
Occupation history (n = 384)		
Hours of driving per day	11.93 (2.38)[a]	
≤ 12	277	277
> 12	107	107
Years of driving		
≤ 13	164	62.8
> 13	97	37.2

[a]*Mean and standard deviation.*
PKR = Pakistani rupees.

(34.1%) had >7 family members. The mean total monthly household income of drivers was 21 507 (SD 5552) Pakistani rupees (Table 1).

Substance abuse was found in 259 (67.4%) occupational drivers; 117 (30.5%) used *Acacia catechu* products, 73 (19%) used quid (*naswar*) and 68 (17.7%) smoked cigarettes

(Table 1). The mean number of packs (quids/cigarette) used per day was 2.85 (SD 2.55); 97 drivers (37.2%) used > 3 packs per day.

The mean hours of driving per day was 11.93(SD 2.38) hours; 107 (27.9%) drove > 12 hours each day. The mean number of years participants had been driving was 12.87 (SD 8.75); 150 (39.1%) had > 13 years of driving experience (Table 1).

Traffic jam was the most common cause of stress among occupational drivers and was reported by 377 (98.2%) occupational drivers, followed by poor condition (potholes) of the roads in 356 (92.7%), lights of other vehicles in 339 (88.3%) and load shedding of compressed natural gas (CNG) in 327 (85.2%) (Table 2) Misbehaviour of passengers and slow passengers were reported as stress-inducers by only 32 (8.3%) and 29 (7.6%) occupational drivers, respectively (Table 2).

Stress was considered to be affecting the abrupt acceleration or deceleration of the vehicle by 212 (55.2%) occupational drivers, accidents by 263 (68.5%) and traffic jam by 199 (51.8%) (Table 3).

Total monthly income was the only factor statistically significantly associated with unsafe behaviour of other drivers in causing stress ($P < 0.001$) (Table 4) . On the other hand, mother language ($P = 0.002$) and any form of substance abuse ($P = 0.02$) were significantly associated with pressure of time as a stress-inducing factor. Only substance abuse (as a stress-inducing factor) was significantly associated with fear of accidents ($P < 0.001$).

Of the sociodemographic variables, only number of household members was significantly associated with misbehaviour of passengers in inducing stress ($P = 0.01$), and only age was significantly associated with traffic police or police as a cause of stress ($P = 0.02$). None of the sociodemographic characteristics were found to be associated with condition of roads and load shedding of CNG as a stress-inducing factor. Education status ($P = 0.042$) was the only factor significantly associated

with fear of cell phone or money snatching as a stress-inducing factor and none of the reported sociodemographic variables was found to be associated with lights of other vehicles, pollution or traffic jam as a stress-inducing factor (Table 4) .

Abrupt acceleration or deceleration due to stress ($P = 0.007$), aggressive driving ($P < 0.001$) and negative effect on performance ($P < 0.001$) were significantly associated with the type of vehicle being used and posed an impact of stress on the driving performance of occupational drivers (Table 5).

Discussion

Our findings clearly indicate that the most common cause of stress among occupational drivers is traffic jams, which is consistent with findings reported in earlier studies conducted in developing countries (18–20). The noteworthy increase in traffic congestion in Karachi is due to the rapid increase in the number of vehicles on the road, which ultimately resulted in increased traffic problems (21). This not only worsens the traffic condition but also adds to the huge increases in air pollution, noise pollution and overcrowding, and results in long periods of delay on the roads.

Another potential cause for the increased traffic congestion is that at many locations in Karachi a large volume of passengers, hawkers and stalls or handcarts have occupied the road spaces, making it difficult for traffic flow. In addition, double parking on the main roads in all the commercial areas has greatly increased the traffic problem (22). Although, the government has provided multistorey car parks, these fail to cover even

Table 3 Impact of stress on occupational drivers' performance (n = 384), Karachi, 2017

Impact of stress	No.	%
Abrupt acceleration or deceleration		
Yes	212	55.2
No	172	44.8
Cognitive failure		
Yes	186	48.4
No	198	51.6
Aggressive driving		
Yes	168	43.8
No	216	56.3
Traffic jam		
Yes	199	51.8
No	185	48.2
Accident		
Yes	263	68.5
No	121	31.5
Negative effect on performance		
Yes	171	44.5
No	213	55.5

Table 2 Factors contributing to stress among occupational drivers (n = 384), Karachi, 2017

Stress-inducing factors	No.	%
Unsafe behaviour of other drivers at road	234	60.9
Pressure of time	320	83.3
Fear of accidents	281	73.2
Slow passengers	29	7.6
Misbehaviour of passengers	32	8.3
Poor condition of road	356	92.7
Load shedding of CNG	327	85.2
Traffic police	281	73.2
Fear of cell phone or money snatching	278	72.4
Lights of others vehicle	339	88.3
Pollution	300	78.1
Traffic jam	377	98.2

CNG = compressed natural gas.

Table 4 Stress-inducing factors among occupational drivers and correlation with sociodemographic characteristics, Karachi, 2017

Characteristic	Unsafe behaviour of other drivers No. (%)	P	Pressure of time No. (%)	P	Fear of accidents No. (%)	P	Slow passengers No. (%)	P	Fear of cell phone or money snatching No. (%)	P	Lights of other vehicles No. (%)	P	Pollution No. (%)	P	Traffic jam No. (%)	P	Misbehaviour of passengers No. (%)	P	Poor condition of road No. (%)	P	Load shedding of compressed natural gas No. (%)	P	Traffic police No. (%)	P
Age, years (n = 384)																							
≤ 37	132 (60)	0.66	186 (84.5)	0.46	169 (76.8)	0.06	17 (7.7)	0.88	161 (73.2)	0.69	189 (85.9)	0.094	174 (79.1)	0.596	216 (98.2)	0.99	17 (7.7)	0.62	207 (94.1)	0.23	188 (85.5)	0.85	171 (77.7)	0.02
> 37	102 (62.2)		134 (81.7)		112 (68.3)		12 (7.3)		117 (71.3)		150 (91.5)		126 (76.8)		161 (98.2)		15 (9.1)		149 (90.9)		139 (84.8)		110 (67.1)	
Religion (n = 384)																							
Islam	232 (60.9)	0.84	318 (83.5)	0.44	279 (73.2)	0.8	27 (7.1)	< 0.001	276 (72.4)	0.82	336 (88.2)	0.526	297 (78)	0.358	374 (98.2)	0.81	31 (8.1)	0.12	353 (92.7)	0.63	324 (85)	0.47	280 (73.5)	0.12
Other	2 (66.7)		2 (66.7)		2 (66.7)		2 (66.7)		2 (66.7)		3 (100)		3 (100)		3 (100)		1 (33.3)		3 (100)		3 (100)		1 (33.3)	
Education status (n = 384)																							
None	92 (60.9)	1	127 (84.1)	0.74	113 (74.8)	0.56	8 (5.3)	0.18	118 (78.1)	0.04	135 (89.4)	0.582	114 (75.5)	0.316	148 (98)	0.85	12 (7.9)	0.83	138 (91.4)	0.42	127 (84.1)	0.64	111 (73.5)	0.91
Formal	142 (60.9)		193 (82.8)		168 (72.1)		21 (9)		160 (68.7)		204 (87.6)		186 (79.8)		229 (98.3)		20 (8.6)		218 (93.6)		200 (85.8)		170 (73)	
No. of household members (n = 384)																							
≤ 7	152 (60.1)	0.63	216 (85.4)	0.14	193 (76.3)	0.06	15 (5.9)	0.09	185 (73.1)	0.66	228 (90.1)	0.12	198 (78.3)	0.929	248 (98)	0.76	14 (5.5)	0.01	232 (91.7)	0.29	217 (85.8)	0.64	187 (73.9)	0.65
7	82 (62.6)		104 (79.4)		88 (67.2)		14 (10.7)		93 (71)		111 (84.7)		102 (77.9)		129 (98.5)		18 (13.7)		124 (94.7)		110 (84)		94 (71.8)	
Total monthly household income (PKR) (n = 384)																							
< 20 000	125 (54.1)	< 0.001	189 (81.8)	0.33	163 (70.6)	0.16	20 (8.7)	0.31	171 (74)	0.38	207 (89.6)	0.32	184 (79.7)	0.373	227 (98.3)	0.87	18 (7.8)	0.64	217 (93.9)	0.25	197 (85.3)	0.93	172 (74.5)	0.49
> 20 000	109 (71.2)		131 (85.6)		118 (77.1)		9 (5.9)		107 (69.9)		132 (86.3)		116 (75.8)		150 (98)		14 (9.2)		139 (90.8)		130 (85)		109 (71.2)	
Mother language (n = 384)																							
Urdu	86 (54.4)	0.1	116 (73.4)	0.002	111 (70.3)	0.8	13 (8.2)	0.97	113 (71.5)	0.88	142 (89.9)	0.745	122 (77.2)	0.303	154 (97.5)	0.46	11 (7)	0.2	141 (89.2)	0.3	129 (81.6)	0.16	112 (70.9)	0.81
Pushto	57 (69.5)		73 (89.0)		65 (79.3)		5 (6.1)		58 (70.7)		69 (84.1)		59 (72.0)		79 (96.3)		5 (6.1)		78 (95.1)		73 (89)		59 (72)	
Punjabi	24 (55.8)		38 (88.4)		31 (72.1)		4 (9.3)		31 (72.1)		37 (86)		37 (86.0)		43 (100.0)		3 (7.0)		40 (93)		37 (86)		31 (72.1)	
Hindko	34 (68.0)		46 (92.0)		36 (72.0)		4 (8)		39 (78.0)		44 (88.0)		42 (84.0)		50 (100.0)		7 (14.0)		47 (94.0)		43 (86.0)		38 (76)	
Sindhi	18 (75.0)		22 (91.7)		18 (75.0)		1 (4.2)		16 (66.7)		22 (91.7)		17 (70.8)		24 (100.0)		1 (4.2)		24 (100.0)		24 (100.0)		20 (83.3)	
Others	15 (55.6)		25 (92.6)		20 (74.1)		2 (7.4)		21 (77.8)		25 (93.6)		23 (85.2)		27 (100.0)		5 (18.5)		26 (96.3)		21 (77.8)		21 (77.8)	

Table 4 Stress-inducing factors among occupational drivers and correlation with sociodemographic characteristics, Karachi, 2017 *(Concluded)*

Characteristic	Unsafe behaviour of other drivers No. (%)	P	Pressure of time No. (%)	P	Fear of accidents No. (%)	P	Slow passengers No. (%)	P	Fear of cell phone or money snatching No. (%)	P	Lights of other vehicles No. (%)	P	Pollution No. (%)	P	Traffic jam No. (%)	P	Misbehaviour of passengers No. (%)	P	Poor condition of road No. (%)	P	Load shedding of compressed natural gas No. (%)	P	Traffic police No. (%)	P
Any substance abuse (n = 384)																							
Yes	156 (60.2)	0.68	224 (86.5)	0.02	202 (78)	< 0.001	21 (8.1)	0.55	185 (71.4)	0.54	232 (89.6)	0.256	201 (77.6)	0.723	255 (98.5)	0.56	25 (9.7)	0.18	243 (93.8)	0.23	224 (86.5)	0.29	189 (73)	0.9
No	78 (62.4)		96 (76.8)		79 (63.2)		8 (6.4)		93 (74.4)		107 (85.6)		99 (79.2)		122 (97.6)		7 (5.6)		113 (90.4)		103 (82.4)		92 (73.6)	
Packs (quids/cigarettes) use per day (n = 261)																							
≤ 3	101 (61.6)	0.65	141 (86)	0.71	129 (78.7)	0.8	14 (8.5)	0.71	119 (72.6)	0.67	144 (87.8)	0.202	123 (75)	0.16	162 (98.8)	0.59	17 (10.4)	0.57	155 (94.5)	0.57	143 (87.2)	0.71	123 (75)	0.39
3	57 (58.8)		85 (87.6)		75 (77.3)		7 (7.2)		68 (70.1)		90 (92.8)		80 (82.5)		95 (97.9)		8 (8.2)		90 (92.8)		83 (85.6)		68 (70.1)	

PKR = Pakistani rupees.

one fourth of the vehicles in a metropolitan city like Karachi (*23*). All these conditions create chaos on the roads of Karachi, and consequently result in traffic jams and stress among occupational drivers (*21*).

Additionally, a large number of occupational drivers reported poor condition of the roads, pressure of time, flashing of lights into the eyes by other vehicles and load shedding of CNG as factors that caused them stress. A similar study conducted among bus drivers in Bogotá, Colombia elucidated that adverse condition of roads can generate risky driving behaviours and can also be a considerable source of job strain (*24*). Although, more than half the respondents affirmed that fear of accidents was an important stress factor, the condition of roads was mentioned as a predominant stress-causing factor that ultimately led to psychological illness among occupational drivers.

Pressure of time and fear of accidents as stress-inducing factors were greater among those using any form of substance abuse. The respondents of this study reported using *gutka* (chewable tobacco) and cigarettes as a form of substance abuse; this may be because of the high levels of work-related psychosocial risk factors they face, as suggested in other studies (*25,26*). This further invites researchers to explore the pattern of coping strategies and chronic stress and substance abuse while driving among occupational drivers.

Many participants considered confrontation with traffic police as a substantial source of stress. Young drivers were more prone to be stressed while confronting traffic police as compared to older drivers. However, in contrast with our findings, 70% of Spanish drivers in another study responded that police supervision was effective in promoting road safety and law enforcement among drivers (*27*), implying that they did not consider it a stress factor while driving. In a developing country like Pakistan, it is alleged that the police are corrupt: they take informal payments (bribes) from drivers who break traffic rules and regulations (*21*); this may be one of the reasons police confrontation is a stress inducer for drivers. Therefore, it is crucially important to discourage such malpractices in Pakistan as parallel studies report that less-experienced drivers have a higher risk of road accidents (*28*).

Pressure of time was also considered a significant factor causing stress among occupational drivers during rush hours. This factor is more pronounced during traffic jams or due to the poor condition of the roads. Research has shown that time pressure has become a cultural phenomenon that goes beyond a personality factor (*29*). Moreover, to cope with this problem in a mega city such as Karachi, there is a dire need to build signal-free roads and flyovers so that traffic congestion can be reduced (*21*). However, it is essential to improve mobility across public spaces by ensuring traffic safety. Government-led comprehensive strategies to develop the city's public transport system seems to be a promising solution for the alarming traffic situation in the city.

Table 5 Comparison of type of vehicle used by occupational drivers with impact of stress on driving performance, Karachi, 2017

Impact of stress on driving performance	Bus No. (%)	Rickshaw No. (%)	Taxi No. (%)	Private vehicle No. (%)	Total No (%)	P
Abrupt acceleration or deceleration	45 (21)	66 (31)	55 (26)	46 (22)	212 (100)	0.007
Cognitive failure	44 (24)	52 (28)	48 (26)	42 (23)	186 (100)	0.496
Aggressive driving	44 (26)	65 (39)	31 (19)	28 (17)	168 (100)	< 0.001
Traffic jam	48 (24)	47 (24)	46 (23)	58 (29)	199 (100)	0.276
Accident	74 (28)	69 (26)	59 (22)	61 (23)	263 (100)	0.069
Negative effect on performance	34 (20)	63 (37)	32 (19)	42 (25)	171 (100)	< 0.001

In the current study, none of the occupational drivers reported that they had any disease or health problem in the previous 6 months, including any mental or psychological problems. Contrary to this, a study conducted among bus drivers in Mumbai, India, revealed that hypertension, musculoskeletal problems and gastrointestinal diseases were the results of occupational stress among the study population (30). The factors identified were primarily shift schedule, irregular timings of food intake, compromised nutrition, long hours of driving and traffic jams causing occupation-related stress (30).

In our study more than 50% of the respondents reported that the impact of stress led them to abrupt acceleration or deceleration and more than a quarter reported cognitive failure as an impact of stress on their driving performance. A study was conducted among drivers in Japan which aimed to educate them on controlling their emotions and to identify stressors that induce a negative reaction on their skills while driving, including abrupt acceleration or deceleration, aggressive driving and cognitive failure (17). The findings revealed that most of the drivers who were aged > 37 years tended to be less affected by such stressors as they were more experienced and could cope better with stressors and situations affecting their driving (17). In order to reduce road traffic accidents, work stress should be minimized as it is associated with abnormal driving behaviours and consequently causes physical and mental fatigue in drivers leading to a combination of problems such as lack of psychological alertness, poor decision-making and visual impairment.

Additionally, a study project conducted among Pan-Europeans found that behaviour of drivers, specifically deceleration, was mainly due to detecting danger on the road followed by hard braking that resulted in slowing of the vehicle (31). Thus, anxiety and stress play a major role defining the behaviour of drivers while driving. This anxiety can be reduced if educational programmes are introduced which focus on enhancing the skills of young drivers to allow them to acquire a balanced emotional state and to be better aware of changes in the driving environment.

Risky behaviour of experienced drivers while driving have been found to be a notable cause of road accidents and unnatural deaths. In a comparative study

conducted in Bogota, Columbia, errors while driving and traffic violations were correlated with risky behaviour among experienced drivers (28). Similar studies have reported that risky behaviour is directly proportional to an individual's attitudes, habits, behaviour and specific performance factors (20,24). In contrast to earlier studies, we found that only age was correlated with considering traffic police as a stress-inducing factor resulting in risky behaviour while driving. Some research has looked into interventions such as training opportunities to allow new or young, inexperienced drivers to learn how to detect and respond to potential hazards or stress inducers (32). The result of such interventions indicates that this skill is trainable and the learned knowledge can be transferred and applied to new or unseen driving environments.

In the present study, unsafe behaviours in other drivers was a source of stress among occupational drivers leading to road accidents and near miss incidents, which is consistent with the findings of a study conducted in Malaysia (33). However, the distance travelled per day by the study participants was also a prominent factor leading to unsafe driving attributes. Overall, certain characteristics of occupational drivers such as education status, religion and substance abuse were correlated with fear of accidents and the condition of roads as stress-inducing factors, but there seems to be a paucity in the literature on this and little attention has been paid to these issues in previous studies on occupational drivers. As a future strategy, systematic and comparative analysis should be employed for evidence aimed at policies designed for driving behaviours as well as for training purposes.

Caution is advised when interpreting our findings as we used a questionnaire-based, cross-sectional survey, which cannot further assess any temporal association between a risk factor and an outcome to determine the cause and effect relationship. Also, the study results cannot be generalized since nonprobability quota sampling was used; this limits the generalizability of the study findings as the participants were not randomly selected. Generalizability is also compromised because of the small sample size in relation to the thousands of professional drivers in Karachi. Lastly, the self-administered questionnaire can also be considered a limitation of this study as it requires a greater level of

literacy than an interview and at times the participants may have understood and interpreted the questions differently

Conclusion

The study highlighted the major stress-inducing factors which trigger risky driving behaviours among occupational drivers, increasing the likelihood of road accidents. Fortunately, all the identified stress-inducing factors identified in the current study are controllable and can be addressed with appropriate strategies and measures. If supported by further research, our findings can help develop policies to reduce stressors among occupational drivers and potentially contribute towards developing prevention strategies targeted at reducing road traffic clashes associated with stress in occupational drivers of Karachi.

Facteurs de stress chez les conducteurs professionnels à Karachi (Pakistan)

Résumé

Contexte : Le stress lié au travail est devenu un problème mondial de santé publique chez les conducteurs professionnels. Cependant, ce problème est amplement négligé dans la population pakistanaise.

Objectifs : La présente étude a été menée afin d'identifier les facteurs de stress chez les conducteurs professionnels à Karachi et de déterminer le lien entre les sources de stress et les facteurs sociodémographiques et professionnels chez les conducteurs de bus, minibus, pousse-pousse, taxi et véhicules privés.

Méthodes : Une étude transversale a été menée de février à octobre 2017 à l'aide d'un questionnaire structuré validé. Au total, 384 conducteurs ont été recrutés à l'aide d'un échantillonnage non aléatoire par quota. Les informations obtenues portaient sur les caractéristiques sociodémographiques, les antécédents médicaux et les facteurs de stress de ces derniers. Une analyse statistique a été réalisée à l'aide du logiciel SPSS 21. Le test du khi carré a été utilisé pour mettre en évidence l'association entre les variables catégorielles.

Résultats : La source de stress principale était les embouteillages (*n* = 377, 98,2 %), suivie par l'état des routes (*n* = 356, 92,7 %), puis par les feux des autres véhicules (*n* = 339, 88,3 %).

Conclusions : Les conducteurs professionnels à Karachi connaissent de nombreux facteurs de stress. Il peut en résulter une baisse de précision et de capacité à conduire, augmentant ainsi le nombre d'accidents.

العوامل المُسببة للإجهاد في صفوف السائقين المهنيين في كراتشي، باكستان

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الخلاصة

الخلفية: أصبح الإجهاد المرتبط بالعمل مشكلةً من مشكلات الصحة العامة على الصعيد العالمي بين السائقين المهنيين، غير أنه موضوع مهمل للغاية لدى السكان الباكستانيين.

الأهداف: هدفت هذه الدراسة إلى تحديد العوامل المُسببة للإجهاد لدى السائقين المهنيين في كراتشي، وتحديد علاقة عوامل الإجهاد بالعوامل الاجتماعية السكانية والمهنية في صفوف سائقي الحافلات والحافلات الصغيرة وعربات «الريكشا» وسيارات الأجرة والمركبات الخاصة.

طرق البحث: أُجري مسحٌ مقطعيٍ في الفترة من فبراير / شباط إلى أكتوبر/ تشرين الأول 2017 من خلال استبيان مُنظَّم مُتحقَّق منه. واختير ما مجموعه 384 سائقاً مهنياً من خلال أخذ عينات من الحصص غير الاحتمالية. وجُمعت معلومات عن الخصائص الاجتماعية السكانية والتاريخ المَرَضي والعوامل المُسببة للإجهاد لدى السائقين. واستُخدم الإصدار 21 من برنامج SPSS لإجراء التحليل الإحصائي. وأجري اختبار مربع كاي لمعرفة العلاقة بين المتغيرات الفئوية.

النتائج: كان الاختناق المروري السبب الأكثر أهمية للإجهاد (العدد = 377، 98.2٪)، يليه حالة الطرق (العدد = 356، 92.7٪) وأضواء المركبات الأخرى (العدد = 339، 88.3٪).

الاستنتاجات: يواجه السائقون المهنيون العديدَ من العوامل المُسببة للإجهاد في كراتشي. وقد يؤدي ذلك إلى انخفاض مستوى الإجادة والتقدير السليم أثناء القيادة مما يتسبب في زيادة عدد الحوادث.

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