Evaluation of buses and bus drivers in Al-Madinah Al-Monawarah during hajj Season 1429 H – 2008 G.

Every year more than 2 million Muslims from over the world arrive to the Holy City of Makkah for Hajj. This large number travel between the holy areas mostly by bus. In consequence, there is congestion of traffic and bus accidents may occur. No previous studies have been conducted to investigate the main risk factors of bus accidents during hajj. The objectives of this study were to evaluate the health, legal status and knowledge of bus drivers towards first aid, and to assess the safety standards in buses participating in Hajj 1429 H (2008G), in order to produce recommendations that may help reduce traffic accidents and preserve the lives of pilgrims.

This cross-sectional study was carried out among bus drivers in Al-Madinah Al-Monawarah at the main bus terminal, by direct interview. Stratified random sampling was applied among the 17 transportation companies that covered transportation during hajj, proportionate to the total number of each company.

The study sample included 442 bus drivers. Their mean age was 42 years (SD ± 7.1). The sample included 10 nationalities; over half were Egyptians (52.7%), followed by Syrians (38%). Illiterate drivers represented 5.7%, while 37.3% had completed the intermediate level of education. Most of the participants original occupation was drivers (88.7%). Seventy two percent had undergone the amphetamine test applied by the Ministry of Health (MOH), 32% of them had not received their results.

Eleven percent of bus drivers had been sick with acute symptoms. The majority were suffering from acute respiratory tract infection (90.2%); 4.3% had chronic illnesses. Eighty eight percent had been vaccinated against meningococcal meningitis, and 8.4% regularly wore a face mask.

The entire sample had driver’s licenses and permission to participate in Hajj. It was found that 50.7% were exceeding the speed limit, and 38.9% reported sometimes stopping at yellow traffic lights.

A large percentage of the bus drivers (82.8%) had the ability to administer first aid if required, 44.6% did not know the emergency phone numbers, and only 44.3% knew the phone number of the Red Crescent.

The importance of fastening the seat belt was recognized by 96.6% and 85.5% were actually using it. According to the participant drivers’ opinion, the most common cause of RTAs was carelessness of the driver (table 1).

Regarding prevention of RTAs, 47.0% thought that the majority could be prevented by educating the drivers. In spite of the observation that 96.6% of buses had a safety belt for passengers, only 5.5% actually fastened it. Smoking was allowed by 6.6% of drivers inside their buses. Emergency exits, ventilation system, and both a first aid bag and fire extinguisher were available in most of the buses.

The study revealed that 50.2% of the bus drivers slept under 8 hours a day, and the working hours exceeded 12 hours among 21% of participants.

According to the bus driver’s opinion, stimulants were used by 41.9%. Smokers represented 52.5% and 75.1% were satisfied with their job.

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Editorial notes: Road Traffic Accidents (RTAs) remain a social and economic problem in many countries of the world. The World Health Organization (WHO) in 2002 estimated that 1.2 million people are killed and 50 million injured in road-traffic crashes worldwide. In the Eastern Mediterranean Region, there were an estimated 132,207 road traffic deaths in year 2002, equivalent to 362 deaths per day and 2535 deaths a week, with a rate of 26.3 deaths per 100,000 population. RTAs are the second cause of mortality in the Eastern Mediterranean Region with a percentage of 31%.

In Saudi Arabia, between years 1971 and 1997, 564,762 people died or were injured in RTAs, amounting to one person killed and four injured every one hour. It has been reported that 81% of deaths at MOH hospitals are due to RTAs, 20% of beds are occupied by RTA victims, and 7% of injured persons will develop disabilities.

Accidents occur if there is failure in one or a combination of the three major factors: human error, vehicle maintenance or road environment. A very large percentage of RTAs are attributed to human error. It has been reported in Saudi Arabia that 85% of the total number of RTAs are caused by the driver. These errors include violation of traffic lights, inattention, exceeding the speed limit, tiredness or sleepiness, alcohol consumption, driver’s health condition, such as visual problems, chronic diseases, use of sedative medications or other factors. Vehicle maintenance is also necessary to decrease the number of RTAs, especially tires, lights, breaks, windshield wipers, in addition to the availability and use of seat belts by both drivers and passengers.

The use of the safety seat belt is considered one of the most important safety measures. The International Report on the protection from causalities resulting from RTAs issued by the WHO states that use of the seat belt could diminish the death rate resulting from RTA by rates varying between 25% and 50%. A previous study investigating RTAs in Saudi Arabia found that 85% of the total number of RTAs are attributed to human error.

Table 1: Bus drivers’ opinion on the causes of RTAs, hajj season, 1429 H – 2008 G.

<table>
<thead>
<tr>
<th>Cause of RTA</th>
<th>Number n=478</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carelessness of driver</td>
<td>134</td>
<td>28.0</td>
</tr>
<tr>
<td>Speeding</td>
<td>113</td>
<td>23.6</td>
</tr>
<tr>
<td>Bad quality of roads</td>
<td>92</td>
<td>19.3</td>
</tr>
<tr>
<td>Inexperience of driver</td>
<td>78</td>
<td>16.4</td>
</tr>
<tr>
<td>Failure of bus</td>
<td>57</td>
<td>11.9</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>Drugs</td>
<td>2</td>
<td>0.4</td>
</tr>
</tbody>
</table>


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Arabia reported that all those injured among the study sample had not been wearing seat belts.²

Due to the large number of hajjis in the Holy City of Makkah during Hajj, it is inevitable that the rate of RTAs increase. In Dhul-Hijjah 1425 H, 1811 RTAs were reported, equivalent to 41.6% of the whole number of accidents in the Kingdom on the same month, with 47.6% injured and 703 dead.⁵ Safety seat belt, knowledge of the traffic regulations in the kingdom, and how to deal with emergencies as well as bus standard safety measures are important during driving for both drivers and passengers.

Regardless of the way hajjies arrive to Makkah, whether by air, sea or land, they have to use buses for transportation within the holy places. In attempts to reduce RTA during hajj, the MOH applies a mandatory medical test on bus drivers to evaluate their status with respect to substance addiction. Furthermore, the General Syndicate of Cars have applied a new regulation not allowing for bus travel between Makkah and Madinah after 11 pm, in an effort to avoid RTAs as a result of tiredness or sleep.

This study showed that all bus drivers had driving licenses and permission to drive during hajj season 1429H. However, almost all of them were non Saudis and did not know the traffic regulations of the Kingdom, and had never encountered an emergency situation, such as injuries or accidents during hajj, and had no clear idea about the hajj plan. Bus safety measures were available in most of the buses.

Health education regarding the seriousness of stimulants abuse, importance of the MOH stimulant test and traffic educational programs must be initiated.

**References:**

3. Ministry of health, health yearly statistical book reports 1421, 1422 and 1423H
4. Saudi Red Crescent Society, Statistical Report 1418 H

**Alkhurma Hemorrhagic Fever outbreak in Najran city, cont ...**

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might explain the relationship of some behaviors, such as direct contact with animals and milking, as well as neighboring farms, with disease since the exact mode of transmission is not yet known.

Seroprevalence studies to establish endemicy of the disease should be conducted along with studies on animals and possible vectors, such as ticks and mosquitoes, should be encouraged. Health education and the safety measures and precautions to prevent infection should also be conducted.

**References:**


**Table 1: Multivariate logistic regression results of risk factors of Alkhurma hemorrhagic fever, Najran, 2006-2009.**

<table>
<thead>
<tr>
<th>Diseases Groups*</th>
<th>Crude Or</th>
<th>Crude CI</th>
<th>Mode 1</th>
<th>Mode 1 CI</th>
<th>Mode 2</th>
<th>Model 2 CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dealing with domestic animals</td>
<td>5.39</td>
<td>1.74-17.3</td>
<td>3.17</td>
<td>0.96-10.43</td>
<td>7.72</td>
<td>1.16-51.23</td>
</tr>
<tr>
<td>Ticks bites</td>
<td>11.48</td>
<td>2.51-59.73</td>
<td>6.20</td>
<td>1.34-28.70</td>
<td>9.67</td>
<td>1.41-66.18</td>
</tr>
<tr>
<td>Adjacent farms distance</td>
<td>4.00</td>
<td>1.40-11.75</td>
<td>3.63</td>
<td>1.25-10.49</td>
<td>2.85</td>
<td>0.83-9.76</td>
</tr>
</tbody>
</table>

* Adjusted OR for the risk factors (dealing with domestic animals, tick bites, adjacent farms distance) after elimination of non-significant variables (drinking unpasteurized milk and owning or raising domestic animals) using backward stepwise strategy.

** adjusted for the risk factors (dealing with domestic animals, tick bites, adjacent farms distance) as well as for age group, gender, nationality, and occupation.