Comparison of Knowledge, Attitude and Practice Regarding Usage of Mobiles During Driving amongst Medical and Engineering Students Aged 18-21 Years in Bengaluru North

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Abstract

WHO categorizes driver distraction like mobile usage as an important risk factor for road crash injuries, as driver's reaction time increases causing difficulty in: maintaining correct positions in their lanes, maintaining appropriate speeds and judging safe gaps in traffic.

Descriptive study with objective of assessing knowledge, attitude and practices regarding mobile usage while driving amongst medical and engineering students aged 18-21 years was carried out using proforma after taking consent.

During driving, most of medical (61%, 79%) & engineering (60%, 69%) students called & received calls; 55% & 60% knew it is distracted driving & only 43% & 46% always considered it as punishable respectively. 42% & 30% read and 34% & 18% texted message; 53% & 26% used social media (WhatsApp, Facebook etc); most viewed maps/directions on their phone and felt that pedestrians using mobile are prone for accidents. Although 87% & 88% would advice others, only 52% & 55% would restrain mobile usage during driving respectively.

This study suggest for improving on-ground situation through formal education to bring about moral responsibility amongst youth and propose automatic electronic system in vehicles for early detection of this globally identified risk factor.

Keywords: *Mobile; Distracted driving; Medical; Engineering.*

Introduction

India accounts for over 10% of global road crash fatalities while it has just 1% of world's vehicles. In a decade, India lost 1.3 million people to road crash & another 5.3 million were disabled for life.[1] Road accidents kill 17 people every hour in India and yet, drivers fail to give up risky habits. WHO categorizes driver distraction as an important risk factor for road crash injuries. Distracted driving refers to the act of driving while engaging in other activities which distract the driver's attention away from the road. The type of distracted driving includes the usage of mobile phone, eating and drinking conversation with co-passengers, self grooming, reading or watching videos, adjusting the radio or the music player and even using a GPS system for navigating locations. Amongst these, mobile phone usage is said to be most distracting factor.[2] Young adults

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have been found to higher rates of texting and driving than older drivers.[3]

Distractions are shown to compromise the safety of driver, passengers, pedestrians and people in other vehicles. Researchers have shown that the reaction time of drivers increases by 0.5 to 1.5 seconds when they are talking on handheld phones, and drivers have difficulty maintaining the correct positions in their lanes, maintaining appropriate speeds and judging and accepting safe gaps in traffic.[4] Despite the high risks associated with distracted driving; there is little knowledge about its extent and nature in India. While distracted driving includes any activities that take eyes or attention away from driving, there has been particular and intense interest on texting and other Smartphone-associated distraction as smart phones have become widely available over the past 10 years.[5]

Aims and Objectives::

1. To assess the knowledge, attitude and practice regarding distracted driving amongst engineering and medical students.
2. To compare and analyze knowledge, attitude and practice regarding distracted driving amongst engineering and medical students.

Materials and Method

Type of Study: Descriptive cross sectional study

Source of Data: Undergraduate medical and engineering students of Bengaluru north.

Method of Collection of Data: Students were explained about nature and purpose of study, their consent was taken after assuring them full confidentiality and requested to fill questionnaires which was distributed in classrooms just after completion of classes.

The collected data was analyzed using descriptive and analytical statistics.

Inclusion Criteria: All engineering and medical students aged 18-21 years, willing to participate in study.

Exclusion Criteria: Students who did not give consent to participate and those who don't drive vehicles.

Sampling Method: Purposive sampling

Sample Size: 174 medical students and 174 engineering students of Bengaluru north.

Study Duration: 2 months.

Prior ethical clearance was obtained.

Results

From prospective recording of students aged 18-21 years over a period of 2 months, 174 students each from engineering and medical colleges were eligible.

Amongst 174 students; 114 were females and 60 were males.

Out of 174 medical students, 105 (60%) medical students thought that they can never safely text and drive [**Table 1**], females (65%) more than males (52%) [**Fig 1**];thus, 59 students (36%) texted message while driving; more males (37%) texted than females (32%); and 73 students (42%) read text message while driving; more males (53%) read message than females (36%) [**Fig 3**]. Most of medical students (61%) called while driving, males (75%) morethan females (54%); and 79% received calls while driving, males (90%) more than females (74%) [**Fig 5**].

96 medical students (55%) knew that mobile usage during driving was considered always as distracted driving (60% males & 53% females) but only 75 medical students (43%) always considered it as punishable (43% both in males & females) [**Fig 4**]. 92 students (53%) read message or viewed information on social media apps (Whatsapp, Facebook,Twitter, Snapchat,etc) while driving; wherein all male students (100%) used social media compared to female students (28%). Almost all (94%) viewed maps or directions on phone while driving; more males (98%) than females (91%) [**Fig 6**]. All females (100%) & maximum (99%) male medical students felt that pedestrians using mobile phone are at risk and can cause accidents. Although most of them (87%) advised others to neveruse mobile phone during driving (89% females & 82% males); only 52% always restrained themself/family/friends from using mobile phone during driving (55% females & 47% males) [**Fig 2**].

Out of 174 engineering students, 121 (70%) engineering students thought that they can never safely text and drive [**Table 1**], females (74%) more than males (62%)[**Fig 1**]; thus, 32 students (18%) texted message while driving; more males (25%) texted than females (15%); and 53 students (30%) read text message while driving; more males (42%) read message than females

(24%) [**Fig 3**]. Most of engineering students (60%) called while driving, males (70%) more than females (52%);and 69% received calls while driving; males (78%) more than females (65%) [**Fig 5**].

104 engineering students (60%) knew that mobile usage during driving was considered always as distracted driving (63% males & 58% females) but only 80 engineering students (46%) always considered it as punishable (50% in males & 44%in females) [**Fig 4**]. 128 engineering students (74%) never read message or viewed information on social media apps (Whatsapp, Facebook,Twitter, Snapchat,etc) while driving; nevertheless male students (34%) used social media quite often compared to female students (23%). Almost all (89%) viewed maps or directions on phone while driving; more males (92%) than females (87%) [**Fig 6**]. Almost maximum female (99%) & male (97%) engineering students felt that pedestrians using mobile phone are at risk and can cause accidents. Although most of them (88%) advised others to neveruse mobile phone during driving(90% females & 85% males); only 55% always restrained themself/family/friends from using mobile phone during driving (57% females & 52% males) [**Fig 2**].

Table.1: Comparison of responses to questions regarding knowledge, attitude & practices of mobile usage during driving amongst medical & engineering students

Profession	**Medical**					**Engineering**				
Questions:	**Always**	**Most of time**	**Some times**	**Rarely**	**Never**	**Always**	**Most of time**	**Some times**	**Rarely**	**Never**
Do you think that you can safely text and drive?	3(2%)	8(4%)	24(14%)	34(20%)	105(60%)	7(4%)	6(3%)	15(9%)	25(14%)	121(70%)
Do you read text messages while driving?	3(2%)	4(2%)	23(13%)	43(25%)	101(58%)		2(1%)	13(8%)	37(21%)	122(70%)
Do you read e-mail while driving?			5(3%)	25(14%)	144(83%)		1(1%)	10(6%)	10(6%)	153(87%)
Do you view maps or directions on your phone while driving?	2(1%)	41(24%)	80(46%)	40(23%)	11(6%)	5(3%)	27(16%)	79(45%)	43(25%)	20(11%)
As a driver, do you feel that pedestrians using mobile phone are at risk and can cause accidents?	53(30%)	82(47%)	35(20%)	3(2%)	1(1%)	49(28%)	65(37%)	47(27%)	10(6%)	3(2%)
Do you text messages while driving?	2(1%)	2(1%)	15(9%)	40(23%)	115(66%)			3(2%)	29(16%)	142(82%)
Do you call while driving?	4(2%)	6(3%)	45(26%)	52(30%)	67(39%)		3(2%)	36(20%)	66(38%)	69(40%)
Do you receive calls while driving?	7(4%)	9(5%)	68(39%)	54(31%)	36(21%)	4(2%)	13(7%)	48(28%)	56(32%)	53(31%)
Do you read message or view information on social media apps while driving? (WhatsApp, Facebook,Twitter, Snapchat,etc)	3(2%)	34(19%)	22(13%)	33(19%)	82(47%)	1(1%)	1(1%)	13(7%)	31(17%)	128(74%)
Do you think usage of mobile phone during driving is considered as distracted driving?	96(55%)	59(34%)	10(6%)	3(2%)	6(3%)	104(60%)	43(24%)	19(11%)	3(2%)	5(3%)
Do you think usage of mobile phones during driving is punishable?	75(43%)	63(36%)	29(17%)	2(1%)	5(3%)	80(46%)	49(28%)	30(17%)	10(6%)	5(3%)
Do you advice others to use mobile phone during driving?	1(1%)	3(2%)	7(4%)	12(6%)	151(87%)	5(3%)	3(2%)	4(2%)	8(5%)	154(88%)
Do you restrain yourself/family/ friends from using mobile phones during driving?	91(52%)	50(29%)	18(11%)	6(3%)	9(5%)	96(55%)	38(22%)	19(11%)	10(6%)	11(6%)
Total										**174**

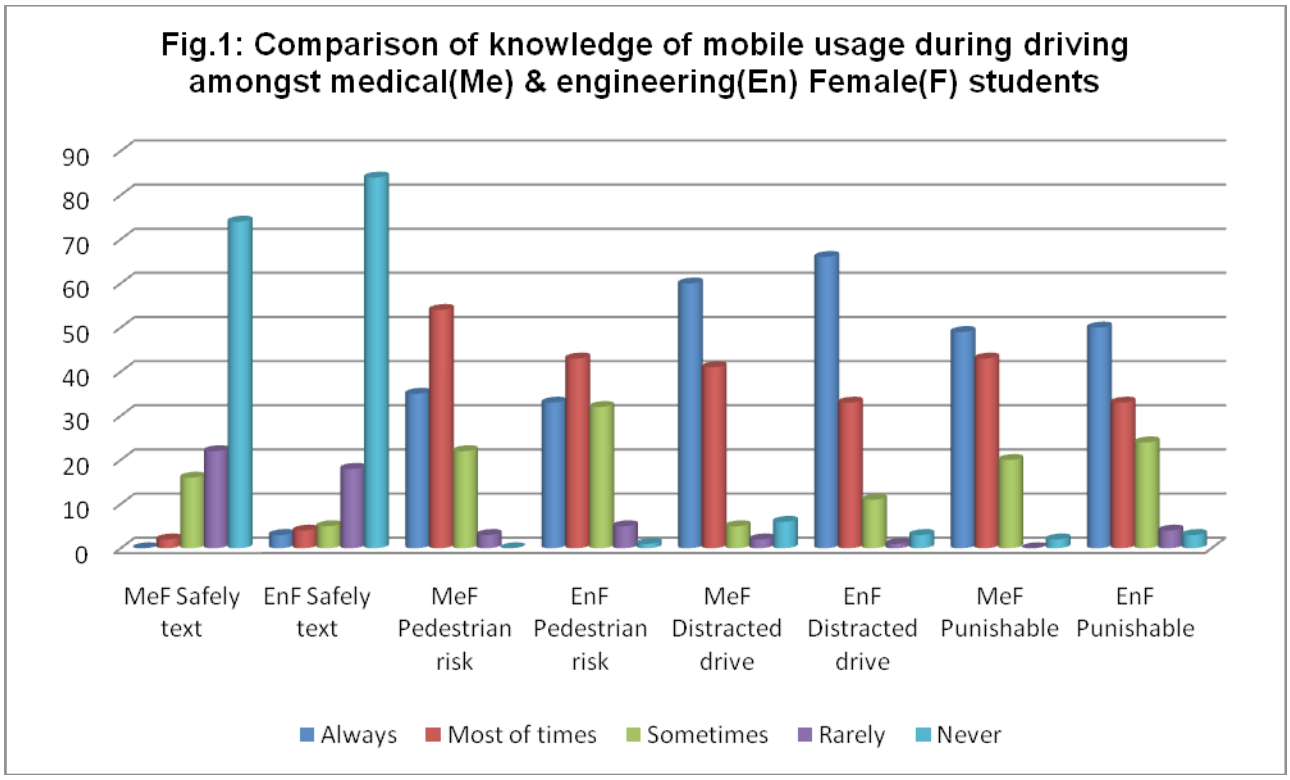


Fig.1: Comparison of knowledge of mobile usage during driving amongst medical(Me) & engineering(En) Female(F) students
90
80
70
60
50
40
30
20
10
0
MeF Safely text
EnF Safely text
MeF Pedestrian risk
EnF Pedestrian risk
MeF Distracted drive
EnF Distracted drive
MeF Punishable
EnF Punishable
Always
Most of times
Sometimes
Rarely
Never

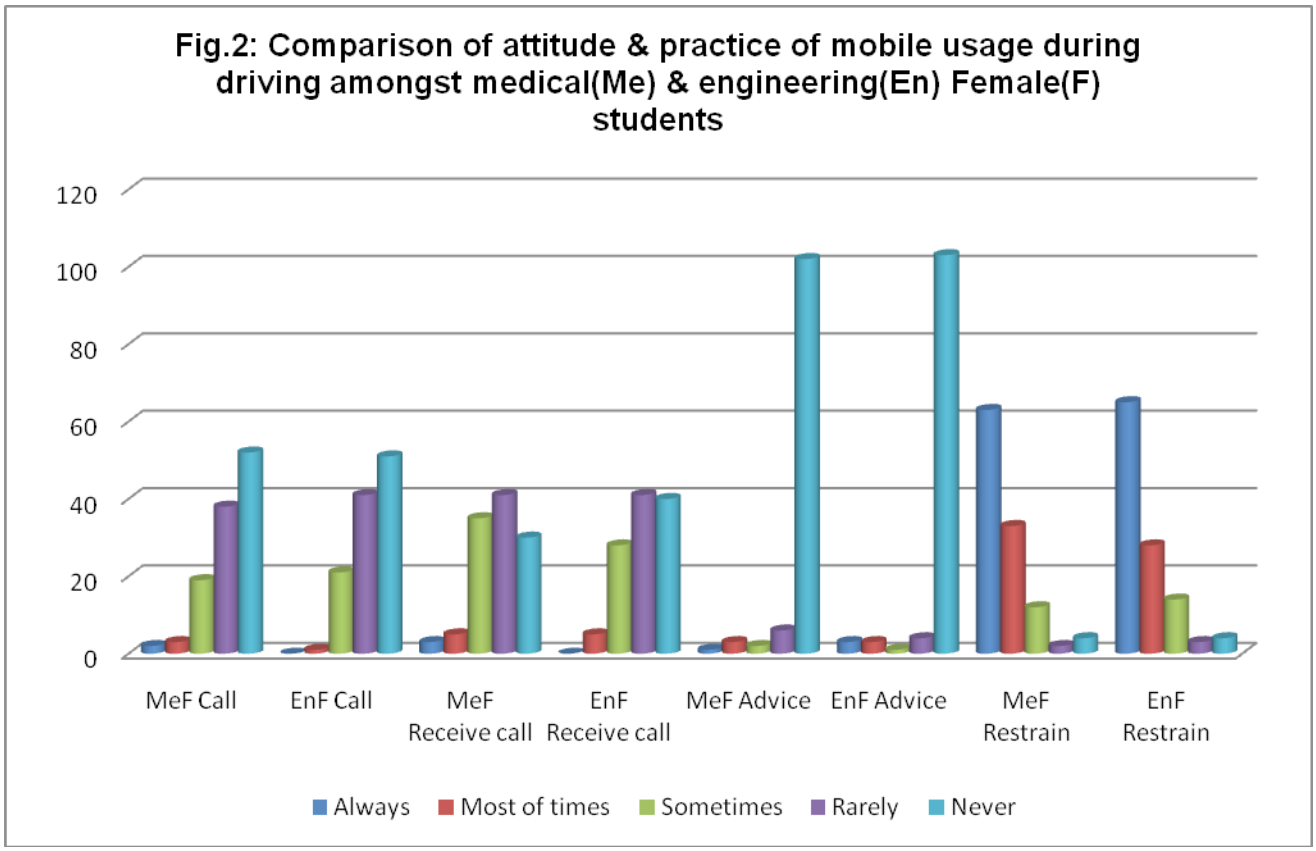


Fig.2: Comparison of attitude & practice of mobile usage during driving amongst medical(Me) & engineering(En) Female(F) students
120
100
80
60
40
20
0
MeF Call
EnF Call
MeF Receive call
EnF Receive call
MeF Advice
EnF Advice
MeF Restrain
EnF Restrain
Always
Most of times
Sometimes
Rarely
Never

Fig.3: Comparison of practice of mobile usage during driving amongst medical(Me) & engineering(En) Female(F) students

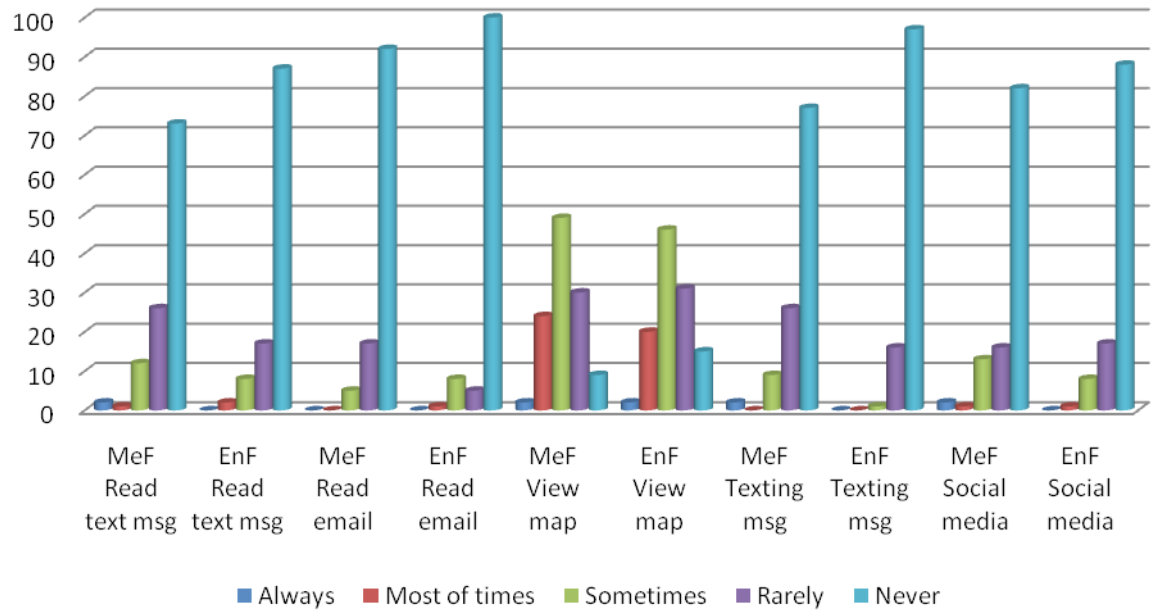
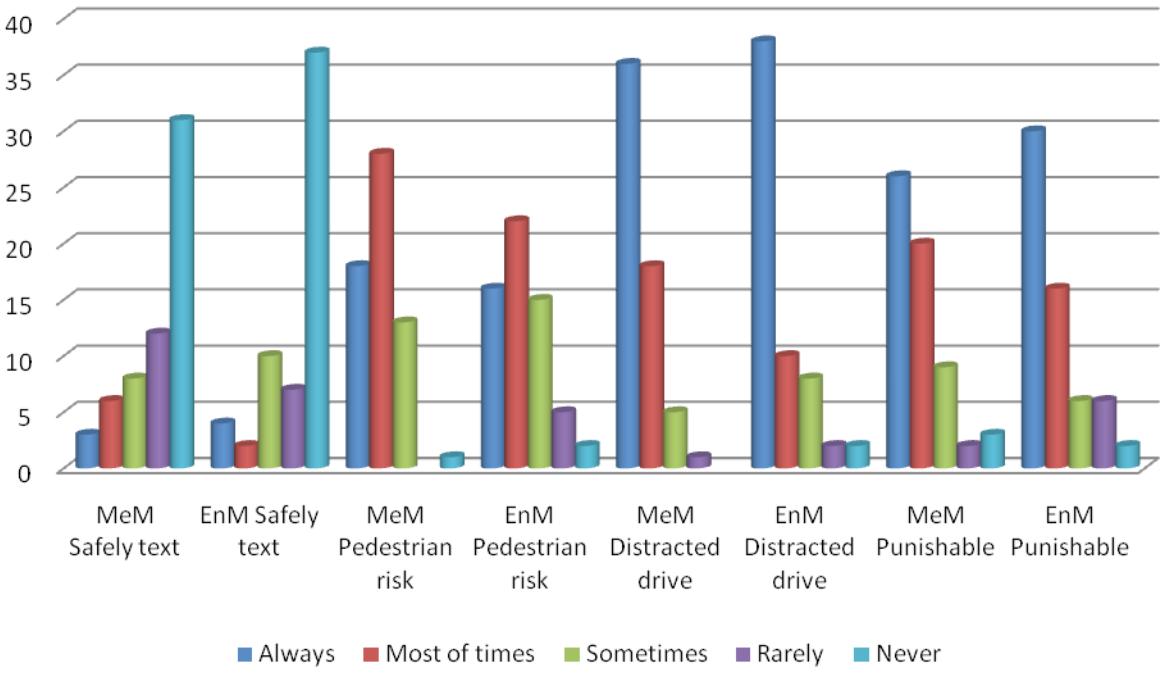


Fig.4: Comparison of knowledge of mobile usage during driving amongst medical(Me) & engineering(En) Male(M) students



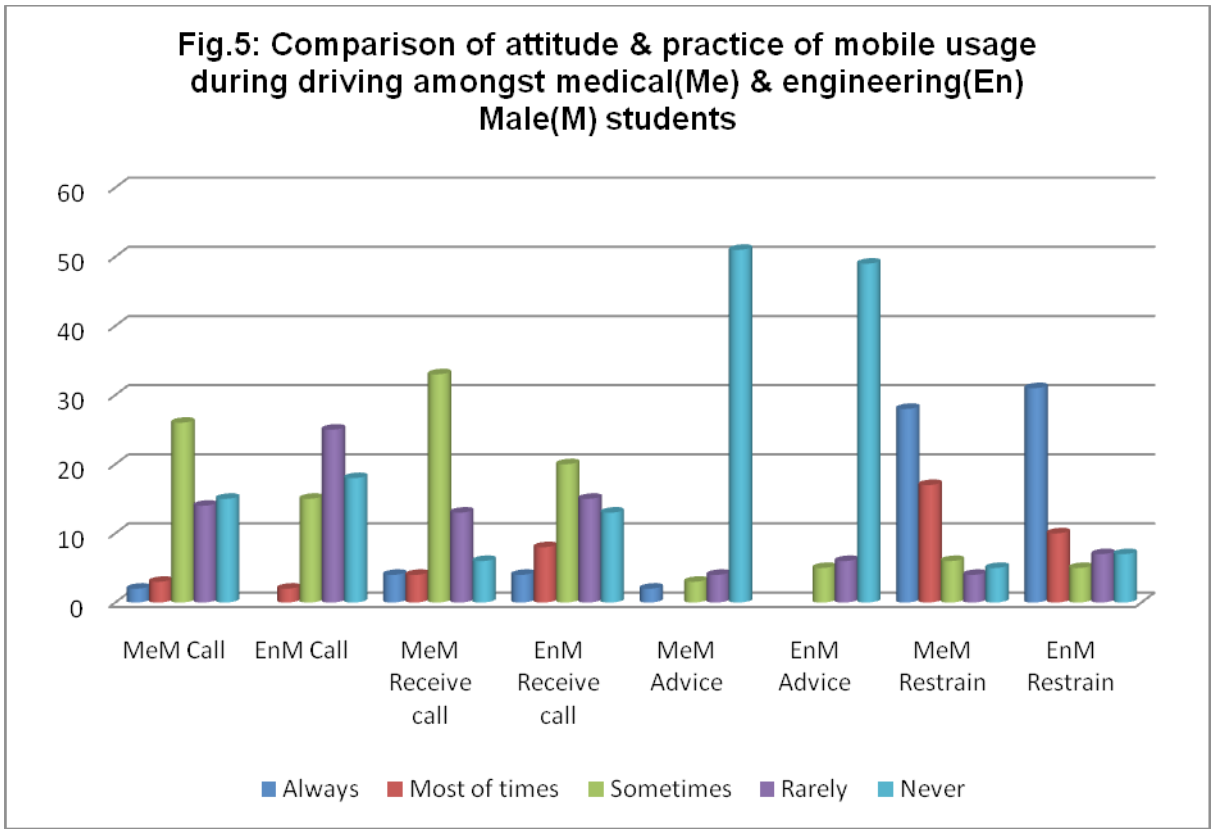


Fig.5: Comparison of attitude & practice of mobile usage during driving amongst medical(Me) & engineering(En) Male(M) students
60
50
40
30
20
10
0
MeM Call
EnM Call
MeM Receive call
EnM Receive call
MeM Advice
EnM Advice
MeM Restrain
EnM Restrain
Always
Most of times
Sometimes
Rarely
Never

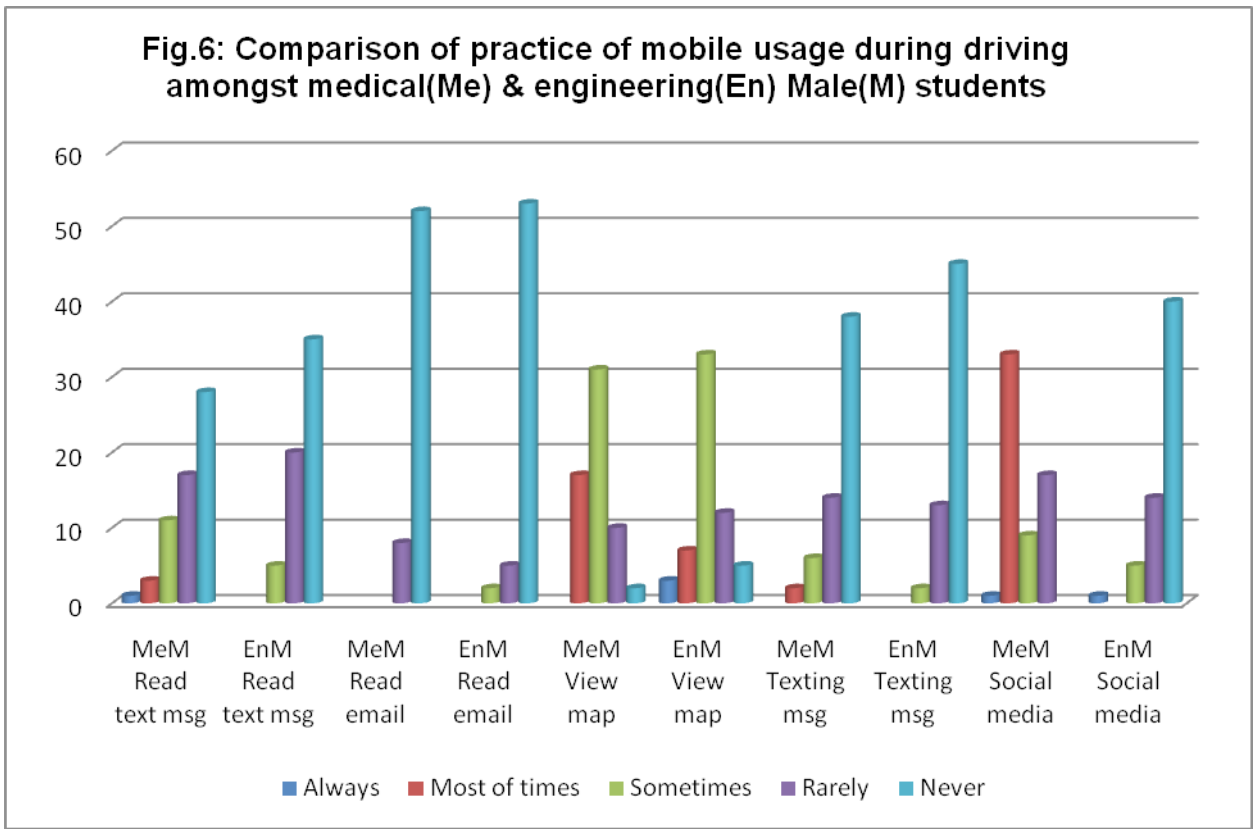


Fig.6: Comparison of practice of mobile usage during driving amongst medical(Me) & engineering(En) Male(M) students
60
50
40
30
20
10
0
MeM Read text msg
EnM Read text msg
MeM Read email
EnM Read email
MeM View map
EnM View map
MeM Texting msg
EnM Texting msg
MeM Social media
EnM Social media
Always
Most of times
Sometimes
Rarely
Never

Discussion

In our study in the age group of 18-21 years,out of total 348 students (174 each), 42% medical & 30% engineering students read text message while driving; and 36% medical & 18% engineering students texted the message during the same. Although engineering students are considered as tech-savvy, more engineering (70%) than medical (60%) students thought that they can never safely text and drive. Similarly, out of 228 drivers (18–24 year old), they found that 59.2 % reported writing text messages, 71.5 % said they read text messages while driving & 36.4% said it was never safe to text and drive.[6] Although females are best known for their multi-tasking nature, more females (74% engineering & 65% medical) thought that they can never safely text and drive. Thus, females (15% engineering & 32% medical) texted less than males (25% engineering & 37% medical) while driving. And less females (24% engineering & 36% medical) read text message than males (42% engineering & 53% medical) while driving. Surveys in US confirmed that the young adults are at high risk for distracted driving; in one, 81% of 348 college students stated that they would respond to an incoming text while driving, and 92% read text while driving.[7] And in other, 41.4% reported texting.[8]

Most of both medical (61%) & engineering (60%) students made calls while driving & that's dangerous. Although women are considered to be more talkative, men (75% medical & 70% engineering) called quite often while driving compared to females (54% medical & 52% engineering). Similarly, most of both medical (79%) & engineering (69%) students received calls while driving; and men (90% medical & 78% engineering) received calls quite often while driving compared to females (74% medical & 65% engineering).

Only 55% medical & 60% engineering students knew that mobile usage during driving was considered always as distracted driving and only 43%medical & 46% engineering students always considered it as punishable. This emphasizes the need of formal education & awareness about distracted driving & punishment for its violation in both professional course students or in their early education before they attain majority to be eligible for driving a vehicle. More than 3300 people were killed and 421,000 injured in distraction related crashes in US in a study done in 2012, with worst levels of distraction in youngest drivers.[7]

Whereas 53% medical students read message or viewed information on social media apps (Whatsapp, Facebook,Twitter, Snapchat,etc) while driving; in contrast 74% engineering students never used social media while driving. All medical males (100%) used social media while driving is an alarming sign compared to females (28%).But, in contrast, 83% medical & 87% engineering students never read e-mail while driving. In a study, reading and writing e-mail and browsing social media were less common.[6] This often usage of social media by medical students could be due to more students whatsapp groups that they are enrolled into & compulsion to see into the instructions given through whatsapp message, especially in a formal group of an institution; though in no way they are asked to see into it during driving.

Almost all medical (94%) & engineering (89%) students viewed maps or directions on phone while driving; more males than females. Maps were used on a phone by 74.6% in a study.[6] Almost maximum medical (99%) & engineering (98%) students felt that pedestrians using mobile phone are at risk and can cause accidents.

Although most of them (87% medical & 88% engineering) advised others to never use mobile phone during driving; only 52% medical & 55% engineering students always restrained themself/family/friends from using mobile phone during driving. Females were better advisors & had better capacity to restrain in this regard compared to males in both medical & engineering students.

Conclusion

In our study, both medical & engineering students practiced mobile usage quite often during driving, in the form of making & receiving calls and responding to text message. Only about half of them knew that mobile usage while driving is distracted driving & is punishable. Engineering students were slightly better off in this regard and females were better compared to males. Although more males had knowledge about distracted driving compared to females, it was the male students who frequently indulged in mobile usage during driving than females. Most of them advised others not to, but only about half restrained from mobile usage always during driving.

Recommendations: This study suggests policy makers for improving the on-ground situation with requisite interventions including awareness of stringent laws (section 184 MV Act, 1988) to control mishaps due

to distracted driving. And, proposes usage of anti-texting cell phone applications and an automatic electronic system for early detection of incoming or outgoing calls during driving.

Also, recommends requirement of formal education about this globally identified risk factor, to bring about moral responsibility amongst the youth who shall be the driving force for others to follow the rules and regulations while driving.

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Conflicts of Interest: None

References

1. World health organization, mobile phone use: a growing problem of driver distraction, 2011:7. https://www.who.int/violence_injury_prevention/publications/road_traffic/distracted_driving/en/ (cited on 20/01/2020)
2. Distracted driving in India – a study on mobile phone usage, pattern and behavior. Save LIFE foundation, April 2017:6. http://savelifefoundation.org/wp-content/uploads/2017/04/Distracted-Driving-in-India_A-Study-on-Mobile-Phone-Usage-Pattern-and-Behaviour.pdf (cited on 20/01/2020)
3. Braitman Ka, McCartt AT. National reported patterns of driver cell phone use in the United States. Traffic Inj Prev. 2010;11:543-8.
4. Shabeer HA, Wahidabanu RSD. Averting mobile phone use while driving and technique to locate the mobile phone used vehicle.Procedia Engineering, 2012; 30: 623 – 630.
5. Yannis G, Laiou A, Papantoniou P, Christoforou C. Impact of texting on young drivers' behavior And safety on urban and rural roads through a stimulation experiment. J Safety Res.2014;49:25-31.
6. Bergmark RW, Gliklich E, Guo R, Gliklich RE. Texting while driving: the development and validation of distracted driving and risk score among young adults. Injury Epidemiology, 2016 Dec; 3:7: 1-10.
7. Atchley P, Atwood S, Boulton A. The choice to text and drive in younger drivers: behavior may shape attitude. Accid Anal Prev. 2011;43:134–42.
8. Kann L et al. Centers for Disease Control and Prevention (CDC). Youth risk behavior surveillance–United States, 2013. Morbidity and mortality weekly report. SurveillSumm (Washington, D.C.: 2002). 2014; 63 Suppl 4: 1-168.