

Speeding among Jordanian Drivers

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This peer-reviewed paper was first presented at the 2016 Australasian Road Safety Conference (ARSC2016) held in Canberra, ACT, Australia and first published in the ARSC2016 Proceedings as a 'Full Paper'. It underwent the full peer-review process by independent experts in the field. It is being reproduced here with the kind permission of the authors and is now only available in this edition of the JACRS.

Key Findings

- Jordanian male and female drivers reported speeding fines more than any other type of fines.
- Receiving speeding fines for males was found to be significantly associated with receiving other fines in general.
- Jordanian drivers chose to reduce their driving speed for safety reasons, yet they violate speed limits frequently and receive speeding fines

Abstract

Speeding is a well-known contributing factor to the severity and frequency of crashes in Jordan. Speed choice decisions among Jordanian drivers were studied using a self-reporting survey questionnaire. Descriptive statistics and logistic regression analysis were carried out in this study. The findings showed that almost half of surveyed drivers reported speeding. The most common reason for drivers deciding to reduce their speed was for safety. A regression analysis showed that previously receiving speeding fines for males appeared to have a significant association with receiving traffic fines in general. Speeding should be targeted through strict enforcement and legislation in Jordan. Gender-differentiated measures from the survey indicate males should be targeted for enforcement. Road safety policy-makers could consider adopting the Safe System Approach to address speeding issues in Jordan.

Keywords

Jordanian Drivers, Speeding, Driver Behaviour, Road Safety in Jordan, Traffic Law Enforcement, Gender and Road Safety.

Background

The issues associated with excessive speed and the consequences of speeding behaviour are of interest to researchers, law and decision makers, traffic police, and the community at large. Speeding is reported to be the number one road safety problem worldwide (OECD, 2006). Excessive speed leads to an increased frequency and severity of road crashes (Anastasopoulos & Mannering, 2016). The management of speed remains one of the biggest challenges facing road safety practitioners. The speed management manual published by the Global Road Safety Partnership (GRSP, 2008) aims to provide advice and guidance for policy-makers and road safety practitioners in low and middle-income countries (including Jordan) and to draw on the experience of a number of countries that have already initiated speed management programmes.

The relationship between speeding and road trauma in Jordan are well accepted (Abojaradeh & Jrew, 2013; Suliman & Awad, 2003). Pedestrians are the most affected group of road users as a result of excessive speeding. Al-Omari (2013) and Al-Omari, Bashar, Ghuzlan, and Hasan

(2013) reported that the majority of pedestrian crashes occurred on low speed roads (< 50km/h). Table 1 shows road casualties in Jordan compared to speed limits on those roads. Roads where the speed limit is between 40km/h and 60km/h indicate the highest percentages of casualties.

Most road safety studies carried out in Jordan mainly focus on crash data analysis that links crashes and injuries to the causes of crashes reported by traffic police in their official reports. This study uses data from a self-reported survey to investigate speeding among Jordanian drivers, to explore driver attitudes regarding speeding and whether speeding is significantly associated with crash involvement or receiving traffic fines.

Method

Participants

The final sample included 501 drivers. Drivers' ages ranged between 18 and 69 years with an average of 34.5 years.

Table 1. Casualties in Jordan by Speed Limit (Jordan Traffic Institute, 2014)

	Fatalities		Severe Injuries		Slight Injuries	
	Count	Percentage	Count	Percentage	Count	Percentage
10 (km/h)	1	0%	10	0%	60	0%
20 (km/h)	11	2%	6	0%	65	1%
30 (km/h)	13	2%	41	2%	263	2%
40 (km/h)	129	19%	580	28%	3820	30%
50 (km/h)	105	15%	345	17%	2422	19%
60 (km/h)	186	27%	507	25%	3444	27%
70 (km/h)	79	11%	174	8%	978	8%
80 (km/h)	84	12%	254	12%	1054	8%
90 (km/h)	36	5%	78	4%	256	2%
100 (km/h)	29	4%	45	2%	233	2%
110 (km/h)	15	2%	23	1%	129	1%
120 (km/h)	0	0%	0	0%	3	0%

The study sample reported driving an average of 99.42 km per day and being involved in an average of 0.81 crashes per year. Respondents reported receiving 2.56 traffic fines per year on average including 0.78 speeding fines. More details about mean of some of male and female drivers characteristics are shown in Table 2.

The proportions of male and female licensed drivers in Jordan are 72% and 28% respectively while the sample proportions in the study were 84% (393) male and 16% (74) female. The lack of detailed demographic information about each area covered makes it hard to find out whether the recruited volunteers were representative of the demographic that live in the area.

Procedure

A self-administered survey questionnaire was developed specifically by the authors to collect data from Jordanian drivers for this study. Printed copies of the questionnaire were distributed to potential respondents in Jordan personally by the lead author. The questionnaire was in Arabic. In some cases, the lead author administered the questionnaire himself but in most cases it was handed out by other recruited assistants. The assistants observed the local cultural and religious requirements pertaining to the place where they collected data and as per the ethics approval requirements from the University of New South Wales.

In this study, the convenience sampling method was used with no rules for choosing respondents or excluding them from participating (Al Reesi et al., 2013; Martinussen, 2013). Approaching potential respondents took place in public places and in places where drivers were relatively concentrated, such as bus and taxi stops, shopping centres, cafes, restaurants and market places. Such places were chosen due to the cultural and religious sensitivity (Magableh, Grzebieta, & Job, 2013; Miller, 2012). Researchers approached people of both genders in cities and rural areas regardless of their potential license type. Drivers of all age groups were approached in an effort to ensure the

sample covered a wide range of driver age. Researchers provided potential respondents as much time as they felt they required to complete the questionnaire after which the questionnaires were later collected in person.

All volunteers were assured of their anonymity and the confidentiality of their responses and were encouraged to answer to their best knowledge honestly and frankly. Respondents were encouraged to complete the questionnaire privately to avoid any influence of colleagues or other people around them in order to avoid social desirability bias (Nordfjærn, Jørgensen, & Rundmo, 2011).

Instruments and Measures

The questionnaire was developed using the well-known Manchester Driver Behaviour Questionnaire (DBQ) (Parker, Reason, Manstead, & Stradling, 1995; Reason, Campbell, Baxter, Stradling, & Manstead, 1990), but also contained an extended set of driving violations particularly relevant to Jordan. The extended set of questions was based on some cultural and behavioural considerations as well as observations and practices amongst Jordanian drivers. The questionnaire takes into account the characteristics of the people and the prevailing culture and traditions as well as the driving environment and contained many of the DBQ items but not all of them due to the difference in driving environments (Magableh et al., 2013). Many of the DBQ questions used in this study were re-worded or re-phrased to suit the driving environment in Jordan and to improve clarity. The survey covers basic demographic characteristics, driving habits, traffic law enforcement, attitudes and behaviours on road and the drivers' history of traffic violations and road crashes.

The questionnaire contained open-ended questions as well as closed-ended questions which included multiple choices ranking and Likert scale style questions. Minor modifications were made in order to make the questionnaire appropriate for the Jordanian driving environment (Davey, Freeman, & Wishart, 2008). Opinions of drivers in regards

Table 2. Mean of some of male and female drivers characteristics

	Males	Females
Age	35	32
Years of driving experience	12	6.3
Daily driven distance (km)	107	54
Fines in the past year	2.4	3.9
Crashes in the past five years	0.8	0.9
Speeding fines in the past year	0.7	1.1
Red light running fines in the past year	0.3	0.7
Seatbelt fines in the past year	0.4	0.9
Distraction fines in the last year	0.4	0.7
Hazardous lane deviation fines in the last year	0.3	0.6
Parking fines in the last year	0.4	0.6
Other fines in the last year	0.2	0.4

to speeding were explored in terms of factors influencing a driver's decision to speed, their reported speeding and perceptions about speeding.

Statistical Analysis

The logistic regression analysis process included categorising the dependent variable into a dichotomous (0: no incident and 1: incidents of one or more events). This analysis was evaluated at a significance level of $p < 0.05$. Univariate and multivariate linear regression analyses were carried out to determine the impacts of selected independent variables on the likelihood of crashing or receiving traffic fines. A backward eliminating method (Al Reesi et al., 2013) with a selected significance level of 0.2 was used to determine the factors that contributed to the outcome of interest at the univariate level and screen those to be included in the multivariate analysis. Variables were eliminated from the full model in an iterative process. The final model, which contained only independent variables that significantly contributed to the outcome was reached when no more variables could be eliminated (Bursac, Gauss, Williams, & Hosmer, 2008). All calculations in this study were performed using SAS 9.3 package (SAS, 2012)

The independent variables used included age, gender, exposure to driving (daily driven kilometres), education level, driving experience (years of driving), marital status, reported crashes, number of times stopped by Police (for an offence or security checks), reported different fines received, reported violations of traffic signs (e.g., stop signs), reported hazardous lane deviation and reported times

of being intimidated (annoyed or discommoded) by other drivers. Other independent variables used were the factors determined from the Principal Component Analysis (PCA).

Results

Received Traffic Fines

Using multiple-choice questions, respondents were asked about the numbers and types of traffic fines they received in the past year. Two out of five respondents (40%) reported receiving speeding fines, 27% parking fines, 25% seatbelt non-compliance fines, 21% using mobile phone while driving fines, 19% using the wrong lane when driving or passing fines, 18% red light running fines and 11% other fines (e.g., vehicle defect fine). In multiple-choice questions, the addition of percentages could be more than 100% because respondents had the option to choose more than one answer.

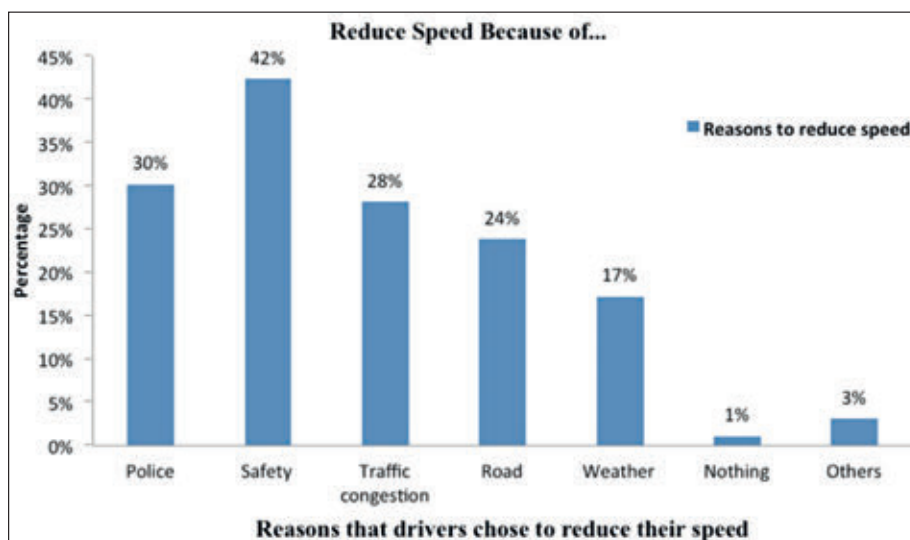


Figure 1 Reasons that drivers chose to reduce their speed



Figure 2 Reasons that drivers chose to arrive late to their destination

Factors Affect Driving Speed Decision

Using multiple-choice questions, drivers were asked about reasons that would make them reduce their speed. Safety considerations were rated the highest among drivers' choices as shown in Figure 1. Drivers were also asked whether they changed their driving speed when approaching Police or speeding cameras. Slightly less than two-thirds (64%) of drivers reported changing their reducing their speed when approaching Police or speed cameras. A majority (76%) of respondents supported the use of automated speed cameras.

Speed Limits

Drivers were asked for their opinions on the current speed limits on roads using multiple-choice questions. Only a minority of drivers (12%) supported an increase in speed limits. About one third of the drivers (32%) called for speed limits to be reviewed, 27% agreed with the current speed limit and 20% of drivers wanted speed limits to be decreased. About 7% of drivers were undecided (did not know).

Attitudes Towards Speeding

Drivers were also asked to rate the risk hazard presented by speeding committed by other drivers. On a four point scale, responses were very serious risk hazard (61%), serious risk hazard (30%), a minor risk hazard (7%) and not a risk hazard (2%).

Arriving Late to Destination

Drivers were also asked about the reasons that made them arrive late to their destination. Response choices included arriving late because of: traffic congestion, the existence of Police or cameras on the road, for safety reasons, were delayed for other reasons (e.g. fuelling their cars) or for other reasons (e.g., vehicle breakdown). Responses are shown in Figure 2. Traffic congestion and safety considerations were the most cited reasons that make drivers arrive late to their destination. Moreover, the survey revealed

that Jordanian drivers reported similar patterns of speeding with 50% of drivers indicating speeding less than 10km/h above the speed limit and 43% indicating speeding more than 10km/h above the speed limit.

The excuse for 'arriving late at a destination because of safety reasons' by 37% of drivers (Figure 2) is consistent with drivers' reason for reducing speeds by 42% of drivers voluntarily for safety considerations (Figure 1).

Logistic Regression

Logistic regression analysis was carried out to determine the factors that are significantly associated with receiving traffic fines. An initial

analysis showed that male and female drivers were affected differently by driving situations suggesting that the impact of various factors, including driving situations, on the outcome was modified by gender. Consequently, a logistic regression analysis was performed on data from surveyed male and female drivers separately even though this stratification was somewhat hindered by the smaller sample size of female drivers.

Receiving traffic fines for male drivers were significantly associated with previously receiving speeding fines, seatbelt non-compliance fines, hazardous lane deviation fines, parking fines, other fines and being involved in crashes. The crude odd ratios for receiving speeding fines for males was 24.78 (CI 11.99-51.4), $p < 0.01$. The adjusted odd ratios for receiving speeding fines for males was 21.12 (CI 8.38-53.23), $p < 0.01$.

Factors that were significantly associated with receiving traffic fines for female drivers were violating traffic signs, receiving seatbelt non-compliance fines and being stopped by Police. Receiving speeding fines for females was not found to be significantly associated with receiving other fines in general.

Finally, receiving speeding fines was not found to be significantly associated with crash involvement for either males or females.

Discussion

The results showed that speeding among Jordanian drivers seems to be common; almost half of the drivers reported speeding. Moreover, reported speeding fines were the highest percentage of all traffic fines received.

Several possible reasons could explain why Jordanian drivers chose to speed. The high percentages of speeding fines might reflect a practise of Police exclusively focussing on speed violations through targeted enforcement campaigns at the exclusion of other road safety enforcement programs such as for example seat belt wearing or use of mobile

phones while driving. This may be because of, for example, insufficient Policing resources. Speeding in Jordan is normally detected by automated speed cameras or by manual detection methods using Police patrols or unmarked Police vehicles. This approach might have resulted in increasing the probability of catching and fining violating drivers, which might explain the high number of speeding fines compared to other fine types.

Another reason could be that the respondents might believe that speeding was not a risky hazard to themselves nor to others (similar to what Suliman and Awad (2003) reported about Jordanian drivers). Drivers were reported to have a tendency to speed when they believe that the excess speed does not threaten safety (Manning, 2009). Another possible explanation might be that drivers were careless about the low probability of being caught and being fined (Porter, 2011), because of the less serious consequences (e.g., low fine value) (Al-Madani, 2004; Sjöberg, 2000; Sjöberg, Rundmo, & Moen, 2004) or when they try to use networking (nepotism) and to cancel fines after they have been issued (Magableh et al., 2013). It is also possible that time urgency might have led drivers to speed similar to what other researchers have reported (Fernandes, Job, & Hatfield, 2007; Hassan & Abdel-Aty, 2013; Lee, Prabhakar, & Job, 1993; Tasca, 2002). Another possible reason could be the lack of signage that show speed limits. Yet another reason for speeding among respondents might be related to authority-rebellion (as a reaction to enforcement decisions) as Fernandes et al. (2007) reported. Speeding drivers might also have more positive attitudes toward speeding and rule violations (Iversen & Rundmo, 2004).

Although almost half the drivers in the study reported speeding, the majority of respondents considered speeding by other drivers as a serious risk hazard. This is consistent with NHTSA (2004) study which reported that approximately two-thirds (68%) of American drivers felt that other speeding drivers pose a major threat to their personal safety. Moreover, Åberg, Larsen, Glad, and Beilinson (1997) and Haglund and Lars (2000) found that drivers overestimated other drivers' errors and traffic violations, such as speeding. This could be due to drivers' high self-image (Magableh et al., 2013) and their optimism bias (Chua & Job, 1999; Prabhakar, Lee, & Job, 1996).

The favouring of automated speed cameras by a majority (76%) of drivers might be attributed to several reasons. One reason could be drivers' awareness of the role that such cameras play in road safety. For example, speed cameras were found to have both short and long-term effects on road casualties and crashes (Elliott & Broughton, 2005; Pilkington & Kinra, 2005; Ryeng, 2012; Walter, Broughton, & Knowles, 2011). Automated speed enforcement had proven to be more efficient in reducing the number of crashes than manual speed enforcement (Porter, 2011; Zaidel, 2002). Speed cameras have also been proven to be an effective road safety countermeasure in Australia (Anderson, 2000), Kuwait (Aljassar, Ali, & Al-Anzi, 2004), the UK (Pilkington & Kinra, 2005) and the UAE (Bener & Alwash, 2002; El-Sadig, Nelson Norman, Lloyd, Romilly, & Bener, 2002).

Another reason for drivers' favour of automated speed cameras might reflect drivers' distrust in Police or in the ways they enforce the laws (Fernandes et al., 2007; Gaygisiz, 2010; Magableh, Grzebieta, & Job, 2015). A possible reason could be attributed to drivers' ability to avoid being fined by speed cameras by developing deceptive behaviours towards enforcement by changing their behaviour (e.g., speed) in the vicinity of Police or cameras and then resuming their normal behaviour in order to avoid being caught and fined (Al-Rukaibi, Ali, & Aljassar, 2006a, 2006b; Aljassar et al., 2004; Porter, 2011; Stanojevic, Jovanovic, & Lajunen, 2013). This is evident in this study as almost two-thirds of drivers reported adopting similar behaviour.

Drivers were found to mainly support a reduction or a review of speed limits rather than increasing them. This result is consistent with other research where about one-third of respondents supported lower speed limits (Lahaussé, van Nes, Fildes, & Keall, 2010). Speed limits depend on a number of factors including road geometry, driving conditions, traffic congestion density, fleet characteristics, drivers' skills and motives, crash rates and the possibility of the existence of either Police or speed cameras (Elvik, 2009). Many surveyed Jordanian drivers appeared to be aware of risks associated with high speed limits. One out of every five drivers (20%) proposed that speed limits be reduced and 32% that speed limits be reviewed because of incompatibility with one or more of the above factors or the behaviour of other road users (e.g., pedestrians) that make it difficult to drive at higher speeds. The minority (12%) of drivers who wanted to increase speed limits might have felt that these limits were used as traps to generate more revenue (Blais & Dupont, 2005) or believed that speed limits were assigned to roads a long time ago and needed to be updated according to the current fleet and road conditions. Drivers who desired higher speed limits might have thought that this will save time and increase traffic flow or they might not be fully aware of the factors that govern such speed limit decisions. However, increasing speed limits might not be always the answer to traffic congestion as it was reported that reducing speed limits may increase the traffic flow by reducing the spacing between vehicles (Nielsen, 2007).

Voluntary reduction of speed for safety (safety consideration) was found to be the strongest factor that resulted in reducing drivers' speed. Some drivers reported a cautious driving speed when driving in inclement weather conditions, traffic congestion or because of road conditions, which supports what Al-Balbissi (2003) reported about Jordanian drivers. The safety consideration was also evident when respondents reduce their average speed resulting in arriving late. This may reflect a sense of safety concerns among respondents.

In some cases, Jordanian drivers may be driving with excessive speed to keep up with the traffic flow rather than driving within speed limits (Åberg et al., 1997) or just acting similar to other drivers and following the traffic rhythm (Haglund & Lars, 2000). Moreover, drivers may be feeling that they cannot drive within the speed limit because of pressure from other drivers, i.e., other drivers demonstrate

aggressive behaviour when drivers drive according to formal rules rather than informal rules (Lawton, Parker, Stradling, & Manstead, 1997; Magableh, Grzebieta, Job, & Boufous, 2015). Yet another possible explanation could be that some drivers might think they have the driving skills (Reason et al., 1990) and abilities (high perceptual-motor skills but not necessarily safety skills (Özkan & Lajunen, 2006)) that infer they are “good drivers” (Fleiter, Watson, Lennon, King, & Shi, 2011; Sümer, Lajunen, & Özkan, 2005) and enable them to speed. Drivers might have also considered “safe” speeding to be low-level speeding or speeding in a safer driving environment (Austroads, 2013). They might have viewed themselves as “fast but safe” or “safe drivers” because of their high self-image (Magableh et al., 2013; Magableh, Grzebieta, Job, et al., 2015) and considered their excessive speed as not speeding so long as they are in control of the situation (Fleiter, Watson, Lennon, King, & Shi, 2009).

The significant association between receiving speeding fines and receiving other fines for male drivers could be attributed to a type of driver who is careless about complying with other traffic rules. Females do not have the same speeding tendency as their males counterparts due possibly to males’ masculine attitudes of gender superiority and the desire to maintain their self-image (Magableh, Grzebieta, Job, et al., 2015).

Speeding should be targeted through awareness campaigns about their consequences accompanied by strict laws and broad enforcement. Enforcement plays an important role in safety perceptions; being previously stopped for speeding was reported to be a significant factor in determining the speed above the speed limit (Mannering, 2009). In fact, a substantial increase in enforcement was reported to be a major contributor to speed reduction in Norway (Ryeng, 2012) and in reduced crash rates in Australia (Soole, Watson, & Fleiter, 2013) while in the absence of enforcement, drivers were found to speed (Stanojevic et al., 2013). Increasing penalties was viewed as an effective speeding countermeasure in Victoria, Australia (Austroads, 2013). Hössinger and Berger (2012) found that the frequency of speeding was reduced by increasing penalty and/or enforcement density (the probability of being caught and fined).

The findings of this study could help policy makers and campaigners in directing their resources efficiently. Awareness and education campaigns as well as enforcement campaigns could target those drivers with a greater risk of receiving traffic fines (due to their high likelihood of violating traffic laws) and choosing the right enforcement tool (e.g., speed cameras). New traffic rules that are based on scientific evidence can be introduced to address such violations as well.

The Safe System Approach (OECD, 2008) can be implemented in Jordan through design changes or through administrative controls such as reducing speed limits, enforcement and/or changing laws. These aspects of the Safe System Approach would be relevant to Jordan so that if funds are not available to comply with the Safe System

Approach requirements in terms of improving road or vehicle design, then laws could be changed and speed limits reduced and enforced until such time as funds for infrastructure improvements are made available (Mooren & Grzebieta, 2010).

Future studies could focus on the psychological, cultural and enforcement practices that influence speeding amongst Jordanian drivers. A systematic evaluation of the effect of speeding countermeasures on driver behaviour is needed to help identifying which measures and practices would be more feasible to implement in the short and long term.

Limitations

The strengths of the study were: the ease with which data was gathered; low cost; low or no researcher subjectivity; good statistical significance; and more importantly it was possible to collect sufficient data about driver attitudes, behaviour, perceptions and driving history to carry out a useful statistical analysis. However, the data were based solely on self-reported behaviours as no observations were made. Thus, this study suffers from the commonly reported limitations associated with measures of behaviours based upon self-reporting (Lajunen, Corry, Summala, & Hartley, 1998; Ulleberg, 2002). These include social desirability bias and recall bias which might reduce the reliability of the self-reporting questionnaires (af Wahlberg, 2010; Lajunen & Summala, 2003; Nordfjærn et al., 2011). However, self-reported driving behaviours are mostly considered a valid measure of actual driving behaviour (Åberg et al., 1997; Lajunen, 1997; Lawton et al., 1997; Prabhakar et al., 1996; Ulleberg, 2002; Walton, 1999; West, French, Kemp, & Elander, 1993). Previous research has found that observations of certain driving behaviours (e.g., speeding) were correlated with self-reported driving speed (West et al., 1993) justifying its usefulness (Ulleberg, 2002).

Conclusions

Respondents in this study were found to be inclined to speeding and to report more speeding fines than any other type of fines. Receiving speeding fines for females was not found to be significantly associated with receiving other fines in general whereas for males it was significantly associated with having previously received fines. This could mean less care about traffic rules as a result of inadequate enforcement or drivers are not concerned about the consequences resulting from violating such rules. Jordanian drivers need to be educated about speeding consequences, the factors that control the speed limit decision and the physical limits to the amount of deceleration the human body can tolerate in relation to collision speed as adopted in the Safe System Approach. Advertising and awareness campaigns that target psychological gender related determinants of traffic violations could be adopted by Jordanian authorities to reduce speeding among male drivers. The increase of a drivers’ perception of being caught and being fined in Jordan might enhance their compliance with traffic laws more than the increase in fine value. Strict laws and severe sanctions along with the utilisation

of religious teachings and cultural values, particularly in relation to family safety, could be implemented to address driver behaviours on Jordanian roads.

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Appendix A

The driver questionnaire (English translation of the Arabic version)

Section 1: Driving Habits

Please tick as many as applicable

Road safety is the responsibility of

1. Police
2. Drivers
3. Pedestrians
4. Government
5. Road designers and keepers
6. Passengers (seatbelt use)

I learned about traffic violations from

7. Friends
8. Driving training and tests
9. Awareness campaigns
10. When I get fines
11. Others (Please specify) _____

Current speed limits should be

12. Increased
13. Decreased
14. Reviewed
15. Stay the same
16. Don't know

Would you pay more for a car that has

17. Airbags or ABS system
18. Good sound system
19. Modern
20. Extra options
21. Better style

The best sanction for frequent traffic violators would be:

22. Verbal alert
23. Fines
24. License suspension
25. Imprisonment
26. License re-testing
27. Demerit points
28. Others (Please specify) _____

What makes you reduce your speed?

29. The existence of Police or cameras
30. To make the trip safer
31. The traffic movement
32. The road condition
33. The weather
34. None
35. Others (Please specify) _____

When I arrive late it is normally because

36. Of the traffic
37. Of the Police patrols and cameras
38. I drive slowly for safety
39. Someone or something made me late
40. Others (Please specify) _____

Drivers violate traffic law because they

41. Have Peer pressure
42. Just follow others
43. Are stubborn

- 44. Are not aware of the law
- 45. Forget to obey the law
- 46. Didn't see the signs
- 47. Were distracted (phone, music...ect)
- 48. Want to show their manhood
- 49. Want to get there sooner
- 50. Impaired by medicine, fatigue or tiredness
- 51. Are drunk
- 52. May get away with it
- 53. Others (please specify) _____

When violating traffic law, the main thing I am thinking of is:

- 54. My own convenience
- 55. Being caught/fined
- 56. Being afraid of potential danger
- 57. The disapproval of other drivers
- 58. To impress others
- 59. Being late or on time
- 60. Others (please specify) _____

Compared with the average driver, I am:

- 61. Much better than average
- 62. Better than average
- 63. Slightly better than average
- 64. Equal to average
- 65. Slightly worse than average
- 66. Worse than average
- 67. Much worse than average.

What do you think affects a Police officer's decision to fine a violating driver?

- 68. Driver's/owner's social hierarchy/authority
 - 69. Driver's/owner's personal network
 - 70. Driver's/owner's work organization
 - 71. Driver's way of treating the Police officer
 - 72. Mood of the Police officer
 - 73. Risk level of the violation
 - 74. The existence of other people (witnesses)
 - 75. Others (please specify)
- _____

Section 2: Driver's Self-assessment

How do you feel about the following people in regard to YOUR PERSONAL SAFETY on the road? , please tick **ONE** answer only

Note: four-Point Scale used (Very serious risk hazard, Serious risk hazard, A minor risk hazard and Not a risk hazard). Scale not shown below for clarity

Item
76. Drivers not paying attention
77. Drivers talking on cell phones
78. Drivers driving when sleepy or drowsy
79. Drivers driving aggressively
80. Drivers driving well over the speed limit
81. Pedestrians crossing from any place on road
82. Drivers who driver their cars on the wrong lane
83. Drivers who do not obey traffic signs
84. Drivers who tailgate and intimidate others

Section 3: Driver's attitude, behaviours and traffic enforcement

For the following questions, please provide answer based on your best judgment, please tick **ONE** answer only

Note: Six-Point Likert Scale used (Never, Hardly ever, Occasionally, Quite often, Frequently and Nearly all the time). Scale not shown below for clarity

Question
85. Police are selective in enforcing the law
86. Police are fair when dealing with different drivers
87. Police favour some drivers
88. Police explain why they stop me and give me a fine
89. Police talk to me nicely and treat me respectfully
90. I treat Police officer harshly when they fine me
91. I will try to make a deal with Police officer to avoid hefty fines
92. I drive at speeds a little above the speed limit (less than 10km/h above)
93. I speed well above (10km/h or more) the speed limit
94. I ensure that children are properly restrained in the backseat
95. When driving I wear a safety seat belt
96. I ensure that all occupants travelling wear seat belt
97. While driving I talk on mobile phone
98. While driving I send and read text messages
99. While driving I eat, smoke, or drink
100. I use driving as a way to release some of my anger

101. I find excuse for my own bad driving
102. I sound my horn to indicate my annoyance to another road user
103. I become angered by another driver and give chase or use signals and hands with the intention of giving him/her a piece of my mind
104. I use the right lane when driving or overtaking
105. I drive so close to the car in front that it would be difficult to stop in an emergency
106. I pull out of a junction so far that the driver with right of way has to stop and let me out
107. I drive with more passengers than allowed in my vehicle
108. Intending to drive to destination A, I “wake up” to find myself on the road to destination B or getting into the wrong lane
109. I try to race traffic lights
110. I concern of being caught and fined when violating
111. I do not watch for pedestrians
112. Get involved in unofficial ‘races’ with other drivers.

For the following questions, please provide answer based on your best judgment; please tick **ONE** answer only.

Note: five-Point Likert Scale used (Strongly agree, Agree, Neutral, Disagree, and Strongly disagree). Scale not shown below for clarity

Question
113. There should be a sanction for Police who abuse their authority
114. The current enforcement practices of traffic laws improve drivers’ behaviours
115. Traffic fines make driving safer
116. Improving licensing system will improve road safety
117. I would favour more speeding and traffic cameras
118. I would prefer cameras over Police patrols
119. Building and maintaining roads should be financed by traffic fines
120. I prefer a little longer trip that is safe over a short one that is risky
121. I would pay some little extra taxes for better roads and road signs
122. Pedestrians behaviours contribute to road crashes
123. I favour installing cameras in Police cars to record their activities
124. Social hierarchy and personal relations play a role in getting away with fines
125. Road signs are adequate and clear

126. Road surface is smooth with no bumps or potholes and easy to drive on
127. Religious and cultural forgiveness and tolerance values encourage reckless driving and crashes
128. Thinking about my family while driving makes me safer driver
129. Having my family with me in the vehicle makes me safer driver
130. Life and work pressures negatively affect my driving
131. Traffic jams are an acceptable reason to violate traffic laws
132. Family plays role in road safety
133. Traffic violations are against the religious teachings (i.e., haram)
134. Elimination of nepotism improves road safety
135. Only those have no influence get sanctioned
136. Traffic laws do not apply to people in authority
137. Having traffic tickets withdrawn is possible
138. I ignore impolite driving behaviours
139. Nepotism plays a role in getting a license
140. I drive differently if I know Police or cameras in this are
141. I think traffic law should be obeyed
142. I have aversion of certain type of drivers (Taxi, Females, old people, trucks, pickups, minibuses, etc.) I
143. forget to check my rear mirror before changing lanes
144. Over all, driving feels safer than it did five years ago
145. Severe fines are effective countermeasure to improve road safety

Section 4: Traffic fines and violations

Please answer the following table in regard to violations (**whether been fined or not**) and traffic fines

Question
146. How many times were you stopped by Police last year?
147. Times you have violated a U-turn, stop sign or give way in the past year
148. How many times in the past year have you driven on the wrong side of the road
149. How many times have you been intimidated by other drivers in the last month?
150. How many times were you fined last year?
151. The number of crashes you had in the last five years whether you were a driver or passenger (the crash is any event that cause fatality, injury or property damage)

How many of the fines below have you had in the past year:

Fine Type
Speeding fines
Red light fines
Seatbelt fines
Distraction fines (using mobile phone, eating, ..etc)
Driving on the wrong side of the road
Parking fines
Others (please specify) _____

Section 5: Demographic Information

152. Age
153. Gender <input type="checkbox"/> Male <input type="checkbox"/> Female
154. Marital status <input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widow <input type="checkbox"/> Divorce
155. Education Level
156. Years of driving experience
157. How many kilometres do you drive per day? Km
158. Would you like to add anything?

Investigation of Quad bike handling characteristics and their implications for on road use

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This peer-reviewed paper was first presented at the 2016 Australasian Road Safety Conference (ARSC2016) held in Canberra, ACT, Australia and first published in the ARSC2016 Proceedings as a 'Full Paper'. It underwent the full peer-review process by independent experts in the field. It is being reproduced here with the kind permission of the authors and is now only available in this edition of the JACRS.

Key Findings

- Quad bikes have a critical speed between 26 km/h and 35 km/h.
- Roadside structures such as traffic islands and kerbs can displace a seated rider from the quad bike and in one instance, resulted in the quad bike rolling over.

Abstract

Quad bikes or All-Terrain Vehicles (ATVs) continue to be a significant cause of serious injuries and fatalities in many countries. Of particular concern are injury incidents related to quad bike use on-roads. Results from the University of New South Wales (UNSW) Quad Bike Performance Project identified that most commercial quad bikes tested, demonstrated an oversteer steady-state handling characteristic. A mathematical relationship exists between a vehicle's oversteer characteristic and a 'critical speed' at which the quad bike is at risk of suddenly losing control. Theoretical analyses indicated that the critical speed for the tested quad bikes ranges between 26 km/h and 35 km/h. Computer simulations were also performed to determine whether quad bikes can safely interact with speed humps and roadside structures such as kerbs and traffic islands. The simulations indicated that quad bikes could traverse on-road speed humps without displacing the rider off the seat. However, traversing roadside structures such as a kerb or a pedestrian island, resulted in the displacement of the rider off the seat and in one instance a rollover. The results suggest that quad bikes are unsafe for on-road use where speed limits have been set to 50 km/h or more and where there are road features such as kerbs and traffic islands that need to be negotiated by the rider. In summary, quad bikes are vulnerable to the speeds and roadside structures found in the on-road environment.