

Health hazards as a consequence of the poor technical condition of vehicles in Ghana

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Abstract

Keywords

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Purpose: This is a review to assess the health hazards resulted from the poor technical condition of vehicles in Ghana. In developing countries, the number of vehicles involved in road traffic is systematically increasing. The health consequences of road accidents are a crucial public concern.

Methodology: The PubMed and Google scholar search were used to find literature for this analysis. The following keywords were taken into consideration in this paper: health hazards, technical conditions, vehicles, accidents, developing countries, Ghana. The analysis has been done by the systematic review analysis method. The articles were selected in terms of the health hazards resulting from the poor technical condition of vehicles in Ghana and its effects on road safety. Twenty papers were being reviewed.

Main findings: The quality of vehicles on Ghanaian roads is low. Most of the cars are old. For economic reasons, users often use substandard products to repair cars. Poor-quality, non-original, mismatched parts can lead to an accident. The technical condition of vehicles affects the safety of road users. The security of citizens should be an essential goal of the state. Inspections of the technical condition of cars, especially in public transport, should be strengthened and the frequency increased.

Implications: Based on the analysis of the publications, it was assessed that there is no current literature on technical problems of vehicles in Ghana, with particular emphasis on public transport. This is an essential topic for the security of citizens and should be investigated, analyzed, and lessons learned without delay.

Novelty in this study: There is a lack of systematic reviews of the impact of health hazards resulted from the poor condition of vehicles in Ghana. The paper is an attempt to assess the impact of the problem.

INTRODUCTION

In developing countries, the number of vehicles involved in road traffic is systematically increasing. According to the International Organization of Motor Vehicle Manufacturers, 890,000 cars were registered in Ghana in 2015 and this number has been growing since 2010 ([CEIC Data Website: https://www.ceicdata.com/en/indicator/ghana/motor-vehicle-registered](https://www.ceicdata.com/en/indicator/ghana/motor-vehicle-registered) [Access: 05.07.2021]). However, the technical condition of the cars is not satisfactory. The situation is particularly worrying on this continent due to a combination of poor vehicle conditions, underdeveloped road infrastructure, a lack of risk awareness among road users, and ineffective enforcement due to corruption or bribery (Lagarde, 2007). Mainly used vehicles imported from developing countries are in road traffic, especially in the villages and poor areas of the cities. Ackah estimates that in 2005-2007 only 9% of vehicles were in good technical condition (Ackaah & Adonteng, 2011). The technical condition of cars affects the safety of road users. With the start of the globalization process, Ghana gradually enters the second phase of the epidemiological transformation, which means a gradual reduction in the percentage of victims of infectious diseases in favour of the rate of accident victims in the total mortality. As the number of vehicles increases, the percentage of road accidents and road accident victims also increases. Mock's research indicates that transport-related injuries were more severe than other types of damages in terms of mortality, length of disability, and economic consequences (C. N. Mock et al., 1999).

PURPOSE OF THE RESEARCH

This is a review to assess the technical condition of vehicles in developing countries and its impact on health hazards in the example of Ghana.

METHODOLOGY

The PubMed and Google scholar search was used to find literature to analyze the purpose of the paper. The following keywords were searched for information sources: health hazards, technical conditions, vehicles, accidents, developing countries, Ghana. Articles were selected according to the technical state of vehicles in developing countries and health hazards in developing countries, on the example of Ghana. The analysis has been done by the systematic review analysis method. The articles were selected in terms of the impact of poor technical condition of vehicles in Ghana and its effects on road safety in this area. Twenty papers were being reviewed.

REVIEW ANALYSIS / DISCUSSION

Vehicles condition in Ghana

Due to the increasing number of vehicles in Ghana, their technical condition is an increasingly important problem. This problem does not only include private vehicles. Both the tro, i.e. private minibusses that run on fixed routes departing when full, and local taxis have visible features that threaten public safety. The most common causes of accidents resulting from technical faults are damaged lighting, malfunctioning braking system, inadequate tires, problems with the steering system, and other damage requiring repair (Wojtas & Szkoda, 2018). The quality of vehicles on West African roads is low. For economic reasons, users often use substandard products. Poor-quality, non-original, mismatched parts can lead to an accident. Factors that may contribute to an accident in African countries include brake failure, tire burst, engine failure, defective and blinding lights, or the use of counterfeit spare parts (Oluwaseyi Joseph Afolabi & T Gbadamosi Kolawole, 2017).

In the context of the handover of used vehicles, there are links between Europe and Africa. As part of the development and humanitarian aid, used cars are delivered to the African market, where they often function in a changed role for years. An example is the transformation of a German ambulance into a Ghanaian Trooto vehicle for public transport (Beisel & Schneider, 2012). The technical condition of vehicles in Ghana is questionable. There are heavily corroded vehicles on the roads, with unprotected, visible cracks in the windows, inoperative lights, or large holes in the chassis. Often you can see doors that are not closing properly, which are tied to ensure the safety of passengers. These problems are visible. Alhassan research shows that using old cars increases the risk of an accident. For each year, the chance of an accident grows by 23.6% (Alhassan et al., 2018).

In developing countries, vehicles are kept in poor condition due to financial reasons, lack of awareness, and lack of appropriate competencies among road safety control workers (Eke, 2001). In particular, in rural areas and poorer parts of cities, it can be observed that repairs are made only if the car requires it due to the impossibility of fulfilling the basic role of the vehicle. The best example is the tyre. Drivers do not change them until holes appear. Unfortunately, the Edunyah study found four leading causes of tire failure: excessive and under-inflation, excessive wear, and overload of vehicles. More than 89% of drivers are unaware of tire safety measurements, especially the legal requirement for a minimum tire tread depth in force in Ghana (Edunyah, 2016). For every 1 mm decrease in the tyre's tread depth, the accident probability increases by about 40% (Alhassan et al., 2018). Not all road users take a responsible approach to ensuring road safety.

It should be remembered that the road user is responsible not only for his safety but also for the protection of other users. Technical inspection at a vehicle inspection station serves both as control and disciplines the user to make the necessary repairs. Therefore, the implementation of the obligation to perform periodic technical inspections would affect the elimination of inoperative vehicles from road traffic and increase the safety of users (Pałubicki & Czapiewski, 2017). Delays in carrying out the necessary repairs or changes endanger the safety of users. Therefore, special attention should be paid to the inspection of vehicles, in particular cars carrying passengers in public transport.

Road safety in public transport

In countries like Ghana private vehicles are very rare, and people from villages mostly use public transport (Afukaar et al., 2019). In developed countries, most public transport is provided by public institutions. However, in developing countries, transport is mainly offered by private companies which work under highly competitive but poorly regulated conditions what can risk the safety of the passengers (Agyeman, 2013).

In the North of Ghana motorised, three-wheel vehicles are the third most frequently used mode of transport, especially for people with low and middle income. This mode of transport users is less protected in case of a traffic crash (Wahab & Salifu, 2020). This problem is especially important to keep these vehicles in good condition and use a helmet while driving. Also, using a seat belt reduces the risk of severe injury or death during an accident. Ghana has mandatory seat belt laws; however, not many of the users respect it (Teye-Kwadjo et al., 2020). According to Ojo, 53.1% of drivers did not use the seat belt (Ojo, 2018). In local transport, most of the tros operating in the urban area does not provide the possibility to use a seat belt for each user what poses a risk for passengers in case of sudden braking or accident.

Health hazards resulted from the poor technical condition

Although non-communicable diseases are still the leading causes of death outside the hospital, most of the deaths are due to road traffic accidents, and these numbers are systematically increasing (Akakpo et al., 2020). Research suggests that road traffic accidents cause 16% of injuries in urban areas and 10% in rural areas (C. N. Mock et al., 1999). Ametefe indicates that 70.3% of spinal injuries at Korle Bu Teaching Hospital are caused by road accidents, especially in young

men (Ametefe et al., 2016). Spinal injuries are the most dangerous consequences of road accidents. Unfortunately, no statistics are available about other health consequences of road accidents in this region.

Ackaah points out that excessive vehicle speed, an inadequate adaptation of vans to transport people in tros, overloading, and the lack of a properly functioning emergency medical care system are the leading causes of high road death rates (Ackaah & Adonteng, 2011). Mock's research shows that a significant proportion of accidents involve public transport, 40% of accidents involve buses, and 24% of taxis (C. Mock et al., 1999). It shows that road safety also depends on public transport. It is important to note that the age and condition of the vehicles is one of the most important factors of survival on the road, drivers whose vehicles aged over ten years had lower survival chances than those with vehicles less than ten years (Alhassan et al., 2018). Interestingly, the risk of death in a traffic accident at night is 1.3 times higher than during the daytime (Ackaah et al., 2020) As accidents risk the life of road users, all efforts should be made to reduce their number and thus increase the safety of users

LIMITATIONS

In developing countries, not all road accidents are reported. The article is based only on published information and literature data.

IMPLICATIONS

Based on the analysis of the publications, it was assessed that there is no current literature on technical problems of vehicles in Ghana and their impact on road safety, with particular emphasis on public transport. This is an essential topic for the security of citizens and should be investigated, analyzed and lessons learned without delay.

CONCLUSIONS

The security of citizens should be an essential goal of the state. It is important to emphasize seat belts role in ensuring the safety of vehicle passengers. Inspections of the technical condition of vehicles, especially in public transport, should be strengthened and the frequency increased. Restrictions concerning the poor technical condition of the car should be strongly enforced to improve the safety of Ghanaian citizens.

CONTRIBUTION

Paper conception and design: K. Wojtysiak (33,33%), T. Wojsz (33,33%), E. Zieliński (33,33%).

Data collection: K. Wojtysiak (33,33%), T. Wojsz (33,33%), E. Zieliński (33,33%).

Manuscript preparation: K. Wojtysiak (33,33%), T. Wojsz (33,33%), E. Zieliński (33,33%).

All authors reviewed the results and approved the final version of the manuscript.

DISCLOSURE

The authors report no conflicts of interest in this work.

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