

Factors Influencing Alarming Rate of Road Accidents in Bangladesh

Md. Ashraful Alam¹

Abstract : *In Bangladesh, road accident is a common occurrence. It is difficult to envision a day when there is no road accident. A large number of people are killed or injured in road accidents every year. Despite the fact that it has become a matter of concern, this problem receives very little attention, and the steps taken to address it are insufficient. However, identifying the factors that influence a problem is a prerequisite for solving it. This paper is an attempt to review various influencing factors and statistics connected to road accidents that happened in Bangladesh using numerous documents, reports, articles, and internet sources. Different studies have shown that there is no single cause for the growing prevalence of these accidents. Road accidents are caused by a variety of factors, but not all of them are equally responsible; certain factors are widespread, while others are unusual. Since this is a worrying and increasing problem in Bangladesh, it is important to address it through a comprehensive and holistic approach. It is expected that this paper would help in raising awareness by utilizing pertinent information about the cause of the accident and reducing it to a minimum.*

Keywords : road accidents, causes, fatality, vehicle, pedestrian

Introduction

The issue of road accident-related deaths and injuries is becoming more widely acknowledged as a global problem. It is estimated that every year about 1.3 million people lose their lives and about 20 to 30 million people are injured at the global level (WHO,2013). Every day, more than 3,500 people are killed (one every 25 seconds) in road accidents around the world; another 137,000 are injured or disabled(Mahmud et al., 2014). Projections indicate that these rates will rise by nearly 65 percent over the next 20 years unless a new commitment to prevention is made (Biswas, 2012). Road accident has been labeled “hidden epidemics” by the World Health Organization (WHO), which predicts that by 2030, it would be the 5th greatest

¹ Md. Ashraful Alam, PhD, Associate Professor, Institute of Social Welfare and Research, University of Dhaka, Dhaka-1205

cause of death worldwide and the 2nd leading cause of disability-adjusted life year losses in many developing countries (Murray & Lopez, 1996). No country, whether developed or underdeveloped, is free from this problem. Only it can vary from country to country as rates in developing countries are 10-70 times higher than in developed countries (Sheikh, 2004). Developing and emerging countries account for more than 70% of worldwide traffic fatalities. Despite rising vehicle usage, road accidents have dropped in the developed world, but they are increasing in the developing world (Hoque, 2000). Road accidents have become a great concern for Bangladesh like many other countries and the road safety situation is on a steep fall. Additionally, by international standards, the road safety issue is critical here. Bangladesh has a fatality rate that is nearly 25 times higher than that of most developed countries, 8 times higher than Thailand, and 3 times higher than India (Jahan, 2006). A study conducted by the Accident Research Institute (ARI) of BUET found, that in Bangladesh road, the accident fatality rate is extremely high, with approximately 60 deaths per 10,000 vehicles each year (Biswas, 2012). On the other hand, the World Health Organization believes that the number of deaths in Bangladesh could be as high as 20,038 every year (WHO, 2009).

Road accidents are not only unfortunate events, but they often have significant economic and societal consequences. The cost of road accident injuries is projected to be about 1% of GNP in low-income countries, 1.5 percent in middle-income countries, and 2% in high-income countries, according to the World Health Organization's "World report on road traffic injury prevention in 2004." In Bangladesh, annual economic loss due to road accidents is estimated to be 2 to 3% of GDP (Mahmud et al., 2014). Road accidents have become a major public health concern since they have substantial physical consequences as well as a negative influence on the health care system. The most serious physical consequence of a road traffic accident is death. The main victims of road accidents are people who are physically or financially involved in business, service, study, or a variety of other activities, and who use road transportation for their purposes. It was discovered that more than half of all road traffic deaths in the world are economically active adults between the ages of 15 and 44 years

(WHO, 2004). On the other hand, many people who are critically injured in road accidents are unable to recover completely, and the majority of them become disabled. Permanent disability can take away an individual's ability to do anything, forcing him or her to rely on others for both physical and financial support, as well as the ability to complete everyday basic chores in some cases. Road accidents inflict a significant load on the injured survivors, who may suffer short or long-term psychological consequences. According to a study, one-third of young survivors of road accidents had a psychological problem in the early stages, and about 25% have symptoms for up to a year (Blanchard & Veazey, 2001).

The roads of Bangladesh have become a death trap due to a lack of well-developed road infrastructure and traffic systems. The number of roads available to meet the growing demand for vehicles and people is insufficient. There is a severe absence of traffic laws and their enforcement, and the law enforcement authorities are not equipped enough to supervise the system. Before getting a fitness certificate, the majority of vehicles are not properly tested by the government authority. Furthermore, people are generally indifferent to obeying traffic rules. Overloading, overspeeding, and overtaking by motor vehicles are also significant causes of road accidents in Bangladesh. The city intersections of Bangladesh are made even more dangerous by the variety of traffic, as well as the use of modes with varying speeds and operating times (Anowar, et al, 2008).

Despite the fact that road accidents are one of the serious issues in Bangladesh, it has yet to be thoroughly researched. In this regard, the current paper may contribute to a better understanding of different aspects of road accidents in Bangladesh, such as risk factors.

Influencing Factors of Road Accidents

A road accident is an adverse incident that takes place inadvertently and unexpectedly often resulting in injury or damage. Road accident is a tragedy with their ever-rising trend in Bangladesh. Unless precautionary measures are not adopted to prevent it, it can paralyze and minimize the life span of human life.

To reduce road accidents or to take any safety measures for prevention, it is needed to identify its causal factors. Road accidents can be caused by a variety of factors, but specific factors can be identified. The World Health Organization's "Global Report on Road Safety" published in 2013, identified five causal factors of road accidents. These are:

- i. Excessive speed;
- ii. Drunk driving;
- iii. Non-use of motorcycle helmets;
- iv. Non-use of seat belts;
- v. Non-use of child constraints.

Though WHO identified five causes, the causal factors of accidents may differ from country to country, even from one place to another. Curved roads may be the primary cause in one region, while reckless driving may be the cause in another. As a result, one common cause cannot be made responsible for all road accidents.

Risk factors for being involved in a traffic accident are sometimes divided into three categories: "driver-related" (or "pedestrian dependent" in the case of incidents involving two vehicles), "vehicle-related," and "environment-related" (Oginni,2008). He (Oginni) further stated uneducated and unlicensed drivers and riders, reckless driving, carelessness, alcoholism, lack of awareness of road safety rules, driver's age, exhaustion, unimplemented government policies, failure in law enforcement, and corruption were all recognized as distinct risk factors.

Different researches have been undertaken throughout the years in many countries to identify the causes of road accidents. K. Rumar (1985) found that only driver factors were responsible for 57 percent of British and American crashes, 27 percent for roadway and driver factors combined, 6 percent for vehicle and driver factors, 3 percent for only roadway factors, 3 percent for the combined roadway, driver, and vehicle factors, 2 percent for vehicle factors, and 1 percent for the combined roadway, and vehicle factors. (Lum & Reagan,1994). According to another study, the driver is responsible for 85 percent of all causative factors, while the highway is responsible for 10% and the

vehicle for 5% (Bryer,1993). However, in Bangladesh, several factors contribute to the occurrence of traffic accidents. Causative factors of road accidents can be shown using the important influential variables for each factor in the following way.

A. Driver Related Factors

The driver is the human element in charge of the vehicle when it is being driven. He or she is the one who drives it, accelerates it, brakes it steers it, and comes to a halt. It is stated that a driver can cause or prevent an accident. For this reason, he or she should be extremely vigilant while driving. Due to his negligence, an accident can happen in a second. He has to overtake many vehicles during his normal driving on busy roads, and some have to cross him, make numerous turns, face dangerous obstacles, and several pedestrians or animals cross the road and for this, he has to decide in a fraction of a second. If he or she fails to make the correct decision, an accident will occur. It all depends on his attitude, attention, and concern. According to data, the fault of the driver of a motor vehicle was responsible for about 99.7% of the accidents (Pillai & Joseph, 2011). In another study, it was found only driver factors were responsible for 57 percent of all accidents in the United States and the United Kingdom (Lum & Reagan, 1994). A summary of contributing factors to road accidents was released by the Department of Transport in the United Kingdom in 2011. These contributing factors were divided into nine specific categories, which are road environment, injudicious action, vehicle flaws, intoxication or distraction, driver fault, inexperience, vision affected by the external factors, pedestrian-related factors, and special codes. From 2005 to 2011, the most commonly reported category was driver error, which accounted for nearly 72 percent of all accident reports (Rubayat & Sultana, 2013).

Where the driver is mostly responsible, excessive and inappropriate speed can add to both the incidence and severity of road accidents. In most of the country, there are rules on the speed limit of vehicles but in many cases drivers ignore the speed limit to reach their destination before time or to overtake other vehicles. According to an ADB study, speeding significantly increases the chance and severity of a crash. An increase of one kilometer per hour in mean traffic speed resulted in a

3% rise in injury crashes and a 4-5 percent increase in death crashes (Jabbar et al., 2009). In another, it was found that in Saudi Arabia over 50% of accidents are caused by drivers speeding (Ansari et al., 2000). Over speeding was determined to be the cause of 81 percent of accidents in accident-prone areas in Bangladesh, according to a study (Haque et al., 2019). The government of Bangladesh has fixed the speed limit on highways across the country to 80 kilometers per hour. The speed of the vehicles will be detected by a 'Speed Governor' machine that will be installed in each vehicle, and if any driver attempts to exceed the speed limit, his vehicle will be automatically stopped (The Daily Prothom Alo, 10 Aug 2015).

Drivers must be knowledgeable about traffic rules and regulations as well as road safety. However, many drivers disregard traffic regulations, resulting in road accidents. Many unqualified or inexperienced drivers obtain driving licenses using deceptive techniques. It has been found that helpers drive the vehicle instead of the driver, or that helpers attempt to learn to drive on the highway, resulting in road accidents. A driver's physical and mental conditions are critical for safe driving. Otherwise, it will make it difficult to concentrate. Many teenagers and elderly drivers in Bangladesh are incapable of operating heavy vehicles. Long hours of driving can also create driver fatigue, which can lead to accidents. Epilepsy, drivers with diabetes, mental illness, or cardiovascular disease have greater accident and violation rates (Mishra et al., 2010). However, a large number of studies show that neither chronic medical issues nor disabilities in drivers make them more vulnerable to road accidents (Mohan, 2007). Incompetent drivers and driving appear to be a big threat to road safety. Many drivers in Bangladesh are incompetent despite having a driving license. Many transport drivers lack formal training and are overworked to the point of exhaustion. Drivers do not have enough time to rest or sleep due to the pressures of overwork. Drowsiness is caused by a lack of sleep time. This condition is particularly common among commercial vehicle drivers who can sleep usually less than what is required. They often have to drive at all hours of the day and night, especially during festivals. As a result, they get tired and drowsy, contributing to the occurrence of road accidents. The drug is very dangerous when operating a vehicle because it loses the ability to function properly.

Many drivers drive under the influence of alcohol or other intoxicating substances which causes traffic accidents. According to Pludemmann et al. (2004), alcohol consumption contributes to traffic injuries by reducing driving ability and thus increasing the risk of being involved in an accident. To get to their destination quickly, some drivers take the wrong route. When a driver goes the wrong way, he or she may encounter head-on collisions with other vehicles. Road signs and warning signs are used so that any driver can drive safely following these signs. However, some drivers disregard or disregard road signs, which contribute to the occurrence of road accidents. Many drivers have been observed chatting with passengers, even gossiping, rather than concentrating on the roadway. Talking over the phone while driving has become a typical occurrence on the highways, diverting their attention and resulting in an accident. Many serious road accidents have occurred as a result of drivers conversing over their cell phones.

B. Pedestrian Related Factors

Pedestrian-related factors are significant contributors to road accidents. In 2012, Kourtellis conducted observational research in South Florida to assess unsafe pedestrian behavior. The risk behaviours considered in the study included the pedestrian crossing during traffic signal green time, not crossing in a direction perpendicular to the street, not using the walkway, Jay-walking or crossing the road perpendicularly, and using mobile phones or other electronic devices while crossing among others (Kourtellis, 2012). In Bangladesh, pedestrians were responsible for 49 percent of the fatalities reported in the accident database (Mahmud et al., 2014). Pedestrians bear responsibility for avoiding road accidents and ensuring road safety. Pedestrians, like most drivers, have minimal awareness of traffic rules, and many of them are also incredibly irresponsible. They disobey traffic rules and cross the road irresponsibly, resulting in road accidents. According to a survey done in selected business areas of Dhaka, 47% of pedestrians prefer to walk on the road rather than on the sidewalk (Jasim & Ahmed, 2010). When a pedestrian walks along a busy road, they put themselves in danger of becoming a victim of accidents. When attempting to cross the road, a pedestrian should look around to avoid a road accident.

Some numerous roads and highways are quite congested. Some vehicles travel at a high rate, making it difficult for drivers to maintain control if a pedestrian suddenly appears in front of them, resulting in accidents. A survey was done in Delhi in 2010 to assess pedestrians' risk perceptions when crossing roads at intersections. Only 17 percent of 250 pedestrians thought the crossing was safe, according to the study (Rubayat & Sultana, 2013). Pedestrians often cross the road without properly calculating the speed of the vehicles. Pedestrians are sometimes seen talking over the phone with others, which diverts their attention and causes accidents.

C. Passengers Related Factors

Passengers are likewise responsible for saving themselves and ensuring the road safety of a country. Nowadays, road transportation has surpassed all other modes of transportation in importance, and the majority of people rely on it. However, if the passengers are not vigilant, accidents may occur. The majority of passengers in Bangladesh use public transportation and are unconcerned about road safety. When they take a seat next to the driver, some of them attempt to converse with him or indulge in gossip, which causes trouble and accidents happen. Passengers often open the windows of their vehicles and project their heads or hands through them to observe the scenery outside or to breathe fresh air. Passengers are not always aware of how or from which side to board or disembark from the vehicles. They frequently descend from the wrong side. The number of travelers in Bangladesh is increasing day by day as a result of which passengers are forced to board the overflowing bus through their roofs or as truck passengers. At every festival in Bangladesh many people, especially the impoverished, travel on rooftops or trucks and put them to become the victim of road accidents.

D. Vehicle-Related Factors

The rapid increase in the number of motor vehicles on the road has been a key contributor to the rise in the number of traffic accidents. The number of vehicles registered in Bangladesh increased from 593077 in 2010 to 1079955 in February 2017 (BRTA). Over-involvement of trucks

and buses, particularly minibuses, is the most common cause of road accidents. Trucks and buses, which account for about 58 percent of all vehicle collisions, are a major cause of road accidents (Mahmud et al., 2014). According to a study on road accidents, large vehicles such as trucks and buses, including minibuses, are major contributors to road accidents (bus/minibus 33%, trucks 27%,) and in fatal accidents, their shares are 35% and, 29% respectively. This type of vehicle is over-represented in pedestrian accidents, accounting for approximately 68 percent (bus/minibus 38 percent, trucks 30 percent). It's worth noting that buses and trucks account for 5.2 percent and 8.3 percent of the vehicle composition, respectively (Hoque, 2006). According to another questionnaire survey, 40% of buses, 36% of trucks, and 16% of motorcycles are involved in road accidents(Chowdhury & Chowdhury, 2016).

Defects of the vehicle can be causes of road accidents. According to studies conducted in developed countries, faulty vehicles are directly responsible for 2 to 8.5 percent of all accidents(Mahmud et al., 2014). Vehicles are overloaded and inappropriate vehicles are used to transport passengers, according to a study conducted in Papua New Guinea, increasing the risk of accidents (Nelson et al., 1991). In Bangladesh, it is found running defective/ unfit vehicles on the roads ignoring traffic rules of a country. More than 2.1 million vehicles of all modes are registered with the Bangladesh Road Transport Authority (BRTA), and 0.313 million have become unfit across the country, according to the authority. And nearly 0.09 million of the total unfit vehicles are in and around Dhaka city (The Financial Express, 08 July 2015). According to another report by the Bangladesh Passengers' Welfare Association (BPWA), around 3 lakh unfit vehicles and 10 million locally manufactured three-wheelers such as *Nasiman*, *Kariman*, *Bhatbhati*, and Easy-bikes, all of which are unlawful, are the leading causes of road accidents in Bangladesh (The daily star, 10 January 2016). Overloading causes a vehicle to lose control, resulting in a road accident. In Bangladesh, many drivers overload their vehicles to earn more. Even there are not enough weight machines to check overload. The escalating number of casualties of fatalities and injuries from a road accidents in poor countries is largely due to an increase in the number of motor vehicles on the road (Nantulya, 2002). The rapid

growth of vehicles appears to be a major issue in the road accident situation in Bangladesh. According to the length of roadways, the number of vehicles on the road increased dramatically. The current growth rate of about 8% in the number of vehicles on the road is already producing significant traffic congestion and safety problems (Hoque, 2004).

E. Road-Related Factors

In terms of road quality, road conditions play a role in ensuring road safety. Road segments, junction layout, potholes, lane width, and other road characteristics all have a substantial impact on road safety in any place in the world (Oluwasanmi,1993). According to a World Bank report, just around 40% of main roads (Regional and National highways, as well as Zila roads) in Bangladesh are in good shape, and the rural roads are in about the same state as Bangladesh (Bangladesh Transport Policy Note,2009). Poorly maintained roads cause accidents in a variety of ways, but most importantly, they lead to an increased risk to drivers. In Bangladesh, the majority of the 20,000 kilometer network of major roadways has become potholed, and at least 60% of the highways have grown deteriorated owing to a lack of maintenance (The Daily Star, 16 August 2011). Curved roadways are a major contributing factor in road accidents. In most cases, improper road curves prevent drivers from seeing the road. The Dhaka-Aricha highway used to have a lot of curves, and it was thought that the curve of this road was one of the key contributory factors to road accidents. In Bangladesh, there are numerous accident-prone spots on highways, and traffic accidents claim many lives each year. Over 200 accident-prone spots, termed “black spots,” were recently identified on 10 main highways by the Accident Research Institute (ARI) of Bangladesh University of Engineering and Technology (BUET). Between 1998 and 2007, 311 persons were killed in vehicle accidents on the Dhaka-Aricha route, according to the ARI. Unfortunately, most roadways are unfriendly to pedestrians, with no sidewalks or designated pedestrian crossings. The direction to drive on the road is indicated by road signs. Drivers can drive their vehicles safely if they follow the directions. As a result, adequate and visible road signs are essential for road safety. However, in Bangladesh, most roads are lacking traffic signs.

F. Institution Related Factors

In every country where there is traffic, there is traffic rules and regulation. The number of road accidents can be reduced if traffic rules and regulations are correctly applied. However, it is regrettable that it is not being implemented well in Bangladesh. The majority of road users, including drivers, are unaware of traffic rules and regulations. Furthermore, those who are in charge of enforcing the rules are failing to do it properly. The primary responsibility of traffic police is to ensure that vehicles move safely and smoothly. However, traffic police are not always sincere in their duties. The highway police unit was established to maintain a safe roadway network and efficient traffic management. Despite being in service for a few years, the highway police are essentially inactive due to a lack of manpower and logistics (The Daily Star, 16 August 2011). One of the prerequisites for driving is the possession of a valid driving license. Nobody is allowed to drive on the roads without a driving license. As a result, after passing a thorough examination, the authorities in each country issue a driving license. However, in Bangladesh, there has been widespread corruption in the issuance the licenses. According to reports, around 1.98 lakh driving licenses were issued without examination, and renewals were also permitted in this manner. The Bangladesh Road Transport Authority (BRTA) estimates that 18.77 lakh drivers in Bangladesh do not have valid driving licenses (The Daily Sun, 02 August 2015). A skilled driver can drive safely, and proper training can help a driver become skillful. However, there are only a few institutions in Bangladesh that train drivers and most of them are private. Several studies have highlighted driver-related issues as the leading contributory causes of road accidents. Drivers' alertness, skill, and care can help to ensure road safety. However, not all drivers operate their vehicles with caution and adhere to road rules. However, the majority of them are not prosecuted and no charges are made against them. In most cases, someone is bought on trial but is not penalized or only receives a minor punishment. On the other hand, the current level of police inspection and traffic law enforcement is poor in Bangladesh, and efforts in this regard are not satisfactory which is one of the barriers to maintaining road safety.

It is evident from the above discussion that road accidents are caused by a variety of factors. These causal factors can be identified clearly and remedial actions on each are possible. So, it is needed to take immediate action to reduce road accidents and improve road safety.

CONCLUSION AND RECOMMENDATIONS

In Bangladesh, road accidents have become a major problem, and the situation of road safety is deteriorating by the day. It has grown into a major problem, both in terms of human lives lost and financial ramifications. Therefore, it is an urgent need to stop the ever-rising trend of road accidents. To reduce the number of accidents, traffic engineering and transportation planning measures must be implemented based on scientific studies (Banik et al., 2011). The following steps can be taken to ensure road safety in Bangladesh.

- Extensive research needs to be done across the country to identify the main causes and nature of road accidents;
- Identify all risky intersections around the country and construct separators at each one;
- Remove unlawful speed breakers and install clear road signs and markings on all main roadways;
- Construct enough pathways and foot over bridges to allow pedestrians to freely cross major roadways;
- Fix the speed limit on highways. Drivers who exceed the legal speed limit should have their license suspended;
- Strictly restrict drivers from using cell phones while operating a vehicle;
- Make training of drivers, supervisors, and helpers compulsory on road safety, traffic signs, traffic rules, etc. ;
- Increase the number of traffic police, highway police, and their facilities, as well as the terms of reference under which they might exercise their power;
- Remove any expired vehicles from the roads as soon as possible. The rest must go through a rigorous fitness certification process;
- Pedestrians need to be aware of the rules of the road and

follow them. For this, various awareness steps have to be taken. Organize a comprehensive road safety campaign including all relevant departments across the country;

- Make road safety education mandatory and integrated into the school curriculum at all levels, from elementary to university, as well as in the teacher training curriculum;
- Ensure that officials who are involved in the issuance of false licenses or any other irregularities face harsh penalties;
- Amend and update existing laws and policies related to road safety. Besides, strict implementation of the law has to be done to ensure punishment of the culprits involved in road accidents.

References

- Anowar, S., Alam, M.D., and Raihan, M.A. (2008). *Analysis of accident patterns at selected intersections of an urban arterial*. Proceedings of the 21st ICTCT Workshop. Melbourne, Australia.
- Banik, B. K., Chowdhury, M. A. I., Hossain, E., & Mojumdar, B. (2011). Road accident and safety study in Sylhet region of Bangladesh. *Journal of Engineering Science and Technology*, 6(4), 503–515.
- Biswas, S. (2012). Road Traffic Injuries: an Emerging Problem in Bangladesh. *Faridpur Medical College Journal*, 7(1), 5. <https://doi.org/10.3329/fmcj.v7i1.10288>
- Blanchard, E. B., & Veazey, C. H. (2001). Mental disorders resulting from road accidents. *Current Opinion in Psychiatry*. 14, 143-147. Retrieved from <http://ovidsp.tx.ovid.com>.
- Bryer, T. E. (1993). *Safety Management. The Traffic Safety Toolbox*. Institute of Transportation Engineers, Washington, D.C.
- Chowdhury, F.R., & Chowdhury, T.R. (2016). A Study on Causes of Road Accidents at Dhaka to Aricha Highway. *Ajirset*, 1(0), 7–13. www.engineeringjournal.info
- Haque, M. R., Hasnat Jamil, S. M., Rahman, M. S., & Islam, M. I. (2019). Identification of Factors in Road Accidents of Pabna-Sirajgonj Highway. *International Journal of Engineering and Management Research*, 09(05), 159–166. <https://doi.org/10.31033/ijemr.9.5.23>
- Jahan, A.A. (2006). *Road safety countermeasures and traffic calming practices in Roads and Highways Department in Bangladesh*. International Conference on Road Safety, Dhaka, Bangladesh, pp.120-123.
- Jabbar, M.A., Islam, M.Z., Sultana, R., and Akhter, S.F.U.(2009). Risk Factors of Road Road accidents (RTA) in the context of Bangladesh. *Journal of Dhaka Medical College*,18(2).

- Mahmud, S.M.S., Ahmed, I. & Hoque, M.S.(2014). Road Safety Problems in Bangladesh: Achievable Target and Tangible Sustainable Action. *Jurnal Teknologi* (Sciences and Engineering) 70:4,43-49. <https://doi.org/10.11113/jt.v70.3487>
- Murray, C. J., & Lopez, A. D. (eds.) (1996). Global health statistics, Cambridge, MA, Harvard School of Public Health, *Global burden of disease and injury series, 2*.
- Pillai, B.B., and Joseph, K.(2011). Causes and Consequences of Road Accidents in Kerala. *International Journal of Research in IT & Management, 1*(5), 83-95.
- Rubayat,A., & Sultana,N.(2013). Reasons behind the Road-Traffic Accident in Dhaka City: An Empirical Study. *International Journal of Research in Humanities, Arts and Literature (IJRHAL), 1*(2), 47-56.
- Sheikh,M.M.R.(2004). *A Statistical Analysis of Road Road accidents and Casualties in Bangladesh* (MS Thesis). Dept. of Civil Eng., Napier University, Germany.
- Silcock, B. & Ross. (2003). Guidelines for estimating the cost of road crashes in developing countries. Transport Research Laboratory, London: Department for International Development.
- The Daily Prothom Alo, August 10, 2015 The Daily Star,
January 10, 2016
The Dhaka Tribune, August 28, 2014
- WHO.(2004). *World Report on Road Traffic Injury Prevention*. Geneva: World Health Organization.
- WHO.(2009). *Global Status Report on Road Safety, Time for Action*. Geneva: World Health Organization.
- WHO.(2011). *Global Plan for the Decade of Action (2011-2020)*. Geneva: World Health Organization.
- WHO.(2013). *Global Status Report on Road Safety-2013: Supporting a Decade of Action*. Geneva: World Health Organization.