



Research Article

Content-analysis of text and video news of traffic accidents in Iran during the years 2001-2017

Saber Azami-Aghdash^a, Mohammad Amin Najafzadeh^a, Mahdijeh Heydari^b, Ramin Rezapour^b, Javad Sajjadi Khasraghi^b, Naser Derakhshani^{a, c*}

^aRoad Traffic Injury Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

^bTabriz Health Services Management Research Center, Health Management and Safety Promotion Research Institute, Tabriz University of Medical Sciences, Tabriz, Iran

^cDepartment of Health Services Management, Iranian Center of Excellence in Health Management, Tabriz University of Medical Sciences, Tabriz, Iran

Abstract

Purpose: The mass media is an effective tool for improving traffic culture by education. The aim of this study was to analyse the content of the text and video news on traffic accidents of Iran during the years 2001 to 2017.

Methods: This qualitative study with Content-Analysis approach was conducted in 2018. The needed data was gathered by searching the keywords of "road traffic injuries, traffic accident, road traffic accident, accident, incident, and crash" in web archives of news agencies and news broadcasting channels. The data entered into an extraction table designed by the study team. To analyze the data, the Content-Analysis method was applied. The Microsoft Excel software was used to draw the figures.

Results: Crossing the lane to left (wrong-way driving), distracted driving, speed limit violation, reckless driving, drowsiness and fatigue were the main causes of collisions in the news. Majority (34.5%) of the accidents occurred in early hours of day (0 to 6 mornings). Fall was the season with highest incidence of the crashes (38.15%). In the text news the light vehicle such as cars were the most involved in the crashes (54.13%). In the video news also the light vehicles were involved in majority of the crashes (90.4%). Only in 10% of the text news and 20% of the video news educational and preventive materials were included.

Conclusion: Findings of this study showed that the prevention and education did not get sufficient attention in the published news on traffic accidents. It is suggested that when pressing the news on traffic accidents, besides the news of the accident, educational and preventive materials be communicated with people.

©2017 Swedish Science Pioneers, All rights reserved.

Correspondence

Naser Derakhshani: Road Traffic Injury Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
Email: derakhshani.mhc@gmail.com
Tell: +989141078750

Keywords:

Prevention
Traffic Accident
Text News
Video News
People Education

Received: 2017/10/26

Accepted: 2018/02/22

DOI: [10.13183/jcrg.v6i1.202](https://doi.org/10.13183/jcrg.v6i1.202)

Introduction

Nowadays road traffic injuries (RTIs) are one of the main causes of mortality and morbidity worldwide [1]. It is estimated that every year 1.2 million people lose their lives and an additional 50 million people get injured due to RTIs globally [2]. It is also estimated that these numbers will increase 65% in next 20 years [3]. Statistics show that beside each death due to RTIs there exist 16 cases of hospitalization and 400 cases of outpatient services or Transient activity limitation [4].

RTIs are the main cause of morbidities and the second cause of mortalities in Iran [5-7] and are prevalent as 4 times as developed countries [8]. On average, 64 people lose their lives and 1967 people get hospitalized every day due to RTIs in Iran [9] and it is estimated that the financial loss of RTIs in Iran

equals to 6000 billion Rail's every year [10, 11]. Moreover, the ratio of RTI deaths to the number of vehicles is 3 worldwide but 33 in Iran [12, 13].

As the research results show and the experts agree, the RTIs are mostly preventable [14-17]. High-income countries have taken a set of measures to prevent the RTIs including speed limit, drunk driving ban, mandatory seat belt and helmet, and designing safer roads and vehicles [18, 19]. Like many other developing countries, similar interventions have recently been implemented in Iran to decrease the incidence and the consequences of the RTIs [20-25].

One major intervention to reduce the RTIs is the public education [26-28]. Despite the recent studies which stated that the public education cannot reduce the deaths and injuries of traffic accidents alone [29, 30], if the education and communication be

able to change the behavior and support the regulations, it will be highly effective [31, 32]. Mass media are suitable for this purpose which can help transfer of knowledge and culture and make the education and communication easier [33]. They can make new cultures popular and new behaviors dominant so they can help modifying the traffic culture by providing education and communication [34, 35].

Since the text and video news is one of the most popular mass media, it can play an extensive role in public education and providing preventive tips towards the RTIs. So analyzing the content of news indicates that to what extent it has been successful in this regard. This analysis would be useful for policy makers in RTIs prevention. This study reviewed and analyzed the news, in text and video format, on road traffic accidents in Iran.

Methods

This was a qualitative study with content analysis approach that reviewed the text video news of traffic of road traffic accidents in Iran during 2001 to 2017. Study population was the web sites of Islamic Republic of Iran Broadcasting (IRIB) channels: Channel 1, Channel 2, News channel (IRINN), provincial channels of Sistan and Baluchestan, Markazi, Tehran, and Yazd, as well as web sites of news agencies of Fars, Mehr, Tabnak, ISNA, Tasnim, Young Journalists Club, Iran Online, Jame Jam Online, Asre Iran, Iran Police News (news.police.ir), and the news search engine: TV news. No sampling was performed and all retrieved 307 text news and 20 video news were included in the analysis.

Study tool was two tables for text and video news which were developed by the study team. The table for text news included: news resource (news code, name of news agency, news URL), date and time (date, time, and season of accident), cause of accident, brief description of the accident, involved vehicles, number of injured people, number of deaths (at accident place, at hospital), recommended preventive tips, and other details (geographical location, city, and the road of accident). The table for video news included news resource (channel of broadcasting), date and time of news (date, time, and duration of broadcasting), the informant person interviewed, cause of accident, brief description of accident, involved vehicles, number of injured people, number of deaths (at accident place, at hospital), recommended preventive tips, and other details (geographical location, city, and the road of accident).

To analyze the qualitative data collected, the Content-Analysis was applied which is a common method for identifying, analyzing, and reporting the patterns within the texts [36]. Coding was done by two researchers independently. Steps of the analysis included: reading the text several times, getting familiarized with data, identifying and extracting the primary codes, identifying the themes by placing similar codes together, revising the themes,

naming and defining the themes, and ensuring reliability of identified codes and themes by obtaining agreement between the two coders and resolving the disputes by discussion.

Haddon’s Matrix was used for categorizing the identified effective factors in traffic accidents. The Matrix was firstly developed by William Haddon in 1970 in USA to identify the effective factors on traffic accidents. The most common Haddon Matrix has 4 columns and 3 rows: the row are related to pre-event, event, and post-event phases and the columns include factors related to human (host), vector (vehicle, equipment, etc), physical environment, and socio-economic ones (Table 1) [37, 38].

Results

In the total 307 text news 2184 people (1587 injuries and 597 deaths) and in the total 20 video news 556 people (401 injuries and 155 deaths) were involved. Of the 752 deaths in the reviewed text and video news, 91.1% occurred at accident scene and 8.9% after transfer to hospital.

Analysis of text news showed that the most common causes of the accidents were: crossing the lane to left (wrong-way driving), distracted driving, speed limit violation, reckless driving, drowsiness, and fatigue (Table 2, Figure 1). Analysis of video news also resulted that the main causes were speed limit violation, crossing the lane to left (wrong-way driving), drowsiness, and fatigue (Table 3, Figure 2).

In general, the 327 texts and video news showed that 34.5% of the accidents occurred between midnight and 6 o’clock in the morning which was highest. The lowest rate belongs to hours between 6 in the morning and 12 at noon as 17%. Regarding the season of accidents, autumn had the highest rate of accidents (38.15%) and spring had the lowest (14.8%).

At the reviewed text and video news 803 vehicles were involved in accidents of which light vehicles were the most involved (72.2%) and motorcycles with 5.4% and public transportation vehicles with 4.8% were the least involved vehicles.

Only 35 out of 327 reviewed text and video news had recommended tips for prevention of RTIs (10.7%) of which 4 were repetitive. The 31 educational tips were categorized as 15 recommendations to drivers, 5 recommendations for passengers, 3 recommendations for observatory institutes, and 3 recommendations for pedestrians (Table 4).

Discussion

In the 327 reviewed text and video news 2740 people were injured of which 752 (27.4) died. In a study in Tanzania (2007) that reviewed the RTIs from 2001 to 2004, 30% of the total involved people were died due to injuries [39]. The corresponding percent in Oman during the years 2001 to 2011 was 9% [40]. The study of Zarei et al which examined the mortalities of RTIs during 1997

Table 1. Haddon’s Matrix

	Human (host)	Vector (vehicle, equipment, ...)	Physical environment	Socioeconomics
Pre-event				
Event				
Post-event				

Table 2. Effective factors in incidence of the road traffic accidents, based on text news in Iran, 2001-2017

Factors phase	Human	Environmental	Vehicle	Road
Pre-event	Reckless driving Drowsiness and fatigue Tailgating and lateral low distance Stopping at freeway Wrong-way driving Running red light Drunk driving Ignoring the traffic signs No use of proper equipment Low driving skills	Weather conditions	Technical problem Design defects	Unsafe road Lack of proper signs
Event	crossing the lane to left Distraction Speeding Inability to control the vehicle Ignoring the priority rules Improper turns	-	Tire blowouts	-
Post-event	-	-	Vehicle fire	-

Table 3. Effective factors in incidence of the road traffic accidents, based on video news in Iran, 2001-2017

Factors phase	Human	Environmental	Vehicle	Road
Pre-event	Drowsiness and fatigue Wrong-way driving	-	Technical problem Design defects	Lack of adequate lighting High traffic volume Deadly Curves
Event	Speeding crossing the lane to left	-	Tire blowouts	-
Post-event	-	-	-	-

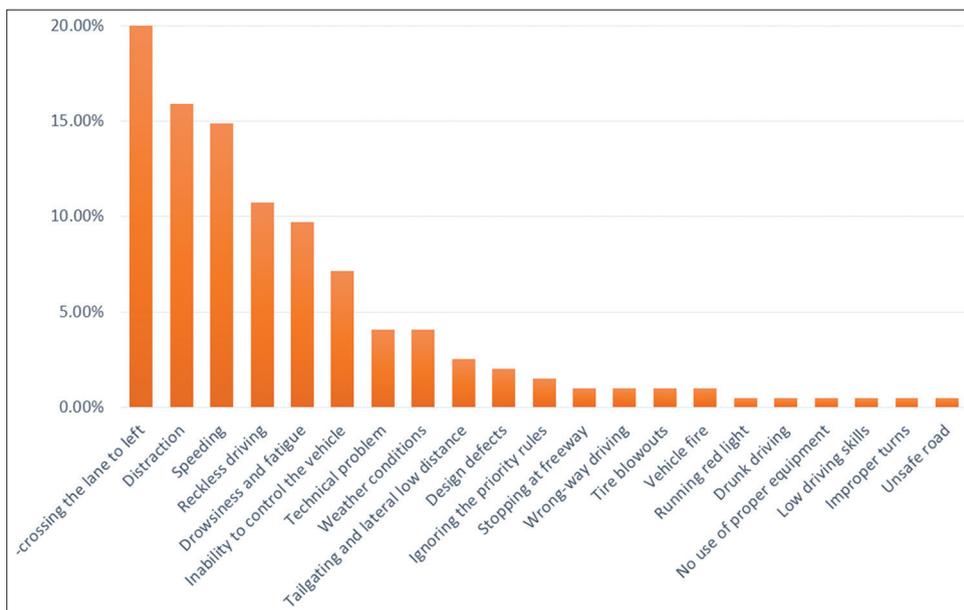


Figure 1. Effective factors in incidence of the road traffic accidents, based on text news in Iran, 2001-2017

to 2006, showed that the mortality rate of the road traffic crashes has declined from 17% in 1997 to 9% in 2006 [41]. The finding that the mortality rate is higher in this study might be related to that this study reviewed the traffic news and the minor crashes might not be reported in news.

In this study the human factors were the most important influencing factors in RTIs. Vogel and Bester (2005) in a study in South Africa reported that the human factors were responsible for 64 to 95% of crashes, followed by vehicle factors and

environmental factors [42]. Hatamabadi et al in Iran (2012) introduced factors such as ignoring the regulations, ignoring traffic signs, and violating speed limit as the main causes of crashes which all are human factors [43]. Human factors were responsible for majority of crashes in Oman so that 60% of RTI mortalities were due to speeding [40]. In this study wrong-lane driving, distracted driving, and speeding were the major causes of crashes. Another study in Iran reported that more than half of the crashes were due to four human factors of ignoring traffic

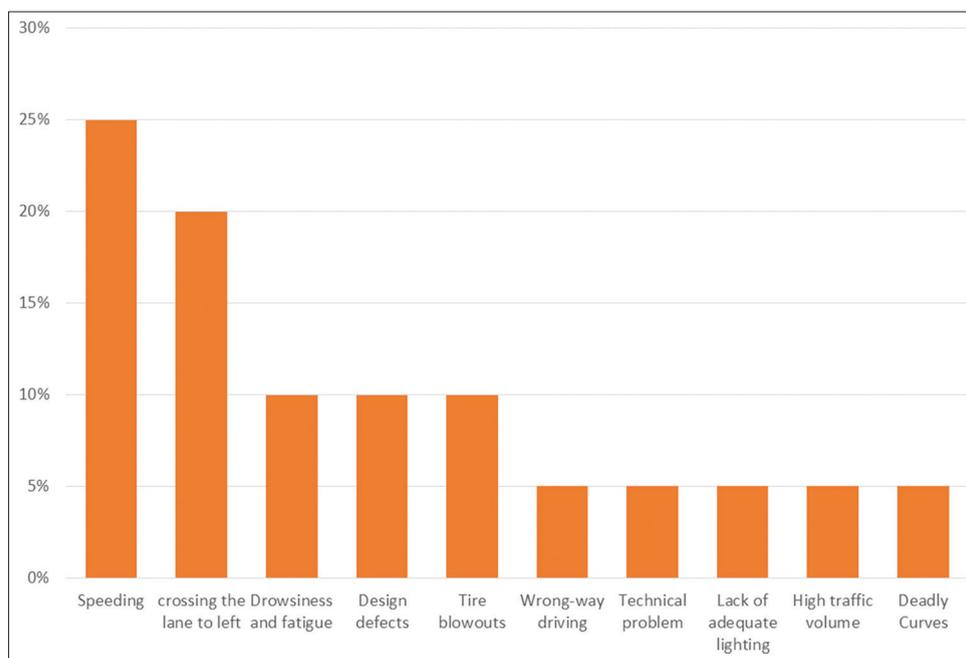


Figure 2. Effective factors in incidence of the road traffic accidents, based on video news in Iran, 2001-2017

Table 4. Preventive tips contained in text and video news media in Iran, 2001-2017

Main themes	Factors
Recommendation to drivers	Obey speed limit Avoid dangerous overtaking and lane change Avoid cellphone when driving Avoid sudden lane change Be careful when road merges Respect traffic laws Avoid driving when tired and sleepy Drive cautiously and avoid hurry Be careful early in the morning and late at night Obey traffic police Check safety of vehicle before travelling Avoid tailgating and consider lateral safe distance Avoid unnecessary trips on traffic peak times Consider weather condition when traveling Equip the vehicle properly, especially snow chains at winter
Recommendations to passengers	Obey traffic laws Care the consciousness of the driver Obey traffic police Use helmet on motorcycles Avoid distracting the driver
Recommendations to observatory institutes	Pay more attention to vehicle inspection More attention of urban and transport offices on public transportation Improve the safety of the roads
Recommendations to pedestrians	Obey traffic laws Obey traffic police Avoid making the accident scene crowded

signs, drowsiness and fatigue, speeding, and drunk driving [44]. Thus it can be concluded that the human factors are the main causes of the RTIs and the role of human factors in the RTIs has been investigated in many studies. Yet, reducing the RTIs by controlling the human factors is time and resource consuming. On the other hand are the interventions on safer roads and

vehicles that can be made by fewer costs and in a shorter period of time.

In terms of seasonal pattern, autumn had the highest rate of crashes (38.1%) and spring had the lowest (14.8%). Study of Demissie (2017) in Swaziland reported that the majority of the accidents occurred in winter (35.7%) and summer (29.4%) [45]. Sadeghi-Bazargani et al in a review study reported that the majority of the accidents had occurred in summer season [46]. The fact that in this study summer had the highest accidents might be due to late report of the accidents of latest days of summer in the news which then are classified as autumn because end of the summer, as the end of summer holidays, is the peak of travels in Iran. Similarly, the review study reported the 12 to 18 o'clock as peak of the accidents which was in contrast to our finding [46]. Another study in Iran (2014) reported that 72.45% of the crashes occurred in daytime [47]. On the seasonal and time pattern of the accidents it is needed that preventive tips and educations be in place specifically for each season and its weather condition.

A finding of this study was that light vehicles (cars and light duty trucks) were involved in 72.2% of the accidents. The corresponding number was 45.6% in Turkey [48] and 38.2% in Swaziland [46] while the public transportation and heavy duty truck were the most involved vehicles in Bangladesh [49] and motorcycles were involved in 21.5% of crashes in Ghana [50].

The key finding of this study was that only 31 out of 307 text news (10%) and 4 out of 20 video news (20%) contained preventive recommendations. A study by Yankson et al in Ghana (2010), which reviewed the newspapers for RTIs, reported that only 0.8% of the news (2 out of 240) contained educational preventive tips [51]. Another study in USA (2004) that reviewed the newspapers of years 1999 and 2000 showed that little attention has been devoted to prevention issue in the accident news [52]. Slater et al stated that preventive recommendations

are useful in risk evaluation and understanding the risk of RTIs by the society [53]. Rosales et al highlighted the role of newspapers in changing the social behaviors and thus suggested the use of preventive recommendation in the RTI news [54]. Despite such helpful possibility to use the news media to change the traffic behavior of the people with the aim of reducing the RTIs, findings show that the possibility did not get enough attention. The organizations involved in RTIs can use the news media to promote the correct traffic behaviors, especially by the news web sites on internet due to their growing audiences. Moreover, developing a framework for news of accidents to contain preventive tips and then requiring the news agencies to apply it might be helpful. The Traffic Police, Ministry of Roads and Urban Development, the Red Crescent Organization, Ministry of Health and other involved organizations can take the opportunity to use the news media for the purpose of preventing the RTIs.

A limitation of this study was incomplete coverage of the road traffic accidents by the news media, especially for the accidents that did not result in multiple casualties. Although this limitation leads to underestimating the number of accidents and injuries, it did not affect the main aim of the study.

Conclusion

This study found that the news media in Iran contained few educational preventive tips on RTIs. It is a good opportunity to promote the correct traffic behaviors and safety tips via news media. A shared framework for RTI's news to include the preventive recommendations might also be helpful.

Acknowledgment

This study was supported by Road Traffic Injury Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Conflict of interest

None.

References

- Zimmerman K, Jinadasa D, Maegga B, Guerrero A. Road Traffic Injury on Rural Roads in Tanzania: Measuring the Effectiveness of a Road Safety Program. *Traffic Inj Prev*. 2014;30:0.
- Short MM, Mushquash CJ, Bedard M. Interventions for motor vehicle crashes among Indigenous communities: strategies to inform Canadian initiatives. *Can J Public Health*. 2014;105(4):e296-305.
- WHO. World report on road traffic injury prevention. Geneva: World Health Organization; 2004.
- Roy N, Murlidhar V, Chowdhury R, Patil SB, Supe PA, Vaishnav PD, et al. Where there are no emergency medical services-prehospital care for the injured in Mumbai, India. *Prehosp Disaster Med*. 2010;25(2):145-51.
- Chaney RA, Kim C. Characterizing bicycle collisions by neighborhood in a large Midwestern city. *Health Promot Pract*. 2014;15(2):232-42.
- Tin ST, Woodward A, Ameratunga S. The role of multilevel factors in geographic differences in bicycle crash risk: a prospective cohort

study. *Environ Health*. 2013;12(106):12-106.

- Azami-Aghdash S, Sadeghi-Bazargani H, Shabaninejad H, Abolghasem Gorji H. Injury epidemiology in Iran: a systematic review. *Journal of Injury and Violence Research*. 2017;9(1):27-40.
- Statistical Yearbook of Road Maintenance and Transportation. Tehran: Road Maintenance and Transportation, Technology; 2010.
- Rad S. The survey of human error and its relationship with driving accident. *Tolo e Shargh*. 2009;8(3):27-9.
- Azami-Aghdash S, Sadeghi-Bazarghani H, Heydari M, Rezapour R, Derakhshani N. Cost of Road Traffic Injuries in Iran: A mini-systematic review. 2018. 2018;5(2).
- M N. Pattern of mortality in 23 provinces of Iran (2002). 4th ed. Tehran: Ministry of health. 2005.
- Mental health unit, mental health of injury and accident Payam Helal 2005; 6: 105.
- Soroush AR, Ghahri-Saremi S, Rambod M, Malek-Hosseini SA, Nick-Eghbal S, Khaji A. Pattern of injury in Shiraz. *Chin J Traumatol*. 2008;11(1):8-12.
- Dharmaratne SD, Ameratunga SN. Road traffic injuries in Sri Lanka: a call to action. *J Coll Physicians Surg Pak*. 2004;14(12):729-30.
- Manno M, Rook A, Yano-Litwin A, Maranda L, Burr A, Hirsh M. On the road with injury prevention--an analysis of the efficacy of a mobile injury prevention exhibit. *J Trauma*. 2011;71(5 Suppl 2).
- Brewin M, Coggan C. Evaluation of a New Zealand indigenous community injury prevention project. *Inj Control Saf Promot*. 2002;9(2):83-8.
- Bunn F, Collier T, Frost C, Ker K, Roberts I, Wentz R. Area-wide traffic calming for preventing traffic related injuries. *Cochrane Database Syst Rev*. 2003;1.
- Peden M. Global collaboration on road traffic injury prevention. *Int J Inj Contr Saf Promot*. 2005;12(2):85-91.
- Pless B. Road traffic injury prevention: *BMJ*. 2004 Apr 10; 328(7444):846.
- Azami-Aghdash S, Sadeghi-Bazarghani H, Heydari M, Rezapour R, Derakhshani N. Effectiveness of Interventions for Prevention of Road Traffic Injuries in Iran and Some Methodological Issues: A Systematic Review. *Bulletin of emergency and trauma*. 2018;6(2):90-9.
- Khorasani-Zavareh D, Shoar S, Saadat S. Antilock braking system effectiveness in prevention of road traffic crashes in Iran. *BMC Public Health*. 2013;13(439):1471-2458.
- Soori H, Ainy E, Montazeri A, Omidvari S, Jahangiree AR, Shiran GR. The role of pupil liaisons' on traffic penalties and road traffic injuries. *Payesh*. 2010;9:339-48.
- Soori H, Movahedinejad A, Mahfozphoor S, Movahedi M, Rezazadeh Azari M, Hatamabadi H, et al. A Practical Model of Political Mapping in Road Traffic Injury in Iran in 2008 *Hakim*. 2009;12(3):1- 9.
- Soori H, Nasermoadei A, Ainy E, Movahedi M, Mehmandar M, Massoudei Nejhad M, et al. The effect of mandatory seat belt use legislations on mortalities from road traffic injuries in Iran *Hakim*. 2009;12(1):48- 54.
- Soori H, Royanian M, Zali A, Movahedinejad A. Study of changes on Road Traffic Injury Rates, before and after of Four Interventions by Iran Traffic Police. *Pajoohandeh*. 2009;14(1):15- 20.

26. Hung KV, Huyen LT. Education influence in traffic safety: A case study in Vietnam. *IATSS Res.* 2011;34.
27. Johnson OE, Owoaje ET. Effect of health education on the riding habits of commercial motorcyclists in Uyo, southern Nigeria. *West Afr J Med.* 2012;31(1):39-46.
28. Williams RS, Graham J, Helmkamp JC, Dick R, Thompson T, Aitken ME. A trial of an all-terrain vehicle safety education video in a community-based hunter education program. *J Rural Health.* 2011;27(3):255-62.
29. Duperrex O, Bunn F, Roberts I. Safety education of pedestrians for injury prevention: a systematic review of randomised controlled trials. *BMJ: British Medical Journal.* 2002;324(7346):1129-.
30. Ker K, Roberts I, Collier T, Renton F, Bunn F. Post-licence driver education for the prevention of road traffic crashes. *Cochrane database of systematic reviews (Online).* 2003(3).
31. Azami-Aghdash S, Gorji HA, Shabaninejad H, Sadeghi-Bazargani H. Policy Analysis of Road Traffic Injury Prevention in Iran. *Electronic physician.* 2017;9(1):3630-8.
32. Elvik R, Vaa T. *Handbook of road safety measures* Amsterdam: Elsevier; 2004.
33. Esmaeili F, Sepehrnia R. Creative attitude in the function of the Internet in Iranian women. *Scientific Journal Management System.* 2016;5(4):249-76.
34. Stead M, Tagg S, MacKintosh AM, Eadie D. Development and evaluation of a mass media Theory of Planned Behaviour intervention to reduce speeding. *Health Education Research.* 2005;20(1):36-50.
35. Yadav R-P, Kobayashi M. A systematic review: effectiveness of mass media campaigns for reducing alcohol-impaired driving and alcohol-related crashes. *BMC Public Health.* 2015;15(1):857.
36. Speziale HS, Streubert HJ, Carpenter DR. *Qualitative research in nursing: Advancing the humanistic imperative: Lippincott Williams & Wilkins;* 2011.
37. Deljavan R, Sadeghi-Bazargani H, Fouladi N, Arshi S, Mohammadi R. Application of Haddon's matrix in qualitative research methodology: an experience in burns epidemiology. *Int J Gen Med.* 2012;5:621-7.
38. Sadeghi-Bazargani H, Azami-Aghdash S, Arshi S, Mohammad Hosseini M, Samadirad B, Nadir Mohammadi M, et al. Exploring possible causes of fatal burns in 2007 using Haddon's Matrix: a qualitative study. *J Inj Violence Res.* 2015;7(1):1-6.
39. Komba DD. Risk factors and road traffic accidents in Tanzania: A case study of Kibaha District: Fakultet for samfunnsvitenskap og teknologiledelse; 2007.
40. Al-Risi A. Characteristics of road traffic injuries and potential risk factors in Oman (Thesis, Bachelor of Medical Science with Honours): University of Otago; 2014.
41. Zarei M, Rahimi-Movaghar V, Saadat S, Panahi F, Dehghanpour R, Samii A, et al. Road traffic crashes mortality and morbidity in Iran in 1997-2006. *Hakim Research Journal.* 2008;11(3):42-6.
42. Vogel L, Bester C. A relationship between accident types and causes. *SATC 2005.* 2005.
43. Hatamabadi H, Soori H, Vafae R, Hadadi M, Ainy E, Asnaashari H. Epidemiological pattern of road traffic injuries in Tehran-Abali Axis in 2008: A prospective study. *PAYESH.* 2012;11(1):29-37.
44. from First ACCS, Annex M. *Iranian Nuclear Science Bibliography: Open Literature References Compiled by Mark Gorwitz September 2009 Reactor Science Documents/Reports.*
45. Demissie M. Risk factors associated with serious and fatal road traffic accidents in Manzini City, Swaziland. 2017.
46. Sadeghi-Bazargani H, Ayubi E, Azami-Aghdash S, Abedi L, Zemestani A, Amanati L, et al. Epidemiological Patterns of Road Traffic Crashes During the Last Two Decades in Iran: A Review of the Literature from 1996 to 2014. *Archives of Trauma Research.* 2016;5(3):e32985.
47. Lankarani KB, Heydari ST, Aghabeigi MR, Moafian G, Hoseinzadeh A, Vossoughi M. The impact of environmental factors on traffic accidents in Iran. *Journal of injury and violence research.* 2014;6(2):64.
48. Burgut HR, Bener A, Sidahmed H, Albuz R, Sanya R, Khan WA. Risk factors contributing to road traffic crashes in a fast-developing country: the neglected health problem. *Turkish Journal of Trauma and Emergency Surgery.* 2010;16(6):497-502.
49. Jabbar M, Islam M, Sultana R, Akhter S. Risk factors of road traffic accidents (RTA) in context of Bangladesh. *Journal of Dhaka Medical College.* 2009;18(2):161-5.
50. Awal M. Identification of Risk Factors Involved In Road Accidents in Ghana: A Case Study of the Techiman Municipality 2013.
51. Yankson IK, Browne EN, Tagbor H, Donkor P, Quansah R, Asare GE, et al. Reporting on road traffic injury: content analysis of injuries and prevention opportunities in Ghanaian newspapers. *Injury prevention.* 2010;16(3):194-7.
52. Connor SM, Wesolowski K. Newspaper framing of fatal motor vehicle crashes in four Midwestern cities in the United States, 1999-2000. *Injury Prevention.* 2004;10(3):149-53.
53. Slater MD, Long M, Ford VL. Alcohol, illegal drugs, violent crime, and traffic-related and other unintended injuries in US local and national news. *Journal of studies on alcohol.* 2006;67(6):904-10.
54. Rosales M, Stallones L. Coverage of motor vehicle crashes with injuries in US newspapers, 1999-2002. *Journal of safety research.* 2008;39(5):477-82.