Original Article :

Perception and Attitude of the General Population of Saudi Arabia Towards Texting While Driving

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Abstract

Background and Aims:
In order to assess the risk of texting while driving, the study looked at the distractions that affected how well drivers performed. Additionally, it aimed to assess Saudi Arabia's level of awareness, usage, and risk of cell phone use while driving, as well as any necessary safety measures.

Methods:
This study was a descriptive, community-based and cross-sectional study conducted in Saudi Arabia from March 2022- May 2022. Before answering the questionnaire, participants provided informed consent. There are no sensitive or private questions in the questionnaire, and their identities are kept strictly confidential.

Results:
In total, 1108 (76.3%) of the 1452 participants said they were texting while driving, while 344 (23.7%) said they were not. Texting while driving was deemed dangerous by 1000 (90.3%) of 1108 participants. 732 (66.1%) participants were aware of current local laws pertaining to texting while driving, while 376 (33.9%) were not. 666 (60.1%) participants agree that the modification of laws making it illegal to text while driving is acceptable.

Conclusions:
The vast majority of participants were familiar with the rules governing road safety. The new research backs up previous claims that texting affects how well a driver performs in a driving simulator. This is primarily for calling and reading/writing messages, and it is strongly associated with an increased risk of accidents. These findings imply the need for ongoing education and public service messages that emphasize the risks associated with this unsafe driving practice while minimizing the perceived benefits of the behavior.

Keywords:
Driving, Texting, Mobile phone.

Introduction

Road traffic accidents are the sixth-leading cause of death for children and adolescents, according to WHO's global burden of disease project's 2004 updates[1]. Using a mobile device while driving increases reaction time, making it harder for drivers to maintain proper lane positions, maintain appropriate speeds, and judge safe gaps in traffic[2]. Texting while driving is a very serious form of driver distraction that is constantly on the rise and contributes significantly to motor vehicle accidents and fatalities. The National Highway Traffic Safety Administration (NHTSA 2020 #2936) reports that distracted driving results in more than 2841 fatalities and more than 386,900 injuries annually in the United States $39.7 billion, or 16% of all economic costs from automobile accidents, were attributable to district driving in 20103. In 2017, 14 % of fatal crashes caused by distracted driving involved cell phone use[4].

About 3,092 people were killed in distraction crashes and 408 (13%) of those crashes involved at least one driver using a cell phone[5]. In a study done by Oviedoet et al on 484 drivers in Australia, it has been noted that cell phone usage while driving significantly increases the risk of an accident. (72%) of drivers believe that a crash caused by texting/browsing a cell phone is very likely, while (41%) believe that a voice call is very unlikely (handheld)[6]. In addition, 78% of accidents in Saudi Arabia were caused by cell phone use while driving[7].

Mobile phones have become more important in recent years, and people can use them both positively and negatively. Additionally, different countries have different rates of cell phone use while driving. For example, the United States (US) and United Arab Emirates (UAE) both have higher rates than the United Kingdom (UK) (21%) and Australia (39%)[6,8,9].

In order to more accurately predict and prevent texting while driving, more research must be done, even though some factors associated with the decision to text while driving have been clarified. A driving simulation study comparing drivers on the phone with those who had a blood alcohol level of 0.08% found that the performance deficits suffered by the distracted drivers were just as severe as those suffered by the drivers who were under the influence of alcohol[10]. Unavoidably, texting while driving raises the possibility of driver distraction, performance impairment, and collisions. Evaluation of knowledge, attitude, and practice can help us identify a way to reduce the prevalence of cell phone use while driving. Hence this study was carried out with an objective of assessing

the attitude and perception towards texting while driving among general population in Saudi Arabia.

Method

This cross-sectional community based descriptive study was carried out among general population of Saudi Arabia from March 2022- May 2022. Taking the prevalence of texting of driving as 75.05% from Randah et al[11], with 95% confidence interval and 2.5% relative error the sample size was calculated to be 1200. With non response rate of 10%, the final sample size was calculated as 1320. The pretested questionnaire was distributed online via multiple social media platforms. The data collection being online, sample was collected using convenience sampling. Participants aged 18-35 years receiving the online questionnaire were asked to fill the questionnaire. Participants aged below 18 years and more than 40 years were excluded from the study. Incomplete responses and those who did not give the consent were excluded from the study. Before the start of the study, a pilot study was carried out among 50 participants who were sent questionnaire online randomly.

The Cronbach's alpha was calculated was 0.7 which provides signifies the reliability of the questionnaire used. The questionnaire included a total of 23 questions with first section on demographic details and second section looked at mobile device usage patterns. Additionally, they were asked to list their preferred means of communication, such as talking on the phone, texting, emailing, map directions, internet sites and social messaging boards via a mobile device. The study revealed that in order to further stratify risk, it was necessary to ask questions about when the activities were performed in relation to vehicular motion or speed (motion, at standstill or both) in addition to questions addressing frequency of the activity over the previous driving (e.g. every time, most of the time, etc.). The survey also asked about people's dependence on mobile devices, such as whether they thought they were addicted to them and whether they used them to talk or text while driving.

Statistical analysis

The data were analyzed using Statistical Package for the Social Sciences (SPSS) version 25.0 software. Frequency and percentage were used to describe qualitative variables. The association between the frequencies of each socio-demographic characteristic and the levels of awareness, and attitude was performed using cross tabulation. Pearson chi-squared test, a p-value $\leq$ 0.05 was used to report the statistical significance.

Ethical clearance

Before answering the questionnaire, participants provided informed consent. There are no sensitive or private questions in the questionnaire, and their identities are kept strictly confidential. In addition, an IRB approval was taken from the IRB committee, Majmaah University with the reference no. MUREC-Jan 11/COM-2022/20.2 dated 15.1.2022

Results

Total 1452 participants were included in this study. Majority of the participants (44.9%) were from the age of 21-25 years, followed by 25.9% aged <=20. About one third of the participants had years of driving experience 6-10 years followed by 372 (25.6%) had 11-15 years, 362 (24.9%) had <=5 years and 258 (17.8%) had >15 shown in table 1. Among total 1452 participants 1108 (76.3%) answered yes texting while driving whereas 344 (23.7%) answered no texting while driving shown in Figure 1.

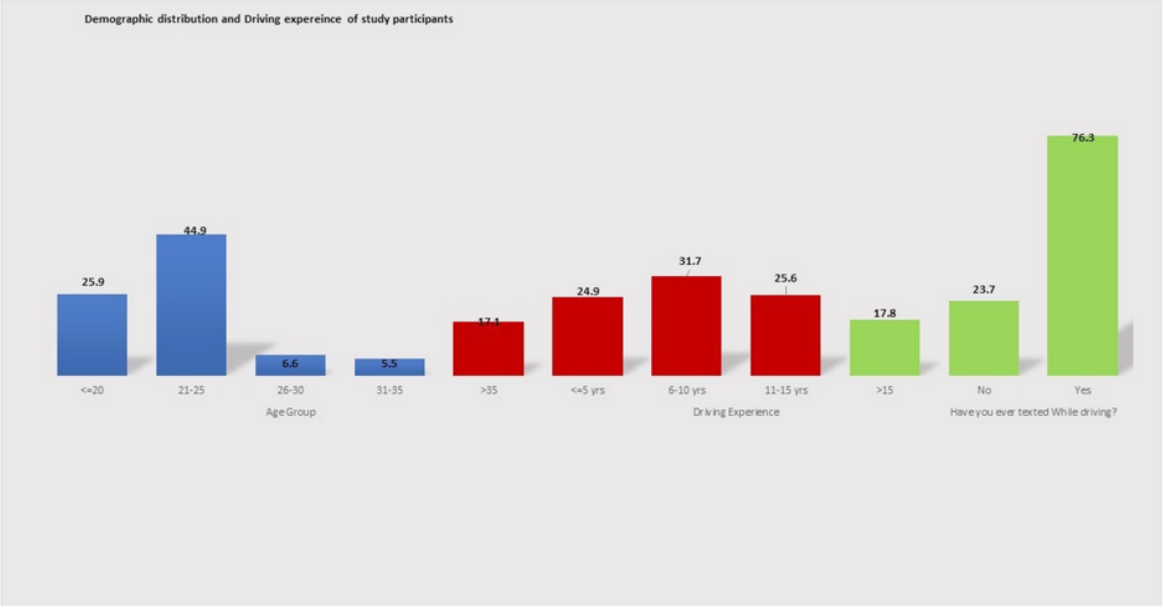


Figure 1: Demographic distribution and Driving experience of study participants

Most of the participants (46.2%) text sometimes while driving whereas only 14.4% text rarely while driving shown in table 1. 64 (5.8%) participants text while in the motion, 184 (16.6%) at standstill and 860 (77.6%) at both time text while driving.

About quarter of participants text only in an emergency and nearly half of participants text in emergency and other circumstances. 444 (40.1%) text while alone in the car, 64 (5.8%) text with other in the car and 600 (54.2%) text while alone or with other in the car.

Most of them (73.3%) participants accept

that their ability to drive was negatively affected, while very few (1.4%) accept their driving skill were neutral to drive. Among 1108 participants 1000 (90.3%) were think dangerous to text while you drive. 732 (66.1%) participants aware of current local laws and 376 (33.9%) were not aware of local laws pertaining to texting while driving. 666 (60.1%) participants accept that adaption of laws making it illegal abstain from texting while driving. (Table 1)

Table 1: Distribution of participants based on attitude on texting while driving

Factors	Frequency	Percent
How often do you text while driving on average?		
Every time	176	15.9
Most of the time	260	23.5
Sometimes	512	46.2
Rarely	160	14.4
At what moments do you text while driving in the car?		
While in motion	64	5.8
At a standstill	184	16.6
Both	860	77.6
While driving, you		
Texts to other peoples	36	3.2
Read texts from other Peoples	164	14.8
Both	908	81.9
What are the specific conditions in which you text while driving?		
An Emergency Only	268	24.2
Because you’re bored	212	19.1
To get directions	124	11.2
Because I feel like can’t wait	154	13.9
All of the Bove	532	48.0
You are most likely to text while		
Alone in the car	444	40.1
With somebody in the car	64	5.8
Both A & B	600	54.2
How do you think Texting while driving affects driving skills?		
Negatively	812	73.3
Positively	128	11.6
Not at all	152	13.7
Neutral	16	1.4
What emotion do you feel when you text while driving?		
Guilty	235	21.2
Worried	366	33.0
Invincible	89	8.0
Neutral	687	62.0

Factors	Frequency	Percent
Do you think it is dangerous to text while you drive?		
Yes	1000	90.3
No	104	9.4
Neutral	4	0.4
Have you or anyone you know ever		
Had a traffic violation that resulted in or almost resulted in a ticket because of texting while driving	320	28.9
Texting while driving has caused an accident	280	25.3
Texting while driving has almost caused an accident before.	238	21.5
None of the above	369	33.3
Are you aware of current local laws pertaining to texting while driving?		
Yes	732	66.1
No	376	33.9
What would it take to make you abstain from texting while driving?		
The adaption of law making it illegal	666	60.1
An accident	243	21.9
A Ticket	138	12.5
Different kinds of technology that will make it safer and easier to talk on the phone while driving.	251	22.7
Nothing will change my habit	284	25.6
Does not apply. I do not text and drive	58	5.2

Total 460 (31.7%) Participants of different age group had 6-10 years followed by 372 (25.6%) had 11-15 years, 362 (24.9%) had <=5 years and 258 (17.8%) had >15 years of experience shows significant association between texting while driving with p value <0.001. 1108 (76.3%) answered yes and (23.7%) answered no at different age group texting while driving also shown the significant association shown in table 2.

Table 2: Association between age and various factors

Factors	Categories	Age (in years)					Chi-Square, P-value
		<=20	21-25	26-30	31-35	>35	
Driving Experience	<=5 yrs	207 (59.5%)	147 (23.4%)	8 (7.1%)	0 (0.0%)	0 (0.0%)	1146.0, <0.001
	6-10 yrs	125 (35.9%)	293 (46.7%)	34 (30.4%)	0 (0.0%)	8 (2.7%)	
	11-15 yrs	12 (3.4%)	177 (28.2%)	62 (55.4%)	32 (47.1%)	89 (30.1%)	
	>15	4 (1.1%)	11 (1.8%)	8 (7.1%)	36 (52.9%)	199 (67.2%)	
Have you ever texted While driving?	No	48 (13.8%)	84 (13.4%)	56 (50.0%)	16 (23.5%)	140 (47.3%)	189.941, <0.001
	Yes	300 (86.2%)	544 (86.6%)	56 (50.0%)	52 (76.5%)	156 (52.7%)	

Factors	Categories	Age (in years)					Chi-Square, P-value
		<=20	21-25	26-30	31-35	>35	
If yes, how often do you text while driving on average?	Every time	76 (25.3%)	52 (9.6%)	8 (14.3%)	4 (7.7%)	36 (23.1%)	178.380, <0.001
	Most of the time	88 (29.3%)	148 (27.2%)	0 (0.0%)	8 (15.4%)	16 (10.3%)	
	Sometimes	116 (38.7%)	272 (50.0%)	48 (85.7%)	28 (53.8%)	48 (30.8%)	
	Rarely	20 (6.7%)	72 (13.2%)	0 (0.0%)	12 (23.1%)	56 (35.9%)	
At what moments do you text while driving in the car?	While in motion	16 (5.3%)	40 (7.4%)	0 (0.0%)	0 (0.0%)	8 (5.1%)	25.670, 0.001
	At a standstill	32 (10.7%)	104 (19.1%)	16 (28.6%)	8 (15.4%)	24 (15.4%)	
	Both	252 (84.0%)	400 (73.5%)	40 (71.4%)	44 (84.6%)	124 (79.5%)	
When in the car, you	Write texts to people	8 (2.7%)	4 (0.7%)	0 (0.0%)	16 (30.8%)	8 (5.1%)	164.386, <0.001
	Read texts from people	36 (12.0%)	96 (17.6%)	0 (0.0%)	0 (0.0%)	32 (20.5%)	
	Both	256 (85.3%)	444 (81.6%)	56 (100.0%)	36 (69.2%)	116 (74.4%)	
You are most likely to text while	Alone in the car	120 (40.0%)	212 (39.0%)	16 (28.6%)	28 (53.8%)	68 (43.6%)	44.539, <0.001
	With others in the car	0 (0.0%)	40 (7.4%)	8 (14.3%)	0 (0.0%)	16 (10.3%)	
	Both A and B	180 (60.0%)	292 (53.7%)	32 (57.1%)	24 (46.2%)	72 (46.2%)	
How do you think your ability to drive is affected when texting while driving?	Negatively	228 (76.0%)	416 (76.5%)	40 (71.4%)	16 (30.8%)	112 (71.8%)	83.664, <0.001
	Positively	28 (9.3%)	56 (10.3%)	8 (14.3%)	20 (38.5%)	16 (10.3%)	
	Not at all	44 (14.7%)	56 (10.3%)	8 (14.3%)	16 (30.8%)	28 (17.9%)	
	Neutral	0 (0.0%)	16 (2.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Do you think it is dangerous to text while you drive?	Yes	268 (89.3%)	520 (95.6%)	40 (71.4%)	36 (69.2%)	136 (87.2%)	137.052, <0.001
	No	32 (10.7%)	24 (4.4%)	16 (28.6%)	12 (23.1%)	20 (12.8%)	
	Neutral	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (7.7%)	0 (0.0%)	
Are you aware of current local laws pertaining to texting while driving ?	Yes	160 (53.3%)	356 (65.4%)	40 (71.4%)	48 (92.3%)	128 (82.1%)	56.260, <0.001
	No	140 (46.7%)	188 (34.6%)	16 (28.6%)	4 (7.7%)	28 (17.9%)	

Most likely to text while alone and with other in the car were significant association with p value <0.001. The relationship between texting while driving and the risk of accidents. 512 (46.2%) was answered sometimes, 260 (23.5%) answered most of the time 176 (15.9%) text every time while driving and 160 (14.4%) text rarely while driving so, there is a significant association between texting while driving and accident with p-value less than 0.05 as shown in table 3.

Table 3: Association between driving experience and various factors

Questions	Category	Driving Experience				Chi-Square, P-value
		<=5 yrs	6-10 yrs	11-15 yrs	>15	
Have you ever texted While driving?	No	69 (19.1%)	79 (17.2%)	84 (22.6%)	112 (43.4%)	70.849, <0.001
	Yes	293 (80.9%)	381 (82.8%)	288 (77.4%)	146 (56.6%)	
If yes, how often do you text while driving on average?	Every time	33 (11.3%)	79 (20.7%)	34 (11.8%)	30 (20.5%)	130.189, <0.001
	Most of the time	73 (24.9%)	108 (28.3%)	61 (21.2%)	18 (12.3%)	
	Sometimes	175 (59.7%)	164 (43.0%)	122 (42.4%)	51 (34.9%)	
	Rarely	12 (4.1%)	30 (7.9%)	71 (24.7%)	47 (32.2%)	
At what moments do you text while driving in the car?	While in motion	28 (9.6%)	22 (5.8%)	6 (2.1%)	8 (5.5%)	30.319, <0.001
	At a standstill	44 (15.0%)	48 (12.6%)	70 (24.3%)	22 (15.1%)	
	Both	221 (75.4%)	311 (81.6%)	212 (73.6%)	116 (79.5%)	
When in the car, you	Write texts to people	12 (4.1%)	0 (0.0%)	8 (2.8%)	16 (11.0%)	49.596, <0.001
	Read texts from people	40 (13.7%)	48 (12.6%)	46 (16.0%)	30 (20.5%)	
	Both	241 (82.3%)	333 (87.4%)	234 (81.3%)	100 (68.5%)	
You are most likely to text while	Alone in the car	102 (34.8%)	166 (43.6%)	118 (41.0%)	58 (39.7%)	19.356, 0.004
	With others in the car	16 (5.5%)	10 (2.6%)	26 (9.0%)	12 (8.2%)	
	Both A and B	175 (59.7%)	205 (53.8%)	144 (50.0%)	76 (52.1%)	

Questions	Category	Driving Experience				Chi-Square, P-value
		<=5 yrs	6-10 yrs	11-15 yrs	>15	
How do you think your ability to drive is affected when texting while driving?	Negatively	231 (78.8%)	269 (70.6%)	204 (70.8%)	108 (74.0%)	48.625, <0.001
	Positively	17 (5.8%)	55 (14.4%)	40 (13.9%)	16 (11.0%)	
	Not at all	45 (15.4%)	41 (10.8%)	44 (15.3%)	22 (15.1%)	
	Neutral	0 (0.0%)	16 (4.2%)	0 (0.0%)	0 (0.0%)	
Do you think it is dangerous to text while you drive?	Yes	275 (93.9%)	345 (90.6%)	254 (88.2%)	126 (86.3%)	18.705, 0.005
	No	18 (6.1%)	36 (9.4%)	30 (10.4%)	20 (13.7%)	
	Neutral	0 (0.0%)	0 (0.0%)	4 (1.4%)	0 (0.0%)	
Are you aware of current local laws pertaining to texting while driving?	Yes	154 (52.6%)	225 (59.1%)	230 (79.9%)	123 (84.2%)	78.166, <0.001
	No	139 (47.4%)	156 (40.9%)	58 (20.1%)	23 (15.8%)	

Discussion

One of the many types of driver distraction is reading or sending texts while operating a motor vehicle. Drivers become distracted and take their eyes off the road when they are texting, making it risky to text and drive. At a speed of 55 mph, driving for 5 seconds while texting is thought to be the minimum amount of time that a driver's attention is diverted from the road. This is equivalent to about a football's worth of distance. Using a cell phone to make or receive calls, using a hand-held mobile device to browse the internet or send and receive emails, using maps and navigation systems, using the car stereo, conversing with passengers, taking care of personal hygiene, eating, and drinking are all examples of additional forms of driver distraction [12].

In total, 1452 participants participated in the study, of whom 1108 (76.3%) said they texted while driving and 344 (23.7%) said they didn't. Using a cellphone while driving is more common in developed countries such as United states and European countries than the developing countries[8]. Although there are some nations with a lower prevalence, none of the Gulf states are among those with a prevalence below 50% in the majority of countries around the world [8,9,13].

In a cross-sectional study carried out in Queensland, reported that 484 drivers had responded to the questionnaire. According to age group, 50.2% of people

were between the ages of 26 and 65, and 49.8% were between the ages of 17 and 25 [6]. About 45% of drivers interviewed had located or answered the phone call, while 34% of respondents have texted while driving. In contrast, our study participants had relatively high percentage (89%) and 48% of respondents have reported to be answered a call or texted while driving respectively.

About 24.1% of participants in a study by Bergmark et al [14] reported writing text messages while driving slowly or in stop-and-go traffic. Additionally, reading texts while driving was more prevalent; 71.5% of respondents admitted to doing so (29.% rarely, 27.2% occasionally, 13.2 frequently, and 2.2% always). 12.7% of people read text messages as opposed to writing them, 15.6% do so at slow speeds, and 10.1% are stuck in stop-and-go traffic. Similar to the observation of this study.

According to Delgado M et al[15], 97% of teenagers are aware that texting while driving is dangerous. However, they continue to talk on their cell phones, text, and use social media apps while driving. Similar findings were reported by Parr et al[16].

Our study has some limitations. First, only males between 18 to 40 years were included in the study which limits the generalizability of our work. Second, a self-administered questionnaire was used to conduct the study as an online survey which can be source of selection bias.

Conclusion

The vast majority of participants were familiar with the rules governing road safety. The new research backs up previous claims that texting affects how well a driver performs in a driving simulator. Driving while on a cell phone is a widespread issue throughout the country, with the central region having the highest prevalence. This is primarily for calling and reading/writing messages, and it is strongly associated with an increased risk of accidents. The current study also demonstrates that the dangers of texting while driving are actually greater for older drivers who are experienced texters.

Based on the findings of our study, we need to steer up the awareness efforts that highlight the dangers of using a phone while driving. Community campaigns emphasizing technology-related advice during these campaigns, such as turning off cellular data, using Bluetooth, using newer handsfree driving newer android applications like TXT shield and AT&T drivemode or putting their phones in airplane mode while driving. The general population should also be discouraged from using cell phones while driving by tough law enforcement and the penalties imposed on

those who break the law.

Conflict of Interest

The author declares that there is no conflict of interest.

Financial support

The author declares that there is no financial support has been sought/received to carry out this study

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