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Prevalence of Road Traffic Accidents, and Associated Factors among Taxi Drivers in Jigjiga Town, Ethiopian Somali Regional State, Eastern Ethiopia

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Abstract

Background: *Globally injury and deaths due to road traffic accidents (RTA) are a major public health problem more so in developing countries; as lives and disability adjusted life years were lost from road traffic accidents. In Ethiopia numerous problems are related to road traffic accidents.* ***Objective:*** *To determine the prevalence of road traffic accidents and associated factors among taxi drivers in jigjiga town, Eastern Ethiopia.*

Methodology: *A community based cross sectional study was conducted among randomly selected taxi drivers living in jigjiga town, using a simple random sampling technique to randomly select 378 taxi drivers. The data was collected using a pre-tested, interviewer-administered questionnaire and entered using Epidata version 3.1 and analyzed by SPSS version 20 to identify associated factors of road traffic accidents.*

Results: *The prevalence of road traffic accidents in past three years was found to be 32.8% (29.0, 34.8) among taxi drivers in the study area. Vehicle ownership (AOR=2.7, CI: 1.64, 4.4), chewing Khat while driving, (AOR= 5.0, CI: 1.1, 22.9), age of the taxi drivers (AOR=2.38, CI: 1.23, 4.59), having own residence (AOR=0.55, CI: 0.33, 0.92) and punishment by traffic police (AOR=0.23, CI: 0.087, 0.47), were significantly associated with road traffic accidents.*

Conclusion: *the result of this, study show that taxi drivers in Jigjiga town inconstant placed themselves increase risk of road traffic accidents by violating traffic laws, especially related to vehicle ownership, chewing Khat while driving, and punishment by traffic police. There is a need for awareness campaigns on road safety rules.*

Keywords: *Road Traffic Accidents, Prevalence, Associated Factors, Jigjiga Town, Somali Region, Ethiopia.*

Introduction

World Health Organization (WHO) defines road traffic accidents (RTA) as a fatal or non-fatal injury incurred as a result of a collision on a public road involving at least one moving car and pedestrians plus crash that occurs on a way or street open to public traffic, which results in one or more persons being killed or injured, and at least one moving car is involved. Therefore, RTA is a collision between cars, cars and pedestrians, cars and animals, or cars and geographical or architectural obstacles. It is a major, but mistreated public health challenge that requires determined efforts for effective and sustainable prevention (1).

Globally, around 1.25 million people die annually from road traffic accidents. This means more than 3,400 death, occur on daily basis as a result of road traffic accidents(2). However, injuries and deaths due to road traffic accidents (RTA) are a major public health problem in developing countries where more than 85% of all deaths and 90% of disability adjusted life years were lost due to road traffic accidents(3). Moreover, there is a marked variation across the world in the way that roads are used and injuries

are caused, which have important implications for road safety policy and practice. Road traffic accidents in high- motorized countries, mostly involve car driver, whereas in certain Asian countries, it is motorcycle riders and in many low-income countries, it's the occupants of multiple passenger vehicles, pedestrians, road infrastructure and vehicle design and exposure to risk factors such as speeding and not wearing seatbelt(4). Even though, the number of registered vehicles in Africa is comparatively low, the estimated road traffic death rate is high. In 2015, the proportion of vehicles per 1000 people in Africa was 46.6 as compared to 510.3 in Europe(5).

Ethiopian National Road Safety Coordination Office cites a road accidents fatality rate of 114 deaths per 10,000 vehicles per year. Officially, 81% of accidents in Ethiopia are attributed to driver error. Driver impairment is rarely recorded as a contributory factor and government officials told us that they believe Khat use is a major cause of driver error and accidents (6-9). Ethiopia is enforcing various RTA preventive measures like speed limit; seat belt law; helmet law; drunk-driving law; mobile phone use while driving law; and child restraint law. Accordingly, maximum speed for urban roads is 60 km/h whereas it is 70 km/h in rural areas. Motorcycle helmet law applies to both drivers and passengers and national seat-belt law applies to drivers, front and rear seat occupants (6, 7).

According to the Somali Region Police Commission and Constriction Road and Transportation Bureau, documented a significant increase in the number of RTCs, occurring annually, in Somali Region, from 526 crashes in 1995, to 1463 crashes in 2009. The report stated that 85% of the crashes were related to driver risk behavior, 7% were due to vehicle problem, 4% due to a pedestrian problem and the remaining 4% were due to poor road and environmental condition. As a result, the significant factors contributing to road traffic injury in the Somali region remain unknown. Moreover, the causal relationship between road traffic injury victims and potential risk factors in the Ethiopian Somali Region remain unknown. So, this study conducted with the prevalence and associated factors with road traffic accidents among taxi drivers in Jigjiga city, Eastern Ethiopia.

Methodology

Study area

Jijiga (Somali: Jigjiga) is one of the district in the Somali Region of Ethiopia. Part of the Jijiga Zone, Jijiga is bordered on the south by Kebri Beyah, on the southwest by Gursum, on the southeast by Ajersagora, on the north by the Shinile Zone, and on the northeast by Awbere. Towns and cities in Jijiga include Jijiga. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), this woreda had a total population of 277,560, of whom 149,292 were men and 128,268 were women. While 125,876 or 45.35% were urban inhabitants, a further 6,956 or 2.51% were pastoralists. 91.41% of the population said they were Muslim, and 6.97% were Orthodox Christian.

According to transport authority, the total number of all taxis that work daily, account 4050 which are four-wheeler minibus and three-wheeler Bajaj. More than 70% of registered vehicles in the Somali region are found in jigjiga. The city transport office has also assigned taxi operators at designated areas in order to alleviate transportation problems faced by the public According to the plan, the city is divided into five taxi zoning areas.

Study setting

A community based cross-sectional study was conducted among taxi drivers in jigjiga town, Ethiopian Somali regional state, March, 2018-May, 2018. The source population of this study were all taxi drivers who registered under Construction, Road and Transportation Bureau, in jigjiga, town and the study population were all randomly selected taxi drivers registered under Construction, Road and Transportation Bureau, in jigjiga, town.

Inclusion and exclusion criteria

In this study as per the inclusion criteria all taxi drivers who were registered in Construction, Road and Transportation Bureau, and having contact address, were included and the exclusion criteria, all taxi drivers who weren't registered in Construction, Road and Transportation Bureau, and the driver who registered in last months, were excluded.

Sample size determination

EPI INFO was been calculated using a single population proportion formula considering the following assumptions: prevalence of road traffic accidents among taxi drivers in Addis Ababa is 36.8 [reference] (34) level of confidence 95% with a 5% margin of error and 80% power. The final sample size 378, was estimated.

Sample technique and procedure

A simple random sampling technique was employed to select the study participants. The list of all taxi drivers (reference frame) was obtained from Jigjiga town RCT Bureau. As per RCT bureau data there were 4050 taxi drivers registered in Jigjiga town. Out of this 50 were four-wheeler taxis and the rest 4000 were three-wheeler taxis. Through a computer-generated random number method 378 taxi drivers were randomly selected for the study. The sample size was proportionally allocated to the types of the taxi according to the total number of four-wheeler and three-wheeler taxi drivers.

Data collection technique and tools

The data collection was done using a pre-tested interviewer administered questionnaire. The questionnaire was prepared in English and was translated to Somali (local language) and Amharic then back translated to English to check for its consistency. The Amharic version of the questionnaire was made available for the drivers reporting difficulty understanding the local language. Part of the questionnaire was adapted from previous study, reviewing relevant literature about the problem under study to include all the possible variables that address the objectives of the study. The questionnaire contains items on background profile of the taxi drivers, driver characteristics, vehicle condition, and road traffic accident details. The questionnaire was administered through face to face interview by six data collectors and one supervisor and the interview was taken about 15-20 minutes. All data collectors had an educational level of diploma and above. Study participant were contacted using their phone number and taxi code number.

Study variables

Dependent variable

Road Traffic Accidents.

Independent variables

Socio-demographic information: age, marital status, education, family size residence, and income. Driver's characteristics: seatbelt, drunk drinking, chewing, Khat, speed driving, listening FM/music, driving license, cell phone use, driving experience. Vehicle condition: type of vehicle, taxi maintenance, high service years of vehicle and vehicle ownership.

Operational definitions

Driver: Persons in control of vehicles other than pedal cycles and two-wheeler vehicles. **Passengers:** Occupants of vehicles, other than the person in control, including extra seat/pillion passengers. **Pedestrians:** People walking or riding or pushing bicycles on the street or footpath. **Road:** Every public road system: state, regional or local road, or city street. **Road traffic accidents:** A crash between vehicles; between vehicles and pedestrians; between vehicles and animals; or between vehicles and fixed obstacles. **Road users:** Pedestrians and vehicle users which include all occupants (i.e. driver or rider and passengers). **Taxi:** A vehicle, whose driver is paid to transport passengers and their light commodities, typically for short distances. **Vehicle:** A machine that is used to carry people or goods from one place to another. It could be bicycle, motor cycle or three and above wheeled machine. **Speed** of driving: A taxi driver, who drive more than the limited speed. **Service year of the car:** four-wheeler minibus and three-wheeler Bajaj service years. **Khat chewing:** A taxi driver, who chewing Khat while driving vehicle. **Alcohol driving:** A taxi driver, who drive within 3 hours of having one or more alcoholic drinks.

Data quality control

Data quality was assured through training of data collectors, questionnaire pretesting and continuous supervision at the time of data collection. The questionnaire was pre tested among 5% (20) eligible taxi drivers outside (tog-wajale) the study area. Supervisors together with principal investigators were discussed about findings of pretest and the questionnaire was modified before the actual data collection. The questionnaire was checked each day on the actual data collection time for completeness and consistency by supervisors and principal investigators. The code was given in the

completed questionnaire.

Data processing and analysis

Data was first checked manually for completeness. Following this the collected data was entered, coded, and cleaned through EPI DATA version 3.1 and then it was exported to SPSS version 20 for further analysis. To describe the study population in relation to relevant variables, frequency tables, graphs and summary statistics were used. Initial analysis was by chis-squared testing. Bivariate and then multivariate analysis was carried out.

During the bivariate analysis variables with a p value <0.25 were considered as candidate for multivariate analysis. Odds ratio (OR) with confidence intervals and p-values was calculated and tests of association for categorical variables was made. A logistic regression test to control confounding variables and identify independent predicators for Road Traffic accidents was carried out. The output of the analysis was presented with odds ratio and the respective 95% confidence intervals. P value < 0.05 was considered statistically significant.

Ethical considerations

Ethical clearance and approval were obtained, from Jigjiga University College of Medicine and Health Science ethical review committee. Formal letter of support was submitted to the Road Construction Bureau administration. Data was collected with the consent of study participants after informing them about the objectives of the study, and how long it takes for the interview and the measurements. Study participants had the right to decide not to participate or discontinue the interview. Questionnaires was anonymous and participants were reassured of the confidentiality of the information they provide for this study. Confidentiality and privacy were maintained by excluding the name and identity of study participants from the questionnaire.

Plan for dissemination and communication of the results

The findings would be presented to the Jigjiga University scientific community and it would also be communicated to policy makers, Somali Police Commission, and Somali Construction, Road and Transportation Bureau ministry of health, regional health bureaus, local health planners, health care providers and other relevant stake holders working in the area to enable them to take recommendations in to account during their planning to increase knowledge about road traffic crash.

It would also be presented at different seminars and would be used as base line data for further studies on similar or related topic. Finally, the study findings would be published in peer reviewed reputable journals to be available for those who could benefit from the study.

Results

Socio-demographic characteristics of the drivers

Of the total 378 planed of the drivers who had registered taxi drivers under Construction, Road and Transportation Bureau, in jigjiga, town, preceding this survey, 357 drivers were interviewed resulting in a response rate of 94.4%. The mean age of the study participants was 29 (SD+/- 6.81). Nearly three fourth 73.3% of the drivers were Muslim, while 95 (26.6%) of the respondents were Christians. Slightly more than half 55.5% of the drivers were currently married, while 159 (44.5%) of the study participant were single.

Nearly half 44.4% of the study participants had more than two children. With regard to the educational level 150 (42.0%) respondents reported having secondary education, and 79 (22.1%) attended diploma and above. More than half 59.1% of the taxi drivers were supported more than two family members. Nearly three fourth 73.3%of the taxi driver's monthly salary income was 1000-5000, ETB. Slightly more than half 59.4% of the taxi drivers had their own residence as shown in **Table1.**

Drivers characteristics

All 100% of the study participants had not got first aid training, and most of the taxi drivers 99.7% didn't have life insurance. Only 2.5% of the drivers reported using seatbelt as required by law, while 97.5% of the drivers noted that there is no seatbelt in Bajaj taxi. Approximately 71 (19.9%) of the taxi drivers reported drinking any alcoholic beverages, while four fifth 80.1% of the taxi drivers reported not drinking any alcoholic beverages and about more than half 59.1% of the taxi drivers reported drinking very often within 3 hours having one or more alcoholic beverage. Over 18.3% of the taxi drivers reported drinking occasionally within 3 hours having one or more

alcoholic beverage and 14.0% of the taxi drivers reported drinking seldom within 3 hours having one or more alcoholic beverage.

More than four fifth 82.1% of the taxi drivers reported that they had received punishments by traffic police and about more than half 58% of the drivers three and above punishments for violating traffic rules in the past. Over 42.0% of the drivers reported receiving 1-2 punishments. With regard to Khat chewing, more than two third 70.3% of the taxi drivers had Khat chewing while they driving, and 106 (29.7%) of the taxi drivers were not chewing Khat. Slightly more half 55.2% of the taxi drivers was drove above the national urban speed limit of 60km/hr. while 160 (44.8%) of the taxi drivers did not drive more than the limited speed. About 66.7% of the taxi drivers reported that they received mobile calls while driving, rather than stopping the vehicle to receive the calls. Most 91.3% of the taxi drivers listened to FM and music programs. More than 72.8% of the taxi drivers had the minimum requirement driving license (1st and 2nd level) to drive a taxi, while only 97 (27.1%) of the taxi drivers had reached 4th and 5th level. Three fourth 78.7% of the taxi driver had three years and above driving experience and nearly 90% of the taxi drivers had training for driving license in jigjiga city driving schools. Details of the driver's characteristics of the study participant are given in **Table: 2**.

Vehicle condition

Most of the study participants 344, (95.6%) drove three wheeled Bajaj taxi, while the remaining drove four wheeled minibus. More than half 60.5% of the vehicles had 1-4 years of vehicles service, while the remaining 39.5% of the vehicle had above four years of vehicles service.

With regard to the ownership of the vehicles more than two third 69.5% of the drivers reported they drove employer vehicle, while 30.5% of the drivers reported that they drove own vehicle. Slightly more than 60% of the drivers reported the vehicle does not encounter a mechanical problem, while the remaining 39.2% of the driver reported that the vehicle does encounter mechanical problems. Out of these 42.9% of the drivers reported that the common mechanical problem the vehicle encountered were brake, while 28.6% of the driver reported that the vehicle encountered electric and mechanical problem. Details of vehicle condition of the study participants are given in **Table 3.**

Road traffic accident status and cause

Regarding road traffic accident status, about 33 % (29.0, 34.8) of the study participants reported that they had road traffic accident in past three years. Out of these 27.4% of the taxi drivers reported that the quality of road was the cause of the accidents, while 19.7% of the taxi drivers reported following too close to another vehicle was the cause of the accidents. Slightly more than half (58.1%) of the drivers reported that the type of the collision was due to other vehicle drivers' fault and 19.7% of the drivers reported that the collision was due to pedestrian's fault, while only 17.9% of the drivers reported that the collision was with animals.

With regard to the consequences of the accidents 29.3% of people were seriously injured, while 13.8% of the people died. Slightly more than half 55.7% of the pedestrians were injured while 41.4% of the passengers were injured and only 2.9% of the drivers were injured. Nearly three fourth 73.9% of the pedestrian died and only 26.15 of the passengers died. Slightly more than half 51.3% of the road traffic accidents happened around masjid/church, while 25.6% of the road traffic accidents happened at commercial center and 23.1% of the road traffic accident were happen near to school. Nearly 60% of the road traffic accidents happened straight, while 34.2% of the road traffic accidents happened three junctions.

More than 90% of the road traffic accidents happened asphalt roads, while the remaining road traffic accidents happened non-asphalt roads. More than half 58.1% of the road traffic accident happened normal weather conditions, while 29.9% of the road traffic accidents happened during rain. More than four out of five 81.8% of the road traffic accidents happened during day time, while 18.8 of the road traffic accidents happened during night time. Details of about road traffic accident status and cause are given in **Table 4.**

Independent predictors of road traffic accident

bivariate analysis, age of the driver, driver's residence, first aid training, punished for traffic rules, cell phone use, vehicle ownership, Khat chewing, listing music, use alcohol beverage, and

driving experience, was found to be a strong predictor of Road Traffic Accidents. multivariate logistic regression analysis younger age, having their own residence, punishment by traffic police, vehicle ownership and Khat chewing were independently associated with road traffic accident in the studies population. Age was found to be an independent predictor of road traffic accidents.

Drivers who age between 18-25 years were 2.4 times (AOR=2.38, CI: 1.23, 4.59) more likely to have road traffic accidents as compared to age those who was more than 35 years. Drivers who chewed Khat while driving, were 5.0 times (AOR= 5.0, CI: 1.1, 22.9) more likely to be at risk of road traffic accidents as compared to taxi drivers who didn't chewing Khat while driving. Taxi drivers who didn't drove their own Vehicle, were 2.7 times (AOR=2.7, CI: 1.64, 4.4) more likely to risk of road traffic accidents compared to those who drove their own vehicle. Drivers who having their own resident and punishment by traffic police was found to be a protective factor, (AOR=0.55, CI: 0.33, 0.92) and (AOR=0.23, CI: 0.087, 0.47). Details are given **in Table 5.**

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Table1. Socio-demographic characteristics of drivers of the study participants in Jigjiga town, Ethiopia, Somali region, 2018(n = 357)

Variable	Categories	Frequency(n)	Percentage (%)
Age (Years)	18-25	117	32.8
	26-35	169	47.3
	>35	71	19.9
Religion	Muslim	262	73.3
	Christians	95	26.6
Marital status	Single	159	44.5
	Married	198	55.5
Number of children	zero children	89	24.0
	1-2 children	120	33.6
	Above 2 children	148	41.4
Level of education	Read and write	55	15.4
	Grade eight	73	20.4
	Secondary schools	150	42.0
	Diploma and above	79	22.1
Family members	Zero family members	95	26.6
	1-2 family members	91	25.5
	3-4 family members	72	20.2
	5 above family members	99	27.7
Monthly income	1000-5000	211	59.1
	Above 5000	146	40.9
Own residence	Yes	212	59.4
	No	145	40.6

Table 2. Drivers" characteristics of the study participants in Jigjiga city, Ethiopia Somali region, June, 2018(n = 357)

Variable	Categories	Frequency	Percentage
First aid training	Yes		
	No	357	100.0
Life insurance	Yes	1	0.3
	No	356	99.7
Seatbelt use	Yes	9	2.5
	No	347	97.5
frequency of seatbelt use	Most of the time	2	22.2
	Sometimes	7	77.8
Reason for not using seatbelt	No benefit	2	0.6
	No seatbelt	348	99.4
Use alcoholic beverages?	Yes	71	19.9
	No	286	80.1
Frequency of driving after having alcohol with in three hrs	Very often	42	59.1
	Occasionally	13	18.3
	Seldom	10	14.0
	never	6	8.4
Punished by traffic police for any disregarding traffic rules?	Yes	293	82.1
	No	64	17.9
Frequency of punishment	One-two	123	42.0
	Three-four	115	39.2
	Above four	55	18.8
Chewing Khat	Yes	251	70.3
	No	106	29.7
Frequency of Khat chewing.	Always	84	33.5
	Most of the time	91	36.3
	sometimes	76	30.3
Reason to chewing Khat	energizes me	100	39.8
	for pleasure	103	41.0
	feel free	48	19.1
driving above the recommended speed	Yes	196	55.2
	No	160	44.8
Frequency of practice.	Very often	118	59.9
	Occasionally	30	24.9
	Seldom	49	15.2
reason to drive above given the speed limited	For Short queue	12	6.1
	To Increase income	144	73.1
	Racing with another driver	41	20.8
phone call responding approach	Reduce speed and receive calls	112	31.4
	Stop driving and receive call	51	14.3
	Receive normal speed	126	35.3
	Disconnect ring	68	19.0
maximum timing at night drive	6:00-9:00 pm	218	61.0
	Above 9:00 pm	139	38.9

Listen to FM and TV programs habit	Yes	326	91.3
	No	31	8.7
Level of driving license	Level one	71	19.9
	Level two	189	52.9
	Three and above	97	27.1
Driving experience as a taxi driver	One-two years	76	21.3
	Above three yrs.	281	78.7
Training for driving license	Jigjiga driving schools	321	89.9
	Other driving schools	36	10.1

Table 3. Vehicles conditions of the study participants in Jigjiga city, Ethiopia Somali region, June, 2018(n = 357)

Variables	**Categories**	**Frequency(n)**	**Percentage (%)**
How many years of Vehicle services	1-4 years	216	60.5
	Above 4 yrs.	141	39.5
What type of vehicle you drive currently	Three-wheeler taxi	344	95.6
	Four-wheeler taxi	13	3.6
Who is the owner of this vehicle	Myself	248	69.5
	Employer	109	30.5
Does your taxi/Baja encounter a mechanical problem	Yes	140	39.2
	No	217	60.8
Common mechanical problem	Brake	60	42.9
	Steer	4	2.9
	Lighting	40	28.6
	Tyre	36	25.7

Table 4. Road traffic status and cause of accident the study participants in Jigjiga city, Ethiopia Somali region, 2018 (n = 357)

Variable	**Categories**	**Frequency**	**Percentage**
Have you ever had Road traffic accident in the past three years?	Yes	117	32.8
	No	240	67.2
Cause of the accidents?	drunk driving	8	6.8
	Khat chewing	8	6.8
	Phone use while driving	7	6.0
	Following too close to the other vehicle	23	19.7
	Quality of road	32	27.4
	Vehicle mechanical problem	15	12.8
	Others	24	20.5
Type of collision	With human/pedestrian	23	19.7
	With another vehicle	68	58.1
	With animal	21	17.9
	With obstacle	5	4.3
Consequence of the accident?	Death- people	16	13.8
	Death- animal	17	14.7
	Serious injury-people	34	29.3
	Minor injury – people	15	12.9
	Property damage only	34	29.3
Injured happened at	Passenger	29	41.4
	Pedestrian	39	55.7

	Driver	2	2.9
Death happened at	Passenger	6	26.1
	Pedestrian	17	73.9
site of accident	Near school	27	23.1
	At commercial center	30	25.6
	Around church/mosque	60	51.3
Junction type	Straight road	70	59.8
	Tri junctions	40	34.2
	square	7	6.0
Weather condition during accident	Normal weather condition	68	58.1
	Rainy	35	29.9
	Windy	12	10.3
	Fog	2	1.7
Road type where the accident happened	Asphalt	108	92.3
	None asphalt	9	7.7
Time when the accident happened	Day	95	81.2
	Night	22	18.8

Table 5. Factors associated with road traffic accidents among taxi driver in Jigjiga town, form April-June, 2018

Variable	**Categories**	**Road TR. A**		**COR (CI: 95%)**	**AOR (CI: 95%)**	**P value**
		Yes	No			
Age (Years)	18-25	24	93	2.37 (1.23,4.58)	2.38 (1.23,4.59) *	0.021
	26-35	66	103	0.96 (0.54,1.69)	0.95 (0.58,2.69)	0.87
	>35	27	44	1.00	1.00	
Religion	Muslim	76	186	1.8 (1.43,3.0)	0.14 (0.019,1.0)	0.054
	Christians	41	54	1.00	1.00	
Number of children	0 children	11	31	1.00	1.00	
	1-2 children	22	46	0.74 (0.31,0.17)	3.3 (0.23, 46.4)	0.380
	Above 2 children	41	47	0.4 (0.18,0.91)	3.36 (0.16, 68.9)	0.432
Own Residence	Yes	79	133	0.59 (0.37,0.95)	0.55 (0.33,0.92) *	0.025
	No	3	107	1.00	1.00	
punished by traffic police for any validation traffic rules	Yes	110	183	0.20 (0.09,0.46)	0.23 (0.087,0.47) *	<0.001
	No	7	57	1.00	1.00	
Chewing Khat?	Yes	57	119	6.0(1.41,26.3) *	5.0 (1.1,22.9)	0.037
	No	60	121	1.00	1.00	
Phone call responding approach while driving?	Reduce speed and receive calls	36	76	0.49(0.24,1.02)	1.49 (0.043,51.7)	0.82
	Stop driving and receive call	24	27	0.26(0.11,0.60)	0.41(0.013,12.9)	0.61
	Receive calls normal speed	44	82	0.44(0.21,0.89)	0.46 (0.011,19.6)	0.69
	Disconnect ring	13	55	1.00	1.00	
Vehicle ownership	Employer	53	160	2.4(1.53,3.79) *	2.7 (1.64,4.4) *	<0.001
	self	64	80	1.00	1.00	

Discussion

The study focused specifically on 3 and 4 wheeled municipal taxi drivers, revealed the prevalence of road traffic accident among three- and four-wheel taxi drivers in jigjiga town were found to be 32.8% (29.0,34.8). This finding is consistent with the finding in north Ethiopia, Mekelle town, where a relatively low prevalence 26.4% and an institution-based cross-sectional study conducted at Tikur Anbessa hospital in Addis Ababa found that the incidence of road traffic injury in the emergency department of Tikur Anbessa Specialized Teaching Hospital was 36.8% of road traffic crash was reported (11, 12). Similar to the prevalence of 22.7% reported among taxi drivers in Vietnam (13). This study results suggested that taxi drivers in jigjiga can be effectively reach through mass media campaigns and enhance safe driving practice for taxi drivers in Somali region, and Ethiopia. but there are several other factors emplace drivers to high risk of road traffic accidents. This study identified association between age of the drivers and road traffic accidents. Similar to this study age of the drivers was associated with road traffic accidents in Vietnam(13). However, it was not association with road traffic accidents in China (14), Omen (15), Iran (16), Nepal (17). Australia (18). This may be due to the fact that young aged drivers tend to drive in high speed without proper caution. Previous study conducted Mekelle town in Ethiopia, have indicated that chewing khat stimulants were highly related with road traffic accidents (12). Consistent with the findings of this study. Study identified association between Vehicle ownership and road traffic accidents, and Taxies driver own residence and road traffic accidents.

However, this study identified association between Punishment by traffic police and road traffic accidents. Which is agreement with finding conducted in Mekelle city in Tigrey region(12). More than four fifth 82.1% of the taxi drivers reported that they had received punishments by traffic police and about more than half 58% of the drivers three and above punishments for violating traffic rules in the past. Over 42.0% of the drivers reported receiving 1-2 punishments. Limitation study was based on self-report of the past three years and therefore may have been subject to recall bias.

Conclusion

This study revealed that the prevalence of road traffic accidents among Jigjiga taxi drivers was 32.8 % (29.0, 34.8) in the past three year. While in the multivariate analysis being young, Khat chewing, being residence ownership, being punished by traffic police and vehicle ownership, were independent predictors of road traffic accidents. Of all RTAs three-wheeler Bajaj vehicle accidents was the primary causes of injury.

The majority of accidents were occurring by drivers whose age is less than 30 years and the minimum accidents were occurring by drivers whose age is greater than 30 years old. The study concluded that as age of drivers' increase the occurrence of accidents will minimize and Passengers and pedestrians were the most commonly affected.

Acronyms

AIDS	:	Acquired Immunodeficiency syndrome
DHS	:	Demographic Health Survey
EDHS	:	Ethiopia Demographic and Health Survey
ED	:	Emergency Department
EFY	:	Ethiopia Fiscal Year
FMoH	:	Federal Ministry of Health
GDP	:	Gross Domestic Product
JJU	:	Jigjiga University
RTC	:	Road Traffic Crash
RTA	:	Road Traffic Accident
RTI	:	Road Traffic Injury
RTC	:	Road Traffic Collision
SSA	:	Sub-Saharan Africa
PHCs	:	Primary Health Care
PTSD	:	Post-Traumatic Stress Disorder
WHO	:	World Health Organization.

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Author's contributions

MH conceived and designed the study, performed analysis and interpretation of the data and drafted first manuscript. **AH, WS, MO**

participated in data collection, data entry and critical review of the subsequent draft of the manuscript. All authors read and approved the final version of the manuscript for the publication.

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References

[1]. Peden M. Global collaboration on road traffic injury prevention. International journal of injury control and safety promotion. 2005; 12(2):85-91.

[2]. Organization WH. Global status report on road safety 2015: World Health Organization; 2015.

[3]. Odero W, Garner P, Zwi A. Road traffic injuries in developing countries: a comprehensive review of epidemiological studies. Tropical Medicine & International Health. 1997; 2(5): 445-60.

[4]. Ameratunga S, Hijar M, Norton R. Road-traffic injuries: confronting disparities to address a global-health problem. The Lancet. 2006; 367(9521):1533-40.

[5]. Lagarde E. Road traffic injury is an escalating burden in Africa and deserves proportionate research efforts. PLoS medicine. 2007; 4(6):170.

[6]. Berhanu G. Effects of road and traffic factors on road safety in Ethiopia. IST RAPPORT 2000: 11. 2000.

[7]. Abegaz T, Berhane Y, Worku A, Assrat A, Assefa A. Road traffic deaths and injuries are under-reported in Ethiopia: a capture-recapture method. PloS one. 2014; 9(7): e103001.

[8]. Naci H, Chisholm D, Baker TD. Distribution of road traffic deaths by road user group: a global comparison. Injury prevention. 2009; 15(1):55-9.

[9]. Hassen A, Godesso A, Abebe L, Girma E. Risky driving behaviors for road traffic accident among drivers in Mekele city, Northern Ethiopia. BMC research notes. 2011; 4(1):535.

[10]. Macro O. Central Statistical Agency: Ethiopia demographic and health survey 2005. ORC Macro, Calverton, Maryland, USA. 2006.

[11]. Tiruneh BT, Dachew BA, Bifftu BB. Incidence of road traffic injury and associated factors among patients visiting the emergency department of Tikur Anbessa specialized teaching hospital, Addis Ababa, Ethiopia. Emergency medicine international. 2014; 2014.

[12]. Asefa NG, Ingale L, Shumey A, Yang H. Prevalence and factors associated with road traffic crash among taxi drivers in Mekelle town, northern Ethiopia, 2014: a cross sectional study. PloS one. 2015; 10(3): e0118675.

[13]. La QN, Lee AH, Meuleners LB, Van Duong D. Prevalence and factors associated with road traffic crash among taxi drivers in Hanoi, Vietnam. Accident; analysis and prevention. 2013; 50:451-5.

[14]. Zhang X, Hongyan Y, Guoqing H, Mengjing C, Yue G, Xiang H. Basic characteristics of road traffic deaths in China. Iranian journal of public health. 2013; 42(1):7.

[15]. Islam MM, Al Hadhrami AY. Increased motorization and road traffic accidents in Oman. Journal of Emerging Trends in Economics and Management Sciences. 2012; 3(6):907.

[16]. Bahadorimonfared A, Soori H, Mehrabi Y, Delpisheh A, Esmaili A, Salehi M, et al. Trends of fatal road traffic injuries in Iran (2004–2011). PloS one. 2013; 8(5): e65198.

[17]. Mishra B, Sinha ND, Sukhla S, Sinha A. Epidemiological study of road traffic accident cases from Western Nepal. Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine. 2010; 35(1):115.

[18]. Lam LT. Environmental factors associated with crash-related mortality and injury among taxi drivers in New South Wales, Australia. Accident Analysis & Prevention. 2004; 36(5):905-8.