Original Article

Road Traffic Accident Characteristics And Injury Outcomes Among Victims In Mosul City

Sarmad Muqdad Abed [1], Ahmed Abdel-Qader Suleiman [2], Salim Shihab Ahmed [3], Nasir Muwfaq Younis[4], Mahmoud Mohammad Ahmed[5]

[1.]Higher Diploma in Health Organization and Hospital Management Degree, Instructor, Higher Health Institute in Mosul, Nineveh Health Director, Iraq.
[2.] Psychiatrist, Member of Arabic Board for psychiatry- Ibn-seena Teaching Hospital, Mosul, Iraq.
[3.] PhD in Psychiatric Mental Health Nursing, Instructor, Higher health institute in Mosul, Nineveh Health Directors, Iraq.
[4.] Prof. in CHN, University of Mosul/ College of Nursing. Iraq,
[5.]Assist.prof, in CHN, University of Mosul/ College of Nursing. Iraq
DOI: 10.47750/pnr.2023.14.03.518

Abstract

Introduction: Road traffic accident (RTAs) refer to fatal or nonfatal injuries caused by the collision of at least one moving vehicle on a public road. At present, RTIs are the eighth leading cause of death in the world and the fifth leading cause of reduced life expectancy and have been a persistent problem that the Chinese government is committed to dealing with. The aim of this study was to assess the causes and complication of road traffic accident in Mosul city.
Material and methods: The questionnaire consisted of three parts, the first includes (the demographic characteristics of the accident victims), the second includes (the characteristics of the accident), and the third part includes (the nature of the injuries). A non-probability convenience sample of (78) accident victims was recruited from the emergency departments of Al-Salam and Aljumhoory Hospitals for the period from 1st January 1st to February, 2023.Data were collected through direct interview with the victims or their relatives follows the authority of Nineveh Health Director.
Result: The study find out the Speed was identified as the leading cause of accidents, accounting for 28.2% of the cases.Other significant causes included inattention (28.2%), the road conditions (21.8%), and the weather (9.0%).Phone use, traffic safety, and other factors contributed to a smaller percentage of accidents..
Conclusion: The study concludes that Speed was identified as the leading cause of accidents, accounting for 28.2% of the cases, and the study found that the rate of death about one quarter (23.1 %) of the victims.
Recommendation: The study recommended proposals that could be submitted to the Ministry of Education, and the Ministry of Higher Education, to hold awareness seminars for secondary school students and universities for educate about the dangers of roads accidents to reduce them.

Key words: Road Traffic Accident, assessment, Victims.

Introduction:

Overall, 93% of the world's fatalities on the roads occur in low-and middle-income countries, even though these countries have approximately 60% of the world's vehicles than compared with the developed nations. Predictions are that deaths from non-communicable diseases such as RTAs will reach 49.7 million by the year 2020 [(1)].Very recent reports show that in low and middle-income countries (LMICs), RTAs are responsible for economic losses of up to 65 billion dollars USD, which is more than all development aid income combined [(2)]. Similarly, the risk of road deaths in these countries is estimated at 32.9 per 100,000 inhabitants as compared to just about 10.3 per 100,000in European countries or as compared with the Global road traffic death rate of 17.4 per 100,000 populations [(3-10)].Likewise, in the year 2015, the UN General Assembly established Sustainable Development Goal 3.6 as the target of reducing road traffic deaths and injuries by 50% by 2020.According to the global burden of diseases, injuries, and risk factors study (GBD) [(11)].Road traffic injuries are among the leading causes of death and life-long disability globally. The World Health Organization (WHO) reports that about 1.24 million people die annually on the world's roads, with 20–50 million sustaining non-fatal injuries.1,2

Globally, road traffic injuries are reported as the leading cause of death among young people aged 15–29 years and are among the top three causes of mortality among people aged 15–44 years. The Institute for Health Metrics and Evaluation (IHME) estimated about 907 900, 1.3 million and 1.4 million deaths from road traffic injuries in 1990, 2010 and 2013, respectively [12-16].Road traffic fatality in the Kingdom of Saudi Arabia (KSA) accounts for 4.7% of all mortalities, while road traffic fatalities do not exceed 1.7% in Australia, United Kingdom (UK), or United States of America (USA).5 Similarly, road fatalities in KSA have increased over the last decade from 17.4-24 per 100,000 population compared with 10 in USA, and 5 in UK, where road safety has been taken seriously, and all primary and secondary preventive measures are implemented appropriately [17-20].At present, RTIs are the eighth leading cause of death in the world and the fifth leading cause of reduced life expectancy and have been a persistent problem that the Chinese government is committed to dealing with(As the World Health Organization's (WHO) Global status report on road safety noted, the number of RTIs worldwide continues to rise, with an increase of ~100,000 in just three years. In 2018, a study indicated that there were ~1.35 million deaths attributed to RTIs every year that seriously threaten the safety of human life and property, and almost 90% of the deaths occurred in low- and middle-income countries [21-26].The specifics objective of this study is; to identify causes of Road Traffic Accidents in Mosul city, Evaluate the outcomes of Road Traffic Accidents and to Assess accident characteristics and correlate them with victim demographics.

Material and methods:

The questionnaire consisted of three parts, the **first** includes (the demographic characteristics of the accident victims), the **second** includes (the characteristics of the accident), and the third part includes (the nature of the injuries)

Administrative Arrangement

Ethical approval is obtained from Mosul Higher Health Institute in 22 December 2022 and from Nineveh Health Department at 25 December 2022.

Sample and Setting of the Study:

The sample consists of 78 victims who were researched conveniently through the two emergency departments, of Al Salam Hospital on the left side and Al Jumhouri Hospital on the right side of Mosul city / Iraq. a special tool used and developed for this purpose by interviewing the victims or their relative.

Data Collection Methods

A Descriptive observational study design was conducted using a convenience sample for the period from 1st January 1st to February, 2023. To determine road traffic accidents and their complications in the city of Mosul. The average time to fill each questionnaire by the researchers to each patient or relatives about 10-20 minutes with assistance and explanation of the purpose of questionnaire.Part 1: Includes the socio-demographics characteristic about persons such as (age, gender, marital status, educational level, occupation, Do you suffer from chronic diseases? Does the victim take prescribed medications?). Part 2: Includes the characteristics of the accident such as (the cause of the accident, the geographical location of the accident, the time of the accident, and your role during the accident).Part 3: Includes Questions related to the pattern of injury among the victims such as 1.Were there deaths at the scene of the accident. 2.If the answer is yes, how many deaths were in the accidents. 3.What areas of the body were injured. 4.Was there an open wound that was sutured. 5.Level of consciousness

Validity of instrument:

In order to determine the validity of instrument the questioner is administer to eight experts in different filled related to the study (8) expert from Mosul Higher Health Institute. According to the expert's opinion some items were removed and other are modified or added

Data Analysis:

The results of the study where analyzed by using the SPSS version 22, utilizing the descriptive statistical data (frequency, and percentage).

Results:

Table (1) The demographical data of RTA victims

No.	Characteristics of accident		f	%
1	Age (year)	1-10 years	9	11.5%
		11-20 years	32	41%
		21-30 year	20	25.6%
		31-40 years	9	11.5%
		41- 50 years	5	6.4%
		51 years or more	3	3.8%
		Total	**78**	**100 %**
2	Gender	male	67	85.9%
		female	11	14.1%
		Total	**78**	**100** %
3	Education	none read none write	17	21.8%
		primary	25	32.1%
		secondary	23	29.5%
		institute or college	13	16.7%
		Total	**78**	**100 %**
4	Marital status	single	44	56.4%
		married	29	37.2%
		widowed	2	2.6%
		separated	3	3.8%
		Total	**78**	**100 %**
5	Occupation	child	4	5.1%
		student	33	42.3%
		unemployed	8	10.3%
		free business	21	26.9%
		employee	11	14.1%
		retired	1	1.3%
		Total	**78**	**100 %**

F.: frequency, %: percentage No. number of variables

Table (1) show the most age group recorded by the road traffic accident are between (11-20) years, which represent 41% of the total age groups, the majority of them are male 85.9%. regarding the educational levels, the most of them (32.1%) are primary school graduated. Above half of the sample 56.4% are single. Most of the victims are student which are recorded 42.3%.

Table (2) The Characteristics of accident

No.	Characteristics of accident		f	%
1	Cause of Accident	speed	22	28.2%

		phone use	3	3.8%
		inattention	22	28.2%
		the weather	7	9.0%
		the road	17	21.8%
		traffic safety	5	6.4%
		other	2	2.6 %
		Total	**78**	**100 %**
2	**Time of accident**	day	59	75.6%
		night	19	24.4%
		Total	**78**	**100 %**
3	**The role of victim in accident**	vehicle driver	17	21.8%
		motorcycle driver	13	16.7%
		bicycle	10	12.8%
		car passenger	15	19.2%
		Pedestrian	23	29.5 %
		Total	**78**	**100 %**
4	**Location of fracture**	skull	10	12.8%
		vertebral column	12	15.4%
		ribs	9	11.5%
		pelvis	9	11.5%
		upper extremities	11	14.1%
		lower extremities	14	17.9%
		no fracture	13	16.7%
		Total	**78**	**100 %**
5	**Types of injuries**	head	14	17.9%
		face and jaws	17	21.8%
		chest	8	10.3%
		abdomen	10	12.8%
		Pelvis and back	7	9 %
		upper or lower extremities	22	28.2%
		Total	**78**	**100 %**
6	**Death**	yes	18	23.1%
		no	60	76.9%
		Total	**78**	**100 %**

F.: frequency, %: percentage No. number of variables

The table (2) show the most causes of RTA are speed and inattention of the drivers, which record 28.2 for each causes, regarding the time of accident there is 75.6% of the RTA was occurs during the day, while 29.5% of the victims are Pedestrian. As regard the site of fractures of victims the lower extremities fracture is the higher rate which was 19.7%. the injuries of the victims show the most of them suffering from upper or lower extremities it was 28.2%. Regarding the death rate this table shows 23.1 % of the sample are death results from exposure to RTA.

Discussion: The researchers present several key findings, which are summarized as follows:

Accident Characteristics and Victim Demographics:

Age distribution: The highest percentage of victims fell within the age range of 11-20 years (41%), followed by the age range of 21-30 years (25.6%).Gender distribution: Male victims accounted for 85.9% of the cases, while female victims constituted 14.1%.Education levels: A significant portion of victims had primary education (32.1%), followed by secondary education (29.5%).Marital status: The majority of victims were single (56.4%), while married individuals accounted for 37.2% of the cases. Occupation: Students were the largest occupational group among the victims (42.3%), followed by individuals engaged in free business (26.9%).Additional details regarding the characteristics of accidents include the time of occurrence, with 75.6% of accidents happening during the day compared to 24.4% at night. The role of victims in accidents varied, with pedestrians being the most common (29.5%), followed by vehicle drivers (21.8%).

Causes of Road Traffic Accidents in Mosul City:

Speed was identified as the leading cause of accidents, accounting for 28.2% of the cases.Other significant causes included inattention (28.2%), the road conditions (21.8%), and the weather (9.0%).Phone use, traffic safety, and other factors contributed to a smaller percentage of accidents.

Outcomes of Road Traffic Accidents:

The severity and nature of injuries varied among the victims, with different body regions being affected.

Fractures were prevalent in different body regions, including the skull (12.8%), vertebral column (15.4%), and extremities (upper: 14.1%, lower: 17.9%). Types of injuries ranged from head injuries (17.9%) to face and jaw injuries (21.8%), with varying proportions affecting different body regions. The study found that 23.1% of the accident victims succumbed to their injuries, while the majority (76.9%) survived.

national, state, and metropolitan city level. Analysis shows that the distribution of road accidental deaths and injuries in India varies according to age, gender, month and time. Age group 30-59 years is the most vulnerable population group, though males face higher level of fatalities and injuries than their female counterparts. Moreover, road accidents are relatively higher in extreme weather and during working hours. Analysis of road accident scenario at state and city level shows that there is a huge our current study does not agree with the results of the study[27-38].

This proves that his study coincided with the study (), where the number of cures was 70% and the number of deaths was 30%, and the injuries for men were 80% and for women by 20%, and the rate of injuries for ages between 5-28 was the highest, as it was recorded

By 60%, and for ages between 30-60 by 40%, and the injury rate was in the extremities by 30%, which is the most, in the head by 20%, and at the level of the vertebrae and the abdomen by 15%, and this indicates the extent to which the study matches this study [39,40].

One of the studies proved that it is inconsistent with our study, where the number of deaths was more than the number of recoveries, where the mortality rate was 70% and the recovery rate was 30%, as it proved that injuries at the level of the head are the highest, as they recorded more than 45%, and at the level of the extremities are the lowest, as they recorded a percentage of 25 % and at the level of the vertebrae and abdomen by 30%, and the level of infection in females was high by 50% and for men by 50%, and all of this is not commensurate with the sample that we relied on [41].

Conclusion

The study concludes that Speed was identified as the leading cause of accidents, accounting for 28.2% of the cases, and the study found that the rate of death about one quarter (23.1 %) of the victims.

Recommended

The study recommended proposals that could be submitted to the Ministry of Education, the Ministry of Higher Education, and secondary schools to hold awareness seminars for high school students and universities to educate the aforementioned authorities about the dangers of roads accidents to reduce them.

REEFERENCES:

1.Davies PA. Green crime and victimization: Tensions between social and environmental justice. Theoretical Criminology. 2014 Aug;18(3):300-16.

2.Al-QarraDaghi AA, Baba AM. Spotlight on traffic issues in Iraqi Kurdistan. Journal of University of Human Development. 2015 Jan 31;1(1):1-20.

3.Walugembe F, Levira F, Ganesh B, Lwetoijera DW. A retrospective study on the epidemiology and trends of road traffic accidents, fatalities and injuries in three Municipalities of Dar es Salaam Region, Tanzania between 2014-2018. Pan African medical journal. 2020 May 20;36(1).

4. Ahmed MM, Younis NM, Hussein AA. Violence towards nurses staff at teaching hospitals in Mosul City. Indian Journal of Forensic Medicine & Toxicology. 2020 Jul 30;14(3):2598-603.

5. Younis NM, Ahmed MM, Hussein AA. Nurses' knowledge, attitude and practice towards preparedness of disaster management in emergency of mosul teaching hospitals. Medico-Legal Update. 2020 Jul;20(3):775-9.

6. Younis NM, Mahmoud M, Ahmed A. University Students' Attitude Towards E-Learning. Bahrain Medical Bulletin. 2021;43(2):460-2.

7.Muwfaq YN, Ahmed MM, Abdulsalam RR. Assessing Quality of Life in Palliative Care. Bahrain Medical Bulletin 2021;43(3):594-6.

8. Ahmed MM, Younis NM, Dhahir NM, Hussain KN. Acceptance of Covid-19 vaccine among nursing students of Mosul University, Iraq. Rawal Medical Journal. 2022 Apr;47(2):254-.

9. Muwfaq Younis N. Efficacy of Health Beliefs Model-Based Intervention in Changing Substance Use Beliefs among Mosul University Students: A Randomized Controlled Trial. Revis Bionatura 2022; 7 (2) 35.

10. Al-Ghurairi SA, Younis NM, Ahmed MM. Prevalence of weight gain among students of Mosul University, Iraq during quarantine 2020. Rawal Medical Journal. 2022 Jul;47(3).

11.Konlan KD, Doat AR, Mohammed I, Amoah RM, Saah JA, Konlan KD, Abdulai JA. Prevalence and pattern of road traffic accidents among commercial motorcyclists in the Central Tongu District, Ghana. The Scientific World Journal. 2020 Jun 1;2020:1-0.

12.Mansuri FA, Al-Zalabani AH, Zalat MM, Qabshawi RI. Road safety and road traffic accidents in Saudi Arabia: A systematic review of existing evidence. Saudi medical journal. 2015;36(4):418.

13. Ahmed MM, Younis NM, Abdulsalam RR. Assessment of changes in sleep habits in elementary students during covid_19 lockdown. International Journal of Medical Toxicology & Legal Medicine. 2022;25(1and2):76-80.

14. Adea MK, Lefta RM, Younis NM. Impact of psychosocial aspect parameters on psoriasis patients' quality of life at outpatient clinic in Al-Dewania City, Iraq. Rawal Medical Journal. 2022 Dec 11;47(4):892-.

15. Ibrahim RM, Idrees NH, Younis NM. Epidemiology of leukemia among children in Nineveh Province, Iraq. Rawal Medical Journal: 2023 Jan. Vol. 48, (1):137-.

16.El-Menyar A, Asim M, Zarour A, Abdelrahman H, Peralta R, Parchani A, Al-Thani H. Trauma research in Qatar: a literature review and discussion of progress after establishment of a trauma research centre. Information for authors. 1995;1.

17.Younis N. Assessment of healthy lifestyle habits among Mosul university students. Int J Adv Nurs Stud. 2014 Jul 1;3(2).

18.Yuan P, Qi G, Hu X, Qi M, Zhou Y, Shi X. Characteristics, likelihood and challenges of road traffic injuries in China before COVID-19 and in the postpandemic era. Humanities and social sciences communications. 2023 Jan 3;10(1):1-8.

19.Younis NM, Ahmed MM, Abdulsalam RR. Assessing quality of life in palliative care. International Journal of Medical Toxicology & Legal Medicine. 2021;24(3and4):115-8.

20. Ali HA, Abbas FF, Younis NM. Mothers' knowledge and attitudes towards breastfeeding in Thi-Qar City, Iraq. Rawal Medical Journal. 2023 May 27;48(2):514-.

21.Bura'a LN, Younis NM. Nurses knowledge regarding to phototherapy at neonatal care units in Mosul City, Iraq. Rawal Medical Journal. 2023 May 27;48(2):379-.

22. Ahmed M M, Naji A B, Younis N M. Efficacy of an educational program based on health belief model to enhancing weight control behaviors among employees in the University of Mosul: a randomized controlled trial. Revis Bionatura 2023;8 (3) 28. http://dx.doi.org/10.21931/RB/2023.08.03.28

23.Younis NM. Evaluation the health lifestyle of kindergarten students at Mosul city/Iraq. International Journal of Medical Toxicology & Legal Medicine. 2023;26(1and2):148-52.

24.Bura'a LN, Younis NM. An Interventional Program on Nurses Knowledge and Practice towards Phototherapy in Neonatal Care Units. International Journal of Membrane Science and Technology. 2023 Jul 2;10(2):1428-32.

25.Bucsuházy K, Matuchová E, Zůvala R, Moravcová P, Kostíková M, Mikulec R. Human factors contributing to the road traffic accident occurrence. Transportation research procedia. 2020 Jan 1;45:555-61.

26.Younis NM. Epidemiology of Hepatitis B-virus in Nineveh province: Retrospective Study. International Journal of Membrane Science and Technology. 2023 Jul 2;10(2):1440-4.

27.Abbas AS, Younis NM. Assessing the effect Pender's Model in changing employees' Eating Behaviors suffer hypertension at Mosul University Iraq. Pakistan Journal of Medical & Health Sciences. 2022 Jul 29;16(06):476-.

28. Ayed AY, Younis NM, Ahmed MM. Comparison of infection severity of vaccinated and unvaccinated health workers with Corona Virus: A cohort study. Journal of Education and Health Promotion. 2023 Sep 1(1):336.

29.Younis NM, Ahmed MM, Dhahir NM. Knowledge and Attitude toward older adults among Nursing Students.2021.P J M H S Vol. 15, NO. 3,pp:683_685.

30. Naji AB, Ahmed MM, Younis NM. Adherence the preventive measure against for covid-19among teachers at university of mosul. International Journal of Medical Toxicology & Legal Medicine. 2021;24(3and4):273-7.

31. Ahmed MM, Younis NM, Hussein AA. Prevalence of tobacco use among health care workers at primary health care centers in Mosul City. Pakistan Journal of Medical and Health Sciences. 2021;15(1):421-4.
32. Younis NM, Ahmed MM, Dhahir NM. Prevalence of coronavirus among healthcare workers. International Journal of Medical Toxicology & Legal Medicine. 2021;24(1and2):267-70.
33.Chand A, Jayesh S, Bhasi AB. Road traffic accidents: An overview of data sources, analysis techniques and contributing factors. Materials Today: Proceedings. 2021 Jan 1;47:5135-41.
34.Younis NM. Prevalence of Electronic Hookah and Risk Factors among University Students in Mosul City/Iraq. International Journal of Membrane Science and Technology. 2023 Jul 2;10(2):1422-7.
35.Taher AK, Younis NM.Assessment the Effect of a Trans theoretical Model in Improving Behaviors Health Care workers related Electronic Hookah in Mosul City /Iraq. Rawal Medical Journal: 2023 Jan. Vol. 48, (1):228-.
36.Hammad HM, Ashraf M, Abbas F, Bakhat HF, Qaisrani SA, Mubeen M, Fahad S, Awais M. Environmental factors affecting the frequency of road traffic accidents: a case study of sub-urban area of Pakistan. Environmental Science and Pollution Research. 2019 Apr 1;26:11674-85.
37.Younis NM, Taher AK. Efficacy of Trans Theoretical Model Intervention for Improving Behaviors related to Electronic Hookah Smoking among Healthcare Workers in Mosul Hospital: A Randomized Control Trail. International Journal of Membrane Science and Technology. 2023 Jul 2;10(2):1433-9.
38. Abbas AS, Younis NM. Efficacy of Pender's Health Promotion-based Model on Intervention for Enhancing University of Mosul Hypertensive Employees' Eating Behaviors: A randomized Controlled Trial. Revis Bionatura. 2022;7(3):35.
39. Younis NM, Ibrahim RM, Idrees NH.Prevalence of snake bite among children in Nineveh Governorate/Iraq: A retrospective study. International Journal of Medical Toxicology & Legal Medicine. 2022;25(3and4):169-172.
40.Mohammad FH, Noori LK, Younis NM.Assessment of Nutritional habits among Mosul University Students regarding breakfast. 2023 Jan. Vol. 48, (1):96-.
41.Wang D, Liu Q, Ma L, Zhang Y, Cong H. Road traffic accident severity analysis: A census-based study in China. Journal of safety research. 2019 Sep 1;70:135-47.