Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 10, Issue 2, pp: (35-41), Month: May - August 2023, Available at: www.noveltyjournals.com

RISK FACTORS CONTRIBUTED TO ROAD TRAFFIC ACCIDENTS AMONG MALE STUDENTS OF NURSING COLLEGE IN HAIL UNIVERSITY

Fahad Algahtani[1], Omaima Elalem[2], Soha Kamel Mosbah Mahmoud[3], Sandro Villareal[4], Bahia Glalal Abd El-Razik Siam[5*].

[1] Associate Professor of Community Health, College of Public Health, University of Hail.

[2,3]Assistant Professor of Community Health Nursing, College of Nursing, University of Hail.

[4,5] Assistant Professor of Medical-Surgical Nursing, College of Nursing, University of Hail.

DOI: https://doi.org/10.5281/zenodo.7990450

Published Date: 31-May-2023

Abstract: **According to the mortality report of the Ministry of Health issued Road, Traffic Accidents (RTA) form one of the leading causes of mortality and disability in Saudi Arabia. *The objective* of this study was to examine risk factors related to road traffic accidents among Hail University' students. *Subjects and methods* Descriptive design was used in carrying out this study. *Setting*: The present study was conducted in collage of Nursing in Hail University male side. *Sampling*: using a convenient method (100) student from the previous selected setting was selected. *Tool:* questioner was concerned with road traffic risk factors. It included questions about, driving history, type of vehicle, driver behavior, details of crashes, and accident pattern. *Results*: 90% of participants reported that they listen to the recorder or radio while driving, (59%) sometimes use the seat belt when traveling using care and (81%) had involved in a traffic accident. Also, overspeed is an irregularity committed by (52%) of them. The most factors affecting a traffic accident was Tires (OR 0.446, 95% CI 0.273--0.728), (OR 2.837, 95% CI 1.456 - 5.526). Conclusion: there was a highly significant association between (youth recklessness / breaking roads) as the most important reasons behind the occurrence of traffic accidents. Recommendation: A high concern to apply and follow the road traffic rules especially from youth is highly recommended.**

Keywords: **Road, Traffic Accidents (RTA), road traffic risk, road traffic rules.**

1. INTRODUCTION

Road traffic accidents which are generally unintended and preventable. They are a common risk every day to life that can happen to almost every one and anywhere. The problem of road traffic accident is increasingly becoming a threat to public health and national development in many developing countries ***(Komba, D. 2006)***.

World Health Organization (WHO) 2016, reports that currently road traffic injuries are the leading cause of deaths and injuries, About 1.25 million people die each year as a result of road traffic accidents. They are the leading cause of death among young people, aged 15–29 years. Without action, road traffic accidents are predicted to rise to become the 7th leading cause of death by 2030.

International Journal of Novel Research in Healthcare and Nursing
Vol. 10, Issue 2, pp: (35-41), Month: May - August 2023, Available at: www.noveltyjournals.com

A road traffic accidents results from a combination of factors related to the components of the system comprising roads, the environment, vehicles and road users, and the way they interact. Identifying the risk factors that contribute to road traffic crashes is important in identifying interventions that can reduce the risk associated with those factors. Risk factors influencing accident involvement are speed, alcohol or drugs, fatigue, male, vehicle defects, youth driving together and vulnerable road users. (***World Health Organization (WHO), 2016).***

Road traffic accidents (RTAs) are the result of many factors related to the car, driver, and the nature of the road. Though the car and the road contribute to some extent, driver errors remain the most significant factor in increasing or decreasing the rate of RTAs. As in any health problem, identification of the risk factors is essential, RTAs not expected to preventing or reducing it. Most of the students had cars (70%); perhaps because most Saudi families have cars. Seventy two percent of the students had driving licenses, and this is because all the students were above the legal age for owning a driver's license in Saudi Arabia (18 years old or above) ***(Al-Khaldi, 2006).***

Excessive speed and disobeying traffic signals cause over 65% of traffic accidents, which result in considerable economic losses to victims, their families, and to nations as a whole. RTAs are the second-greatest public health concern in the Kingdom, as they contribute to emergency and outpatient hospital admissions and are responsible for a yearly estimated loss of 500 million U.S. dollars. In a recent review article (***Mikler & Almakadma, 2016).***

Mansuri et al. (2015), reported that over the past 25 years, RTAs accounted for 83.4% of all trauma admissions. Nearly 80% of total accidents are primarily due to speeding and non-compliance with right-of-way rules by drivers and pedestrians. Human factors including careless driving, violating traffic laws, speeding, and sleep deprivation/fatigue were the most important causal factors accounting for 90% of road crashes. Data shows that 41% of drivers were not using a seat belt at the time of crash. One- third of the crashes resulted in injury (25%) or death (5%) (***Rad, et al. 2016)***

The objective *of this study is:*

To examine risk factors contributing to road traffic accidents among Hail University' students.

Research Question:

What are risk factors related to road traffic accidents?

2. SUBJECTS AND METHODS

Research design:

A Descriptive design was used in carrying out this study.

Setting:

The present study was conducted in collage of Nursing in Hail University male side.

Sampling:

A convenient sample from the previous selected setting was used.

Tools of data collection:

A Questionnaire: developed by the researchers based on literature review and written in simple clear Arabic language consisted of two parts as the following: Part I: It designed to collect data about the socio-demographic information of students. It included questions about age, marital status, educational level….etc. Part II: It was concerned with road traffic risk factors (smoking, using mobile, listening to recorder, ...etc).

Pilot study:

A pilot study was conducted after the development of the questionnaire and before starting the data collection on 10 % of the students to test the applicability, feasibility and to ensure easy understandability for ordinary women and to explore any unclear points of the study tool. It served to estimate the time needed to complete the questionnaire. The necessary modifications were done after obtaining the result of the pilot study and expertise opinions. Otherwise, the students included in the pilot were excluded from the study sample.

International Journal of Novel Research in Healthcare and Nursing
Vol. 10, Issue 2, pp: (35-41), Month: May - August 2023, Available at: www.noveltyjournals.com

Ethical consideration

The researchers was fulfilled the official steps required to get the approval for carrying out the study. Informed verbal consent was obtained from all participants to participate in the study. The confidentiality and anonymity of any obtained data was ensured through coding of all data. The purpose of the study was explained to each participant during personal interviews. the Ethics Committee at the University of Hail, meeting no. 2 held at February 3, 2018, has reviewed and approved conducting this study.

Statistical design

Data was analyzed using the Statistical Package for Social Sciences (SPSS), Version 20.0. A simple descriptive analysis in the form of percentages, arithmetic means, and standard deviations was used for data analysis. A chi-squared test was used to test the significance of the risk factors contributing to road traffic accidents. A P-value of ≤0.05 was considered statistically significant

3. RESULTS

Table (1): Distribution of the studied students according to their sociodemographic data (n = 100)

Socio - demographic data	No.	%
Age		
Mean ± SD. 22.49 ± 2.50		
Residence		
Urban	79	79.0
Rural	21	21.0
Educational Level		
First Year	40	40.0
Second year	27	27
Third year	33	33.0

Table 1 reveals that the mean age of participants was (22.49 ± 2.50) years. It also showed that (79%) were living in the city, and 40.0% of them were in the first year of the collage.

Table (2): Distribution of the studied students according to driving history (n = 100)

Variables	No.	%
How to go to university?		
I drive my own car	94	94.0
Ride a car with another family member	6	6.0
Since when you got your driving license?		
less than one year	24	24.0
Less than two years	25	25.0
Less than 3 years	20	20.0
Less than 4 years	9	9.0
Less than 5 years	13	13.0
I do not have a license	9	9.0
Have you ever been involved in a traffic accident?		
Yes	81	81.0
No	19	19.0

Table 2. showed that (94%) of the students were going to the university by their own cars, (24%) had got their driving license less than one years ago, while 9 % of them don't have a license at all, and (81.0%) of them had been involved in traffic accidents.

Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 10, Issue 2, pp: (35-41), Month: May - August 2023, Available at: www.noveltyjournals.com

Table (3): Distribution of the studied students according to driving safety measures (n = 100)

Items	No.	%
Check the car every:		
3 months	25	25.0
6 months	14	14.0
Year	8	8.0
Two years	4	4.0
when needed	49	49.0
I change my car tires every		
Year	36	36.0
Two years	34	34.0
3 years	14	14.0
Other	16	16.0
Check the car before driving		
Always	32	32.0
Sometimes	53	53.0
I do not inspect it	15	15.0
When you plan to travel by car in a long way		
Check the car yourself	50	50.0
I drive to a mechanic	43	43.0
I travel without work	7	7.0
Use the seat belt when you are traveling by car		
Every time	20	20.0
some time	59	59.0
Scarcely	16	16.0
Never fasten the belt	5	5.0

Table 3 reveals that (49%) of the studied students check their cars when needed, (36%) of them were changing their car tires every year, (32%) always check their car before driving, (50%) of them checked the cars by themselves. As regards to using the seat belt; (59 %) of the studied students reported they sometimes use it.

Table (4): Distribution of the studied students according to the driver risk behaviors (n = 100)

Items	No.	%
Do you usually smoke while driving a car?		
Yes	30	30.0
No	70	70.0
Do you usually listen to the recorder or radio while driving		
Yes	90	90.0
No	10	10.0
Do you usually use the mobile while driving		
Yes	90	90.0
No	10	10.0
The distance to be left between my car and the car in front of me		
Less than 10 meters	48	48.0
15 meters & more	16	16.0
According to the speed of my car	36	36.0
What irregularities you usually commit		
Impulsive driving	22	22.0
Irregular overrun & Over speed	69	52.0
Cut the red signal	7	7.0
Irregular fufu	13	13.0
Irregular rotation	4	4.0
Driving and I'm exhausted	11	11.0

Table 4 shows that (70%) of the studied students don't smoke while driving, (90%) listen to the recorder and usually use the mobile while driving, and (48%) of them leave less than 10 meters distance between the front cars. Also, (52%) of the studied students practice over speed and overrun behaviors.

Table (5): Univariate and Multivariate Analysis for the Risk Factors Affecting Traffic Accident

Have you ever been involved in a traffic accident?	Univariate		#Multivariate	
	P	OR (95%C.I)	p	OR (95%C.I)
I change my tires every	0.003*	0.482 (0.298–0.779)	0.020*	0.444 (0.224– 0.881)
The most important reasons behind the occurrence of traffic accidents number by importance is other reasons **(youth recklessness / breaking roads**	0.042*	1.683(1.018–2.782)	0.002*	2.837 (1.456 – 5.526)
If there are five major issues to focus on in the face of traffic accidents in the Kingdom, rank them according to importance **Tires**	0.019*	0.650 (0.454–0.930)	0.001*	0.446(0.273– 0.728)
What irregularities you usually commit				
Overspeed	0.014*	4.459(1.362–14.606)	0.082	4.107 (0.834– 20.216)
crossing a red traffic signal	0.017*	6.933 (1.406–34.193)	0.132	6.363(0.572– 70.797)
The driving and the person is exhausted	0.026*	4.464(1.196–16.659)	0.198	4.072(0.481– 34.462)

OR: Odd`s ratio, C.I: Confidence interval,

#: All variables with p<0.05 was included in the multivariate

*: Statistically significant at $p \leq 0.05$

Table 5: Univariate and multivariate analysis for traffic accident factors analysis was performed to identify factors that were strongly associated with risk factors related to a traffic accident. The most factors affecting a traffic accident was Tires (OR 0.446, 95% CI 0.273--0.728). The table also shows a highly significant association between (youth recklessness / breaking roads) as the most important reasons behind the occurrence of traffic accidents (OR 2.837, 95% CI 1.456 - 5.526).

4. DISCUSSION

Road traffic accident related injuries are a leading cause of morbidity and mortality worldwide **(James, et al., 2020).** In Saudi Arabia, road traffic injuries are increasing exponentially year by year in spite of advances in safety technology. The current study aimed to examine the risk factors related to road traffic accidents among Hail University' male students. The results of this study reveal that the mean age of participants was (22.49 ± 2.50) years. This is because the target sample was the university students were distributed around this mean.

Driving safely, such as adhering to speed limits, is more likely to be practiced by licensed drivers, who are also less likely to be involved in run-over traffic accidents (**Boulagouas et al., 2020).** The participants of the current study reported that, nearly half of them had the license since less than one year, and nine percent of them didn't have a driving license at all **(table 2)**. This factor may increase the risk of road traffic accidents. These findings are similar to **Keerthana, et al., 2021** who reported that near two thirds of the participants had driving licenses. Furthermore, a report at Hail region by **Touahmia, 2021** indicated near one fourth of the drivers had not driving license. Despite the government's ongoing efforts and the many traffic safety laws that have been implemented to reduce traffic accidents, these results show the necessity for a rigorous driving license policy to supplement present efforts to combat unlicensed driving.

The majority of our study subjects had been involved in traffic accidents. This finding highlights their significant risk of morbidity as well as their low level of adherence to driving safety precautions. This finding is incongruent with **Burgut et al., 2010** who said that more than one fourth of the studied Qatari drivers were involved in RTCs. These findings are also coincide with many conclusions of existing studies, which had reported that young car drivers are more likely to experience road crash injuries (**Elvik R., 2010; Selvaraj & Uthayakumar, 2020).**

As regards to **the driving safety measures,** our study findings stated that near half of the participants used to check their cars whenever needed, around one third of them were changing their car tires every year and check their car before driving **(table 3).** These findings reflect poor compliance with driving safety measures related to vehicle repair. The Saudi Arabian Council of Ministers authorized a National Strategic Plan for Traffic Safety at the end of 2013 with the intention of lowering the number of traffic injuries **(Saudi Gazette, 2013).**

The most crucial factor in lowering the chance of mortality in the event of a serious collision is seatbelts use **(WHO, 2013).** Our study results reveals that near three fifth of the studied students had reported that they sometimes use the seat belt, while only twenty percent of them use the seat belt every time when traveling by car. This finding is consistent with the findings of several other studies (**Demissie, 2017; Mohammadzadeh, et al., 2015; Van Hoving, et al., 2014; and Borghebani et al., 2013).** The non-use of seatbelt needs some enforcement from the traffic law, in addition to improving driver's awareness toward the importance of seat belt use.

The involvement of mobile phones with driving reflect the level of cognitive and behavioral association that people have with their phones. The results of the current study showed that, most of the studied students usually listen to the recorder and use the mobile while driving (table 3). **Saifuzzaman et al. (2015)** observed that using a mobile phone while driving was a substantial distraction, particularly in young drivers, which supports this conclusion. Additionally, **García-Herrero, (2021)** indicated that technology-based distracted driving has a significant effect on both the aberrant infractions and speeding. Furthermore, **Rashid & Ismail, (2022)** stated that young drivers who are distracted by a smart phone while driving a vehicle are more likely to suffer serious injuries.

Regarding the road safety distance, the results of the current study indicated that nearly half of the studied students leave less than 10 meters distance between the front car. **Rathinama et al. (2007)** found similar results in young motorcyclists, they found that 35% of young age drivers did not respect safety distances from other vehicles and that 20% of them were already involved in an accident. Emotional states may be associated riding fast, it also may be related to young age, and riding frequency **(Michael et al., 2014).**

One of the risk factors of RTAs is over speed, high speed driving increases traffic accident risks and can also be intensified by sensation seeking **(Gicquel, et al., 2017).** The current study results showed that more than half of the studied students practice over speed and overrun behaviors. This is supported by **Abdullah & Sipos, 2022** who found that the older drivers are more supportive of the speed limits. In addition to **Bates, et al. (2014) who reported that** young drivers are more likely to exceed the speed limit, travel too close to the vehicle in front and provide poor signals. Driving fast seems to be influenced by behavioral factors; modifying the driving behavior is one of the biggest challenges in reducing RTAs. The findings reported here are much too to serve as recommendations for developing programs or policies.

5. CONCLUSION

Conclusion: there was a highly significant association between (youth recklessness / breaking roads) as the most important reasons behind the occurrence of traffic accidents.

RECOMMENDATION

A high concern to apply and follow the road traffic rules especially from youth is highly recommended.

REFERENCES

[1] **Abdullah, P. & Sipos, T. (2022).** Drivers' Behavior and Traffic Accident Analysis Using Decision Tree Method. Sustainability 2022, 14, 11339. https://doi.org/10.3390/su141811339

[2] **Al-Khaldi, Y. (2006):** Attitude and Practice Towards Road Traffic Regulations Among Students Of Health Sciences College In Aseer Region. J Family Community Med. 2006 Sep-Dec; 13(3): 109–113.

[3] **Bates L., Davey J., Watson B., et al. (2014).** Factors Contributing to Crashes among Young Drivers. Sultan Qaboos Univ Med J; 14(3):e297-e305.

[4] **Boulagouas, W., García-Herrero, S., Chaib, R., Febres, J. D., Mariscal, M. Á., & Djebabra, M. (2020).** An Investigation into Unsafe Behaviors and Traffic Accidents Involving Unlicensed Drivers: A Perspective for Alignment Measurement. International Journal of Environmental Research and Public Health, 17(18), 6743. https://doi.org/10.3390/ijerph17186743

[5] **Burgut, H., Bener, A. Sidahmed, H. Albuz, R. Sanya, Khan W. (2010).** Risk factors contributing to road traffic crashes in a fast-developing country: the neglected health problem, Turk. J. Trauma Emerg. Surg 16 (6) 497–502. https://doi.org/10.1136/ip.2010.029215.273

[6] **Elvik R. (2010).** Why some road safety problems are more difficult to solve than others. Accident Analysis & Prevention.42:1089-96.

[7] **García-Herrero, S., Febres, J. D., Boulagouas, W., Gutiérrez, J. M., & Mariscal Saldaña, M. Á. (2021).** Assessment of the Influence of Technology-Based Distracted Driving on Drivers' Infractions and Their Subsequent Impact on Traffic Accidents Severity. International Journal of Environmental Research and Public Health, 18(13), 7155. https://doi.org/10.3390/ijerph18137155

[8] **Gicquel L., Ordonneau P., Blot E., Toillon C., Ingrand P. and Romo L. (2017)** Description of Various Factors Contributing to Traffic Accidents in Youth and Measures Proposed to Alleviate Recurrence. Front. Psychiatry 8:94. doi: 10.3389/fpsyt.2017.00094

[9] **James, S.L.; Lucchesi, L.R.; Bisignano, C.; Castle, C.D.; Dingels, Z.V.; Fox, J.T.; Hamilton, E.B.; Liu, Z.; McCracken, D.; Nixon, M.R.; et al. (2017).** Morbidity and mortality from road injuries: Results from the Global Burden of Disease Study. Inj. Prev. 2020, 26, i46–i56. [CrossRef]

[10] **Keerthana B, Vishnu Priya V, Gayathri R. (2021).** Awareness on Road Traffic Accidents Among College Students, J Res Med Dent Sci, 9 (1): 81-86. Available at: www.jrmds.in

[11] **Komba, D. (2006):** Risk Factors and Road Traffic Accidents in Tanzania. Master Thesis.Available@http://www.divaportal.org/smash/get/diva2:122428/FULLTEXT01.pdf . Accessed on 28/10/2016.

[12] **Mansuri, A.; Al-Zalabani, H.; Zalat, M. and Qabshawi , I.(2015):** Road safety and road traffic accidents in Saudi Arabia. A systematic review of existing evidence. Saudi Med J 2015, Apr;36(4):418e24. http://dx.doi.org/10.15537/smj.2015.4.10003.

[13] **Michael R., Sharma M., Mehrotra S., Banu H., Kumar R., Sudhir P., et al. (2014).** Inclination to speeding and its correlates among two-wheeler riding Indian youth. Ind Psychiatr J, 23:105–10. doi:10.4103/0972-6748.151676

[14] **Mikler, s. & Almakadma, A. (2016):** Attitudes and behaviors towards riskydriving among adolescents in Saudi Arabia. IJPAM70_proof 14 May 2016 4/9Available@https://www.researchgate.net/publication/303179555_Attitudes_and_behaviors_towards_risky_driving_among_adolescents_in_Saudi_Arabia

[15] **Rad, M.; Martiniuk, A.; Moghaddam, A. and Ghasemi, A. (2016):** The Pattern of Road Traffic Crashes in South East Iran. Global journal of health science 8(9):149

[16] **Rashid H. & Ismail K. (2022).** Road Traffic Accidents and Associated Risk Factors in Erbil, Iraq: Retrospective (2017-2019) Households Based Study. Bahrain Medical Bulletin. 44. 905-911.

[17] **Rathinama C, Nairb N, Guptaa A, Joshia S, Bansala S. (2007).** Self-reported motorcycle riding behavior among school children in India. Accid Anal Prev 39:334–9. doi:10.1016/j.aap.2006.09.002

[18] **Saifuzzaman M, Haque M, Zheng Z, Washington S. (2015)**. Impact of mobile phone use on car-following behavior of young drivers. Accid Anal Prev 82:10–9. doi:10.1016/j.aap.2015.05.001

[19] Saudi Gazette. National traffic plan aims to cut accident rates. Saudi Gazette. (2013). http://www.navbug.com/worldnews14611579/national_traffic_plan_aims_to_cut_accident_rates_saudi_gazette.htm

[20] **Selvaraj T, Uthayakumar R. (2020).** A Retrospective Study of Fatal Road Traffic Accidents on Autopsies done at Madurai Medical College and Hospital. Indian J Forensic Med Toxicol, 14 (3):764-7).

[21] **Touahmia, M. (2018).** Identification of Risk Factors Influencing Road Traffic Accidents. Engineering, Technology & Applied Science Research, 8(1), 2417–2421. https://doi.org/10.48084/etasr.1615

[22] **World Health Organization (WHO), (2016):** Road traffic injuries. Available @ http://www.who.int/mediacentre/factsheets/fs358/en/ . Accessed on 28/10/2016.

[23] **World Health Organization WHO (2013).** Global Status Report on Road Safety 2013: Supporting a Decade of Action: Summary, 2013.