

## **Saudi Men Perceptions About The Factors Causing Road Traffic Accidents in the Kingdom Of Saudi Arabia, 2013**

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**ABSTRACT:** *The kingdom of Saudi Arabia has witnessed a huge economic growth in the past few decades, resulting in an increase in the number of population and vehicles. This increase in motor numbers has resulted in a high incidence of road accidents in Saudi Arabia in recent years. The aim of this study was to create awareness about the causes of road traffic accidents in the hope to decrease the incidence of these accidents. Our objectives in this study were to find out different perceptions of Saudi male drivers about the causes of RTAs and based on their perceptions we can direct the attention to the real problems in order to decrease the incidence of RTAs. A cross-sectional study design was used. The data was collected by distributing questionnaires to 384 Saudi male drivers aged between 18-60 visiting the malls in Dammam and al-khobar during the month of July. The results show that 69% of the sample thought that drivers are the main cause of accidents. While 6.7% thought that it is due to the vehicles and 17.7% thought it's the roads. Regarding their opinions if more strict rules will lead to less traffic accidents, 49.7% agreed that setting strict sanctions would lead to positive results while 5.90% disagreed and only 9.70% thought that these sanctions would be useless. In conclusion, road traffic accidents remain a leading cause of death and disability in kingdom of Saudi Arabia. Responses of Saudi males indicate that drivers and their driving attitude play the leading cause of both fatal and non-fatal accidents. There is an urgent need to develop laws and health policies that address this health issue.*

**Keywords:** Road Traffic, Accidents, Saudi Arabia.

### **INTRODUCTION**

In the Kingdom of Saudi Arabia, economic growth resulting from the oil boom in the last few decades has brought significant changes to the road network and the number of cars on these roads [1]. The population in Saudi Arabia between 1970 and 2008 has increased at an annual average growth rate of 3.91 percent. Likewise, the number of registered motor vehicles increased from 144,768 to 5,566,776 at an average growth rate of 10.14 percent. This increase in motor numbers has been accompanied with dramatic increase in the size of the road network in the country.

A high incidence of road accidents has been recorded in Saudi Arabia in recent years, various factors might have accounted for this high rate of road accidents, previous studies showed that the factors that are involved in RTAs are the environment (condition of the weather and poor street lighting), the driver's behavior (age, perception and the education), mechanical fault (age of the vehicles and their condition)[2].

### **Literature review:**

During 1970 and 2008 in the kingdom of Saudi Arabia 122,330 people have died on roads due to RTAs. The average road traffic mortality rate in Saudi Arabia of 22.77 per 100,00 populations is much greater than overall global RTA mortality rate, which were 19.0 per 100,000 populations in 2002.

Compared to other countries in the region [2], road accident fatality rates and risk levels in Saudi Arabia are high and road deaths continue to increase. Current annual death toll due to RTAs is more than 6000 and the number of injuries is around 34,000 due to an annual rate of approximately 300,000 accidents. Previous studies found that there were factors related to traffic accidents. These factors are related to environment, vehicles and the age of the driver. Traffic accidents can be attributed to human, vehicular, and environmental factors. When considered alone, human factors have been found to contribute to 57 percent of the accidents in the developed countries [3]. Together with vehicular and environmental factors, human factors account for about 92 percent [4]. The following sections discuss road, vehicular and human factors.

### **Human factors:**

Human factors are related to driver's personality, marital status, education [5] and driver's age.

- Age: statistics showed that the drivers in the age group between (18 – 40) are involved in approximately 78% of total accidents.
- Marital status: married drivers were found to be involved in accidents more than the single ones [4].
- Education: 20% of drivers involved in road accidents in the kingdom over the period of 1990-1994 had never attended school.

### **Vehicular factors:**

It is difficult to detect problems and give information on the vehicular conditions on the time of the accidents (1, 5% of the vehicles at the time of the accidents had a defective problem), which is contrary to popular belief that if we solve the vehicular mechanical problems we have solved most of the traffic accidents causes.

### **Environmental factors:**

Road conditions and weather were significant factors in causing accidents. Crashes occurring in signalized intersections with poor street lighting had a significantly higher probability of severe injuries.

### **Significance of the study:**

- To show what are the factors that are mostly related to traffic accidents in Saudi Arabia in the driver's opinion.
- To provide the policy makers with the beneficial data to make better awareness campaigns.

### **Research question:**

- What are the perceptions of Saudi males regarding the factors that cause road traffic accident?

### **Aim:**

- To create awareness about the causes of road traffic accidents to decrease the incidence of these accidents.

### **Objectives:**

- To describe different perceptions of Saudi male drivers about the reasons causing the RTAs.
- To find out according to the perceptions of Saudi drivers where to focus the attention to decrease the rate of accidents.

### **Hypothesis:**

- It is hypothesized that the outcome of this study will show that there is a difference between the perceptions of the drivers and the results that reported from the previous studies.

## **MATERIAL AND METHODS**

- **The study design:** Cross-sectional design with group comparisons.
- **Study population:** Saudi males aged 18 – 60 visiting the shopping malls in Dammam and Al-Khobar.
- **Sampling method:** Incidental type.
- **Source sample:** Visitors of Shopping Malls in Al-Khobar and Dammam (Al Dhahran and Al Rashid malls).
- **Inclusions:** Saudi male drivers aged between 18-60.
- **Exclusions:** 0 people who refuse to answer. 0 people with poor communication skills.
- **Sample size:**

$$n = \frac{Z_{1-\alpha} p(1-p)}{E^2} = \frac{(1,96)^2 p(1-p)}{(0,05)^2}$$

Based on this formula and the assumption that 50% of Saudi drivers will have correct knowledge and the other half will have wrong knowledge, the sample size will be 384 males.

- **Data collection:** The questionnaire was distributed for Saudi males visiting the shopping malls aged (18-60) in Dammam and Al-Khobar.
- **Instruments:** Self-administrated questionnaire in Arabic was used.
- **Study variables:**

The questionnaire was divided into 3 main sections, which include:

1. Demography: age, educational level, marital state and occupation.
  2. Knowledge: about driving skills, rules of driving, maintenance of vehicle and the way of handling problems while driving.
  3. Perception: about factors in vehicle, driver and environment.
- **Pilot study:** The questionnaire was given out to 30 random subjects first and any misunderstood questions were fixed and unanswered questions were removed. And based on pilot study we re-adjusted the questionnaire.
  - **Study analysis:**

Collected data was coded, entered and analyzed using the statistical package SPSS. Frequency distributions and tables were produced accordingly.

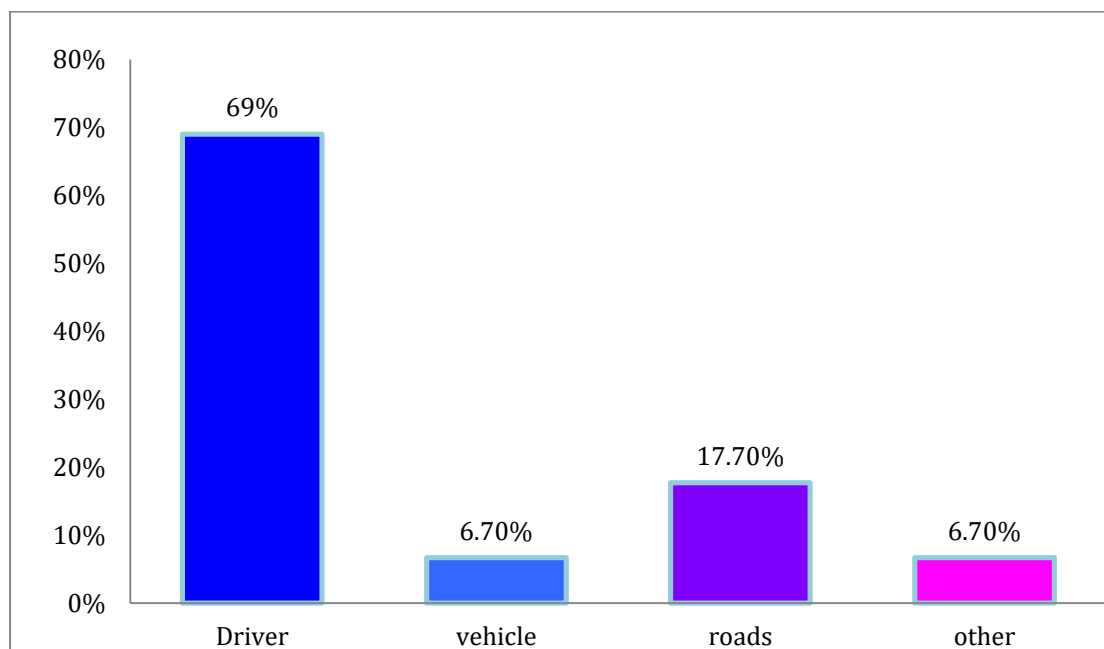
## **RESULTS**

Three hundred ninety subjects responded to this survey in Al-Rashid mall and Dhahran mall Al-Khobar, Saudi Arabia. All the included is the statistical analysis. The characteristics of population who participated in the study are presented in (Table.1). The age range of the participants was between 18 to 60 years.

Demographic data (n=390)				
Age		<30: 226 (58.2%)		>31: 164 (42%)
Educational level	Illiterate: 12 (3.1%)	High school: 115 (29.5%)	BSc.: 223 (57.2%)	Master or PhD: 39 (10%)
Marital status		Single: 199 (51%)		Married: 188 (48.2)

**Table1. Demographic characteristics of the sample**

When asked:” In your opinion, what is the main cause of accidents? “, The results show that 69% of the sample thought that drivers are the main cause of accidents. While 6.7% thought that it is the vehicles and 17.7% thought it’s the roads (Figure.1).



**Figure.1 Main causes of Accidents**

However, among the total population sample when asked: “ What are the main damages caused by accidents? ”, the results were:

- 28.5% (111) of the sample thought that the effects and damages caused by accidents are financial.
- 55.9% (218) thought it’s physical.
- 15.6% answered psychological.

When asked:” who is in your opinion the most effected in car accidents? ”.The results show that 10.5% of the sample thought that pedestrians are the most affected during accidents. 52.1% said it’s the driver and 36.9% said the passengers. The following chart (Figure.2) represents the results of the number of car accidents.

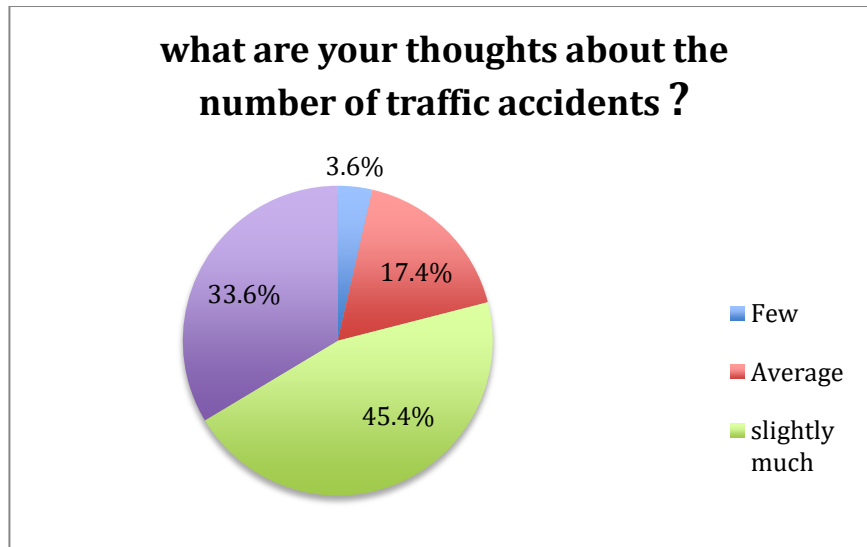


Figure.2 Number of traffic Accidents

According to the chart (Figure.2), the results show that 3.6% of the sample thinks that the traffic accidents are low. 17.4% said they're average, 45.4% said they're slightly much and 33.6% said they're too much. However, when we asked about the peak time of accidents, 45.4% of population sample thought that the morning is the peak time. On the other hand 36% thought it is the evening and the rest said it is the afternoon. When subjects were asked if they are using seat belt and if they are eating during driving, their answers are shown in (Table.2):

Table 2. Safety during driving

	Percentage of Yes answers
Eating while driving	52.1%
Using seat belt	61.5%

Regarding their opinions if more strict rules will lead to less traffic accidents, the results are shown in (Figure.3)

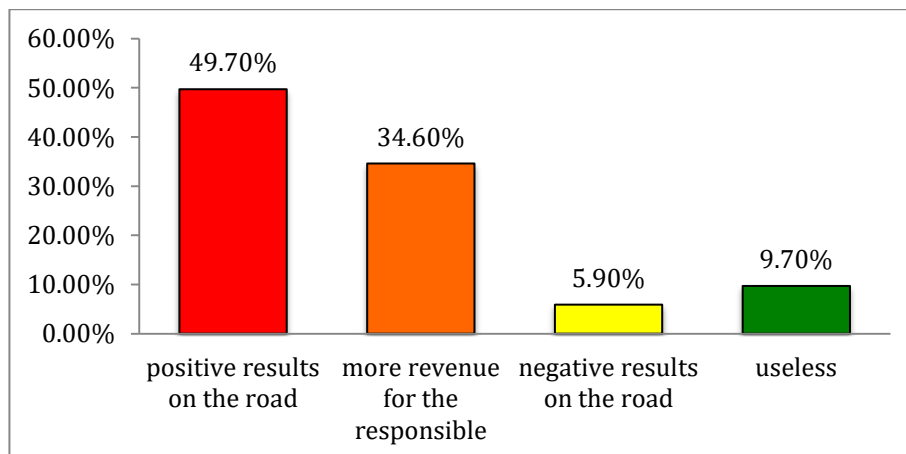
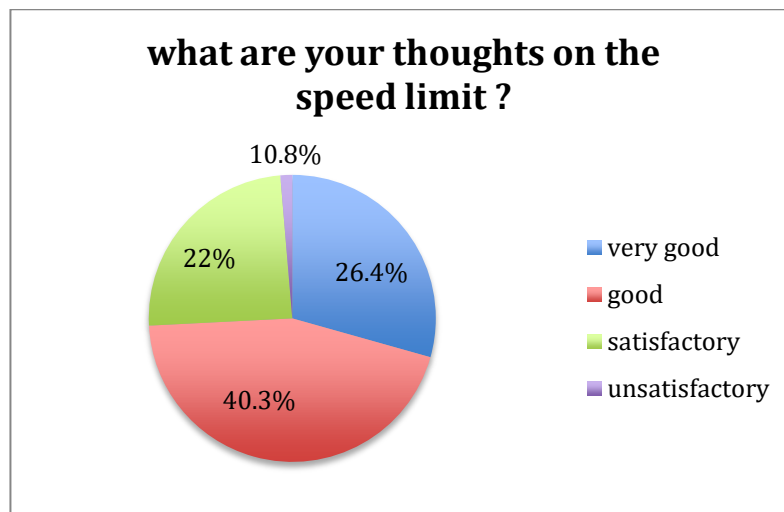


Figure.3 opinions on strict traffic rules

The following chart shows the views about allowed speed limit. (Figure.4)



**Figure.4 views about Speed Limit**

As shown in (Figure.4), 26.4% of the sample said that the allowed speed limit is very good and 40.3% said it is good, 22% said it is satisfactory and 10.8% said it is unsatisfactory. When respondents were asked if they think that the allowed speed limit needs to be reviewed and modified, 43.3% agreed, 20.3% answered maybe and 36.2% said it does not need any modifications. (Tabel.3) Represents the opinions of the current traffic light timing. The results showed that 17.2% said the timing is very good, 43.1% said it is good, 30.8% said that is satisfactory and 17.9% said it is unsatisfactory

**Table 3. Current traffic light timing**

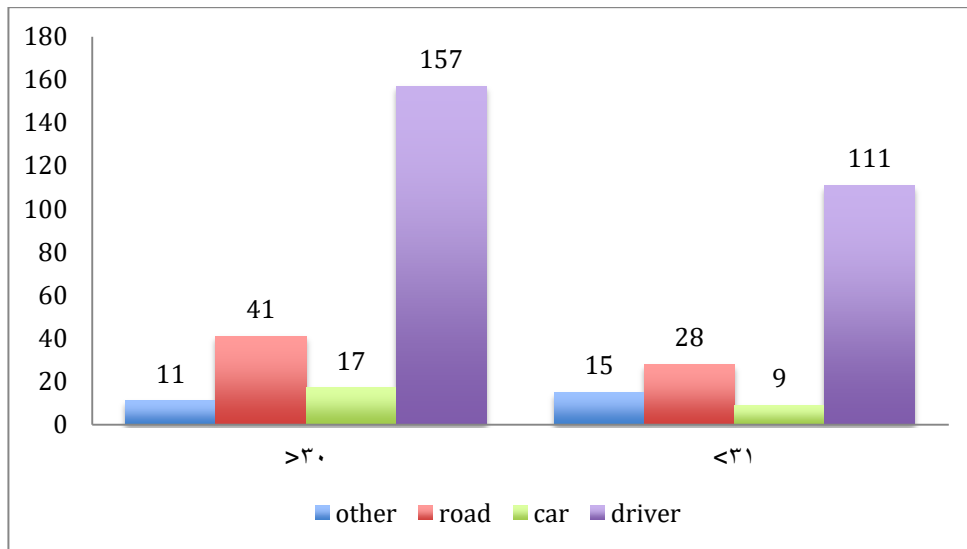
Percentage	Frequency	
17.2%	67	Very good
34.1%	133	Good
30.8%	120	Satisfactory
17.9%	70	Unsatisfactory
100%	390	Total

Further more, the study shows that 45.4% of the sample population drives in a speed between 90 and 100 km/h, 31% drive in an average speed between 120-140 km/h, 3.8% above 140 km/h and 19.7% usually drive with a speed between 60 and 80 km/h. The following table (Table.4) and graph (Figure.5) represents two different age groups and their thoughts about the causes of traffic accidents.

**Table 4. different age groups and causes of traffic accidents**

	Driver	Car	Road	Other	Total
31<	157	17	41	11	226
30>	111	9	28	15	163

Total	269	26	69	26	390
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**Figure.5 different ages and causes of traffic accidents**

## DISCUSSION

According to the WHO world report RTAs are the leading cause of death among young persons in most countries of the world, particularly developing countries accounting for more than one million deaths per year (WHO). Traffic crashes are very predictable and therefore, they're not considered as "accidents" cause they can be prevented [6]. In a study conducted in Bahrain at SMC hospital showed that the incidence of RTA casualties treated at SMC increased by 42.55% from 1996 to 2001 [7].

In a recent study in Oman young drivers over represent accident causes, as 70% of the RTAs happened to drivers aged 17-36 years, excessive speeding is the main cause of the of road traffic accidents (50%), followed by negligence or careless driving (29%) [8]. In Kuwait factors that contribute to RTAs are as follows: drivers not abiding by traffic rules and regulations, carelessness driving, old vehicles that contribute to polluting the atmosphere and relaxed licensing procedures (which when collecting the data for our study were not of a much difference than the factors we mentioned) [9].

A special study was conducted in UAE regarding one factor only that is the human factor in which the driver him self was studied and it showed that the lack of experience that is usually associated with new drivers can play a major role in traffic accidents occurrence, and regarding the citizenship of the drivers who are involved in traffic accidents; Emirates nationals drivers represent the highest involvement rate (30.2%) followed by Pakistanis (21.26) and other nationalities [10].

With the highest rate of road accidents and fatalities in the region, the Kingdom of Saudi Arabia has among the world's most dangerous roads. Statistics from the General Directorate of Traffic show that the Kingdom has 23 deaths per 100,000 people, with an average of 19.1 road fatalities occurring daily. The result of this study indicates that the major cause of RTAs according to many individuals is the human factor that is the driver with 69% of the whole sample collected. However when comparing different age groups (les than 30, more than 31) with what they think is the major cause for traffic accidents the result remained almost the same

for both age groups which is as said before is the driver with a total of two hundred and sixty nine opinions followed by the roads with a total of sixty nine opinions. With this unanimous agreement on the human factor as the leading cause of traffic accidents and just like in the UAE more studies need to be conducted in Saudi Arabia regarding this important factor.

The rates of the traffic accidents were very high in the opinions of most of the population in both age groups probably due to the involvement of great number of them in one or more traffic accidents. Also the time in the day had been found to contribute to the incidence of RTAs with a 45% strongly approving that most traffic accidents occur during the mornings where every one is going to work or school etc. the results also showed that the highest percentage of the population thought that the driver is the most commonly affected by traffic accidents followed by the passengers and lastly the pedestrians with the lowest percentage, which is mainly because there aren't so many pedestrians in the streets.

Regarding the rules and regulations of the traffic and the safety measures, a lot of people were careless about rules and safety measures thinking that nothing will change. When comparing age groups (less than 30, more than 31) it showed that increasing or stressing traffic sanctions would only result in more revenue for the government with no positive results on the roads for those who are less than thirty years of age while on the contrary it showed that increasing the traffic sanctions would result in positive results on the road for those who are above thirty one years of age, which gives us a clue on why traffic accidents are more involved in the death of most young people. In this study two age groups have been compared but the results regarding each group are almost similar in most questions asked.

## **CONCLUSION**

Road traffic accidents remain a leading cause of death and disability in kingdom of Saudi Arabia. Responses of Saudi males indicate that drivers and their driving attitude play the leading cause of both fatal and non-fatal accidents. There is an urgent need to develop laws and health policies that address this health issue.

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