International Journal of Community Medicine and Public Health
Pandey D et al. Int J Community Med Public Health. 2015 May;2(2):167-171
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: 10.5455/2394-6040.ijcmph20150519

Research Article

Estimation of prevalence of headphone usage during driving and awareness about their health hazards among medical undergraduates

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Received: 13 March 2015
Revised: 17 March 2015
Accepted: 16 April 2015

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ABSTRACT

Background: As year passes, numbers of vehicles on road are increasing at the same time numbers of accidents are increasing. One of the major contributors for these accidents is the distraction created by headphone use during driving. Youngsters which are the major contributor for any nation's development are lost due to these accidents. Aims: To estimate prevalence of headphone use while driving among medical graduates and find out felt problems associated with headphone usage while driving.
Methods: Setting and design: An observation (Cross-sectional) study was conducted in government medical college situated in urban area. Technique: 260 medical under graduate were selected for study. A semi structured questionnaire was used as study tool for observation. Written informed consent was obtained from all the participants. Statistical analysis used: The data was analyzed using appropriate statistical software (MS excel).
Results: In this Study out of 260 medical undergraduates, 192 (73.85%) boys and 68 (26.15%) girls participated. 37.30% students were using headphone during driving out of which 20.77% were always using with every drive and 16.53% were occasionally using headphone. Only 71 (27.31%) student were not using helmet during driving. 37.11% students used headphone for both talking and listening songs, they prefer to listen songs in high volume (21.65%). 65% students had knowledge about health hazards associated with headphone usage.
Conclusions: Prevalence of headphone usage during driving among medical undergraduates was found to be 37.3%. Despite of the awareness of health hazards associated with headphone usage, most of the students prefer headphone over helmet.

Keywords: Accident, Headphone, Medical students, Prevalence, Traffic rules

INTRODUCTION

Road traffic accidents are considered to be the major cause of mortality and morbidity in developing countries. Road traffic injuries cause considerable economic losses to victims, their families, and to nations as a whole. These losses arise from the cost of treatment (including rehabilitation and incident investigation) as well as reduced/lost productivity (e.g. in wages) for those killed or disabled by their injuries, and for family members who need to take time off work (or school) to care for the injured. According to World Health Organization every year almost 1.24 million people are died in road traffic crash and 20 to 50 million more people suffer non-fatal injuries, with many incurring a disability as a result of their injury. Also more than 90% of deaths that result from road traffic injuries occur in low- and middle-income countries. Young adults (aged between 15 and 44 years account for 59%) and males are more likely to be involved in road traffic crashes.[1] Distracted driving is any activity that could divert a person's attention away from the primary task of driving. Some common types of

distractions include: Texting (text messaging requires visual, manual, and cognitive attention), using a cell phone or smart phone, talking while driving, Adjusting a radio, CD player, or MP3 player. All distractions endanger driver, passenger, and bystander safety.[2]

Mobile phones (either handheld or with a "hands-free" kit) uses during driving increases 3 to 4 times risk of accident due to distraction which also increases risk to pedestrian.[3,4] The National Safety Council estimates that in a recent year, 21% of vehicular crashes involved talking on either a handheld or hands free cell phone.[5] Researchers have asserted that this well established scientific fact both hand-held and hands-free mobile phones impair driving, with no significant difference in the degree of impairment.[6]

According to study of Bhambhani Y et al. Drivers who talk using a hands-free device made significantly more driving errors, compared with just driving without using the devices.[7] There are strict law in India as Central Motor Vehicles Rule 21 (25) that states 'using mobile phone while driving a vehicle shall constitute nuisance or danger to the public' which leads to suspension of license.[8,9]

The study principally aims to estimate prevalence of headphone uses while driving among medical graduates and find out felt problems associated with headphone usage while driving. Through this study authors wants to increase awareness of health hazards associated with headphone uses while driving and discourage them regarding use of headphones while driving.

METHODS

A cross sectional observation study was conducted in urban area of Indore district. Study site included government medical college. Study site was selected using convenient sampling method. Study population included all medical students pursuing graduation from Government Medical College. The study was conducted in between October 2013 to February 2014. Sample Size was calculated using formula $N = Z^2 [P (1-P)]/d^2$, d (width of confidence interval) was determine to be 5%, Z = 1.96 (5% precision), P (Prevalence) = 50%. Total population of Undergraduate (Including both male and female) = 750. Sample size comes out to be 255 which were rounded off as 260.

Inclusion criteria included all students having vehicles with mobiles and ear phones and who gave informed consent. A semi structured questionnaire was used as study tool for observation. The questionnaire was designed to know about their headphone uses, pattern of headphone uses, health and other effect of headphone uses during driving. Written informed consent was obtained from all the participants. The data was analyzed using appropriate statistical software (MS excel).

RESULTS

In this study out of 260 medical undergraduates, 192 (73.85%) boys and 68 (26.15%) girls were participated. 31 (11.92%) students were 19 years old, 66 (25.38%) students were of 22 years and 70 (26.92%) were belong to 23 years or more age group. 37 (14.24%) students were of first professional year, 93 (35.76%) of second professional year, 54 (20.76%) of third professional year and 39 (15%) students were belong to final professional year (Table 1).

Table 1: Showing distribution of medical undergraduates according to their demographic profile.

Demographic profile	Options	Number of participants (Percentage) N=260
Participants	Male	192 (73.85)
	Female	68 (26.15)
Age of participants	19 years	31(11.92)
	20 years	33 (12.70)
	21 years	60 (23.08)
	22 years	66 (25.38)
	23 years or more	70 (26.92)
Education	First professional year	37 (14.24)
	Second professional year (Junior & senior)	93 (35.76)
	Third professional year	54 (20.76)
	Final/Fourth professional year	39 (15)
	Internship	37 (14.24)

Table 2: Showing distribution of medical undergraduates.

Parameters	Responses	Number of participants (Percentage) N=260
Headphone uses during Driving	Yes & always	54 (20.77)
	Yes & occasionally	43 (16.53)
	Never	163 (62.70)
Helmet uses during driving	Yes	71 (27.31)
	No	189 (72.69)
Knowledge about the health hazards regarding usage of headphone during driving	Yes	169 (65)
	No	91 (35)
Opinion about using ear phone while driving	Allow without restriction	69 (26.54)
	Allow with a hand free	53 (20.38)
	Banned completely	138 (53.08)

In this study 97 (37.30%) students were using headphone during driving out of which 54 (20.77%) were always using with every drive and 43 (16.53%) were occasionally using headphone. Only 71 (27.31%) student were not using helmet during driving. 169 (65%) students had knowledge about health hazards associated with headphone usage (Table 2).

Table 3: Showing distribution of medical undergraduates according to social domains.

Social domain	Options	Number of participants (Percentage) N=97
Purpose you use headphone while driving	Talking	27 (27.84)
	Listening songs	34 (35.05)
	Both	36 (37.11)
Decrease awareness about of surrounding traffic or sound during driving while using headphone	Yes	71 (73.20)
	No	16 (26.80)
Decision power about the distance and diversions and other traffic indicators affected while using headphone during driving	Yes	43 (44.33)
	No	44 (55.67)
Decision about phone call comes during driving	Immediately answer & continue driving	18 (18.56)
	Answer if it is important & continue driving	50 (51.55)
	Answer & stop driving	15 (15.46)
	Not respond at all	14 (14.43)
Volume for listening song while driving	High	21 (21.65)
	Medium	40 (41.24)
	Low	39 (40.21)
Feel rush and then do fast driving in influence of rock/pop songs	Yes	45 (46.39)
	No	52 (53.61)

Out of these 97 students who use headphone 27.84% used for talking, 35.05% used for listening song, while 37.11% students used for both talking and listening songs. 73.20% students felt that awareness about surrounding traffic or sound were decrease and 44.33% felt that decision power about distance, diversion and other traffic indicator were affected due to headphone usage. As most of the students belong to age group of 19 to 23 year they prefer high volume (21.65%) or medium volume (41.24%) for listening of songs, 45 (46.39%) student felt rush and do fast driving under influence of rock songs (Table 3). 45 (46.39%) students avoid helmet usage to prefer headphone during driving, 28.87% students encountered any accident while using headphone, while 32.99% encounter accident with bike rider using headphone. 15.46% and 10.31% student develop hearing loss and ear inflammation/tenderness respectively (Table 4).

Table 4: Showing distribution of medical undergraduates according to health related domains.

Health related domain	Responses	Number of participants (Percentage) N=97
Avoid helmet to prefer headphone while driving	Yes	45 (46.39)
	No	52 (53.61)
Encounter any accident while using headphone while driving	Yes	28 (28.87)
	No	69 (71.13)
Encounter any accident with a person who using headphone while driving	Yes	32 (32.99)
	No	65 (67.01)
Develops hearing loss from past sometime due high volume of headphone	Yes	15 (15.46)
	No	84 (84.54)
Any episode of ear inflammatory or tenderness from past some time?	Yes	10 (10.31)
	No	87 (89.69)
Opinion about using ear phone while driving	Allow without restriction	30 (30.93)
	Allow with a hand free	44 (45.36)
	Banned completely	23 (23.71)

Out of 260 medical undergraduates, 138 (53.08%) student agree on complete ban on headphone usage during driving while 20.38% insist on allowing hand free and 26.54% didn't want any restrictions on headphone usage. According to study done in United States 94% driver supported ban on texting while driving and 74% drivers support on hand held cell phone usage.[10]

DISCUSSION

Although there has been a spurt in the number of motor cycles running on road and there is a simultaneous increase in cell phone users these days. This has led to increased risky behavior of using cell phone while driving. There was a great shortage of studies depicting health hazards associated with cell phone uses during driving. Therefore this study was conducted to investigate the prevalence of cell phone uses while driving among medical undergraduates.

In this Study out of 260 medical undergraduates, most of the students were boys. Mean age of participants was 21.2 ± 1.23 years. 37.30% students were using headphone

during driving out of which 20.77% were always using with every drive. 65% students had knowledge about health hazards associated with headphone usage. Regardless of this appreciated knowledge percentage of helmet usage was low and headphone usage was high. Another poll done in United States, 94% teens admire that texting along with driving is a serious threat, but only 35% admitted to did it anyway.[10]

Most of the students use headphone for listening the hip-hop kind of songs in high volume which distract their driving and reduce awareness of surrounding. Due to this behavior they are more prone to accidents or other health related problems.

In question regarding ban on headphone usage 53.08% students agree on complete ban while 20.38% insist on allowing hand free and 26.54% didn't want any restriction on headphone usage. According to study done in United States 94% driver supported ban on texting while driving and 74% drivers support on hand held cell phone usage.[10]

This study was carried out with 260 medical undergraduates who were not representative of all the adults of Indore District, needs more sample size to be incorporated which unfortunately was not done due to time constraint. Again due to time constraint young adults of different education field, socio economic strata were not incorporated.

As medical students were involved in the study authors definitely anticipate some bias in their knowledge and perception of health hazards.

The findings in the present study reiterate the need for re-enforcing health education in urban area using multi-pronged methods such as films, group discussions, dramas, puppet shows and role-plays.

As children's behavior in traffic is shaped at an early age, it is effective to include road safety education in the school curriculum, with help of teachers and resource material, to teach children in primary school about the dangers of traffic, road safety rules and supporting safe driver behavior.

To improve road safety for children/young requires a combination of different measures and actions. There is a strong need that school/college education especially for adolescent/youngsters must directly address adverse effects of mobile/smart phone uses during driving. Also some legislative measures needed from government side for strictly follow traffic rules.

The study was concluded as despite of their medical education, good knowledge about health hazards of headphone usage during driving and belong to professional group, prevalence of headphone usage among medical under graduate was found to be 37.3%. Headphone use during driving led to decrease awareness about traffic and also decreases decision power about distance and diversion. Most of students prefer headphone over helmet, encounter some kind of accident while using or person using headphone during driving.

Key message

Awareness regarding non usage of headphone while driving and initiating a drive to promote the non-usage of headphone to avoid road traffic accidents.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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DOI: 10.5455/2394-6040.ijcmph20150519
Cite this article as: Pandey D, Saroshe S, Dixit S, Sabde Y. Estimation of prevalence of headphone usage during driving and awareness about their health hazards among medical undergraduates. Int J Community Med Public Health 2015;2:167-71.