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ORIGINAL ARTICLE

Declining trends in injuries and ambulance calls for road traffic crashes in Bahrain post new traffic laws of 2015



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Abstract Road traffic crashes (RTC) are of serious global health concern. To identify whether the number of ambulance calls, injuries, and deaths has declined after the implementation of the new traffic law (NTL) 2015 in Bahrain, de-identified administrative RTC data obtained from the tertiary care center, and the General Directorate of Traffic (GDT) of Bahrain were used. A quasi-experimental design was employed to trend the impact of the NTL on RTC and associated healthcare events. Bahrainis and non-Bahrainis who met with RTC, either in a vehicle or as a pedestrian, between February 8 and May 8 in 2013, 2014 (pre NTL), and 2015 (post NTL) were included in the study. Our results show a reduction in the number of ambulance calls from vehicular and pedestrian RTC victims. The ambulance calls from pedestrian RTC victims were <10% compared to the number of ambulance calls from vehicular RTC victims. There was a significant reduction in minor injuries post 2015, whereas no obvious difference was seen for serious injuries and deaths. A longer follow-up study to confirm the sustained decline in RTC, enforcing a zero

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tolerance policy toward traffic transgressions, and raising public awareness on the “critical four minutes” and “golden hour” is recommended.

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1. Introduction

Road traffic crashes (RTC) are a serious public health concern, but a preventable cause of death. To thrust RTC as a priority for prevention, the World Health Organization (WHO) brought out a theme of “Road Safety is No Accidents” in 2004 [1]. However, RTC continue to occur globally, causing serious health problems that have dramatic social implications; the suffering for victims and their families due to RTC-related injuries is inestimable.

By definition, an RTC is a collision or incident that may or may not lead to injury occurring on a public road and involving at least one moving vehicle, and “road traffic injuries” are fatal or nonfatal injuries incurred as a result of an RTC [2]. The burden of RTC is a leading cause of all trauma admissions in hospitals worldwide [3]. RTC injures or disables between 20 million and 50 million people each year. By 2020, road traffic injuries are expected to be the third largest contributor to the global burden of diseases if the current trend continues [4,5]. Three out of four deaths from RTC are among men and RTC is the number one cause of death among those aged between 15 years and 29 years [6].

Among the WHO regions, the Eastern Mediterranean Region (EMR) had the second highest road traffic fatality rate in the world in 2013, with 21.30 per 100,000 population, compared to a global rate of 18.03 per 100,000 population [7]. More than 75% of all road traffic deaths in the EMR occurred among males, while 60% occurred in the productive age group of 15–44-year-olds [8]. Bahrain is categorized as a high income Gulf State in the EMR, with a population of approximately 1.3 million that accommodates a wide variety of multiethnic communities. Expanded networks of roads [9], accompanied by an increased number of motor vehicles are recognized to have increased RTC and are a growing public health problem in Bahrain [10]. For instance, the General Directorate of Traffic (GDT) of Bahrain recorded 402,225 traffic violations in 2014. Of all the recorded traffic violations, 12% were over speeding and 5% were jumping red lights. The other 5% included 17,171 using a mobile phone while driving, 237 were driving while

alcohol-impaired, and 1068 were driving without a valid driving license. Over 75% of the violations were of many categories that included the following: driving an unlicensed vehicle, driving a vehicle that makes a noise or exhaust smoke; loading and unloading vehicles on the road in the unauthorized times; damaging traffic signs; parking in residential areas and in the parks of disabled persons; the presence of a child in the vehicle without a single seat and not using a safety belt; using the vehicle for a purpose other than that mentioned in the driver’s license; driving a vehicle without a registration certificate, number plates, or with plates that have been canceled or defaced; and driving a vehicle without brakes or with brakes which are unfit to use. Deliberately blocking or obstructing a road; handing a vehicle to someone who does not hold a license to drive it; racing a vehicle; faking, defacing, or changing the date of registration or number plates; and transferring the number plates from one vehicle to another without permission were other recorded traffic violations. Further, a retrospective review of the data from 2003 to 2010 in Bahrain found that the RTC fatality rates were high among the young, and were 3.5 times more than the general population [11]. The updated as of July 2014 WHO mortality database for Bahrain showed that the number of transport deaths was 96 in 2009, and 50% of them were found in the age groups of 15–24 years and 35–54 years [12].

RTC are caused by many factors that include faulty vehicles and poor road design, but the majority are attributed to driver-related factors, especially over speeding [13,14], alcohol-impaired driving [15,16], and distraction of drivers mostly by mobile phone use while driving [17,18]. The decrease in RTC and road traffic injuries can be achieved by following the WHO recommended five road safety pillars, namely road safety management or policy, road infrastructure, safe vehicles, road users’ safe behavior, and post-crash care [19]. The health sector is an important partner in this process. Its roles are to strengthen the evidence base, provide appropriate prehospital and hospital care, rehabilitation, conduct advocacy, and contribute to the implementation and evaluation of interventions [20].

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