

Policy Brief

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The Development And Adoption Of Standardized Motorcycle Crash Helmets Fit For Ghana

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EXECUTIVE SUMMARY

It is axiomatic that wearing a helmet is the single most effective way of reducing head injuries and fatalities on motorcycles and bicycles. Studies have shown that wearing a helmet has been shown to decrease the risk of serious injury on a motorcycle by 70% and decrease the risk of a fatality by 40%.[1] Meanwhile, at present, Ghana does not have standards developed for motorcycle helmets.

Hence, there are sub-standard and counterfeit helmets imported into the Ghanaian market. Motorcycle riders and pillion riders hardly use helmets when riding, as there is no or low enforcement of helmet use.

Although the use of helmets which are properly and correctly fastened is mandatory for both the rider and passenger, according to the Road Traffic Regulations, 2012 (L.I 2180), there are no helmet standards provided by the law in Ghana resulting in death occasioned by motorcycle crashes. According to data issued by the National Road Safety Authority (NRSA), between January and June 2024 alone, a total of 2,591 crashes involving motorcycles were recorded. [2] Even though this is not acceptable, it is obvious that this figure may not be a true representation of the crashes as this may have been under reported.

The law that exists mandates that all motorcycle riders and passengers must wear a helmet, on all road and across all engine types, and that the helmet must be fastened. It also states that the helmet must meet a standard. However, Ghana does not have a helmet standard issued, which poses a problem to the implementation of the helmet law.

To remedy this is to develop standards for motorcycle helmets fit for Ghana's context and road network and this exercise is being initiated by a National Technical Committee (NTC) for Automobiles composed of the Ministry of Transport, Ghana Standards Authority (GSA), Driver and Vehicle Licensing Authority (DVLA), representatives from the private sector and NRSA, with civil society presence.

Therefore, towards the development of the standards on motorcycle helmets and towards planning a helmet enforcement programme for Ghana, factors including the cost of the helmet, accessibility, affordability, durability, road network and weather condition, its colour and form, etc. including the need to harmonize with international best standards, should be considered.

As the rate of road crashes involving motorcycles increases, there is an urgent need to address motorcycle safety and the implementation of the law and standards through targeted campaigns and sensitization accompanied by enforcement to support the uptake of helmet use, conforming to standards, among motorcyclists.

INTRODUCTION, BACKGROUND AND CONTEXT

Road traffic injuries among motorcyclists have persisted as a serious public health problem and much of the health burden is in developing countries. Speeding, poor enforcement of traffic regulations, non-use of protective motorcycle crash helmet and protective attires as well as overloading of pillion riders/passengers have been highly implicated in road traffic injuries in developing countries.[3]

The rate of motorcycle crashes which forms a fatal category of motor traffic crashes in the world is very alarming and Ghana is no exception. Day in day out, the risk of passengers/pillion riders, pedestrians and motorcyclists getting involved in crashes increases, making them the most vulnerable road users. Survey and observational studies have consistently demonstrated that motorcyclists have the poorest safety record compared to other road users [4].

Meanwhile, motorcycle use has become one of the most popular modes of transport in Ghana. They serve as an important alternative mode of transport used in both rural and urban areas. This mode of transport has become popular in recent years because of the low cost of purchase and maintenance, its possibility to maneuver in traffic jams, and usability in areas where coverage and frequency of travel by other motorized transport are deficient. [5] [6].

Motorcycle crashes, among other types of road crashes, form a fatal category of motor traffic crashes. This is because motorcyclists are more at risk of sustaining injury than motor vehicle drivers; per mile travelled, motorcycle riders have a 34 times risk of death than the drivers of other types of vehicles. They are also 8 times more likely to be injured [7]. While road traffic crashes involving motorcycles cannot be completely prevented, the probability and severity of head injuries following a crash can surely be mitigated through helmet use. In Ghana where motorcycles are popular means of transport, prevalence of motorcycle helmet use is very low while those who use helmet tend to use that of sub-standard ones with very little consideration to their safety upon a crash.

Although motorcycles are an important alternative mode of transport in many developing countries, they are considered the most dangerous mode among all motorized transport, because motorcycle users lack protection in the event of crashes, such as seat belts, airbags, and the body structure of the vehicle except where they have protective crash helmets. Motorcycle users have an injury rate 8 times and fatality rate 35 times as compared to that of vehicle occupants [8]. Motorcycle crashes account for the highest proportion of traffic-related injuries and deaths in many countries, especially in low- and middle-income countries like Ghana. Two and three-wheeler users toppled pedestrians as the most fatal road user group in Ghana in the year 2020 and 2021. The group had seen an astronomical 1547.7% rise in deaths when compared to fatality figures from 2001 to 2022. However, in 2022, motorcycle deaths fatalities recorded a decrease for the first time since 2015. [9]

It should be noted that morbidity and mortality from road traffic crashes including that of motorcycles are steadily increasing globally and this remains a major public health challenge. This burden is disproportionately borne by low-and middle-income countries, especially Sub-Saharan Africa where motorcycle helmet use is low and where there are challenges of affordability and availability of standard helmets.

DESCRIPTION OF THE PROBLEM

In its 2023 report on Status of Road Safety, the World Health Organization (WHO) survey revealed that nearly 21% of all road traffic fatalities reported in the survey involved powered two- and three-wheelers, such as motorcycles, mopeds, or scooters. Yet, as the use of powered two and three-wheelers increases, particularly in developing countries, the use of lifesaving helmets often lag far behind [10].

Regarding risk factors for motorcycle injuries, the non-use of helmet has been identified as a specific factor leading to head injuries and fatalities resulting from motorcycle crashes. Helmets as a protective measure have been identified to be effective towards head injury prevention and reduces the fatality of motorcycle riders. The fatality risk is reduced by 34%. For protection against head injury, motorcyclists need to consistently and properly wear helmets according to the prescribed standards. In Ghana, head injuries are the main cause of death in most motorcycle crashes. Quality helmets reduce the risk of death by over six times and reduce the risk of brain injury by up to 74% (35), according to data from the 2023 WHO Status Report on road safety. Despite this, several challenges slow the uptake and proper use of quality helmets, particularly in developing countries such as Ghana. These challenges include availability and affordability of quality helmets, low standard helmets, improperly fastened helmets, socio-cultural factors and behavioural misconceptions of the female hairdo and beauty. Others are lack of the availability of helmets designed specifically for children, hot weather, and even misinformation on helmet use.

In Ghana, the non-consistent use of helmets has been evident in several studies. Interestingly, it has been shown that motorcyclists are likely to put on helmets when they are driving on the highways, travelling on a long trip and if they anticipate meeting traffic police; during the day rather than night hours and during weekdays rather than weekends [11].

Despite their effectiveness, helmets are not as widely used as they should be and when used, they are not used properly. Negative attitudes towards helmet use among other factors, explain the reason behind the reported low rate of use. Some reasons for non-adherence and non-use of helmet include feelings of discomfort due to heat during the hot weather, and lateral vision and hearing ability impairment. However, it has been shown that helmets do not impair hearing ability and the lateral vision can be complemented by lateral head rotation [12].

Data from scientific studies and recent trends in motorcycle crashes and fatalities on Ghana's roads highlight an urgent need for policy attention and a shift toward advocacy efforts to mitigate this growing menace. A surest way of minimising the many motorcycle crashes on the Ghanaian roads is to create awareness, and adopt the use of standardised motorcycle crash helmets fit for Ghana's road network and weather condition.

However, at present, Ghana does not have standards developed for motorcycle helmets. Hence, there are all manner of helmets being imported into the Ghanaian market. Although helmet use is mandatory for both the rider and pillion-rider, there are no helmet quality standards provided in the Road Traffic Act, 2004 (Act 683) and the Road Traffic Regulations, 2012 (L.I 2180). The law that exists only covers all riders on all road types, and all engine types and that the protective crash

helmet must be prescribed by a regulation, which has not yet been enacted. The lacuna in the law is its failure to describe or detail out the type of standards on helmets fit for Ghana's road network and weather condition which should be provided for, in the regulation.

Act 683 only makes mention that “a person who rides or is ridden on a motor cycle on a road shall wear a protective crash helmet of a type prescribed by Regulations. A person who fails to wear a prescribed crash helmet in contravention of subsection (1) commits an offence and is liable on summary conviction to a fine not less than 100 penalty units and not exceeding 200 penalty units or to a term of imprisonment not exceeding 9 months or to both. A protective crash helmet shall by shape, construction or other quality be of a type recommended as providing protection to a person driving or riding on a motor cycle from injury in the event of an accident [13].

Even though Act 683 makes provision for the Minister to make regulations on the development, adoption and use of standards on motorcycle crash helmets so as to give effect to that provision in the law, it is interesting and sad to note that this has not yet been done. The prevalent of helmet use in Ghana has been low. The last time it was formally assessed in the year 2010, helmet use was 30.0% (34.2% for riders and 1.9% for pillion riders) [14].

Given the statistics showing the predominant use of motorcycles as a means of transport—accounting for 22.1% overall (26.7% among motorcycle riders and 5.7% among pillion riders)—in the cities, towns, and villages of northern Ghana, and the associated rise in crashes, injuries, and fatalities, it was highly expected that the review and amendment of the Road Traffic Amendment (Regulations) 2024 would have addressed this issue. Unfortunately, although the amendment was laid before the eighth Parliament of Ghana, it was not passed into law before the expiration of that Parliament, leaving a critical policy gap unaddressed [15].

The absence of a legal regime on standards for motorcycle helmets in Ghana has over the years led to a proliferation of inferior (unsafe) crash helmets in the country which are unable to protect the riders in the event of a crash. Providing quality regulations/standards for crash helmets will ensure that only safe and standard crash helmets are allowed into the country to improve road safety. In doing so, there is the need for special specifications on crash helmets to be developed separately for both children and adults.

Even though the current Regulations [L.I 2180] does not have a provision on standards motorcycle helmet, the Ghana Standards Authority (GSA) (a state institution) is clothed with the mandate to develop national standards and this includes that of standards for motorcycle helmets. To this end, the stakeholders in the road safety industry including the MoT, DVLA, NRSA and GSA have set up a National Technical Committee (NTC). This committee comprises representatives from these institutions, with the Legal Resources Centre (LRC) representing civil society. The primary objective is to develop standards for motorcycle helmets, child restraint systems, seat belts, and other critical safety measures. The development of the standards on motorcycle crash helmets is key on the burner of the NTC.

Even though the NTC is yet to have its meetings towards the development of the standards on motorcycle helmets, it is pertinent that key factors are taken into account towards the development of the standards on motorcycle crash helmets.

FACTORS TO CONSIDER IN DEVELOPING STANDARDS FOR MOTORCYCLE HELMETS

In 2016, the rate of road traffic deaths in Ghana was 24.9 per 100 000 population, and this was considerably higher than rates in high-income countries. Contributing to the high rates of road traffic crash deaths has been an increase in the use of motorcycles. Although motorcycles remain the most dangerous form of motorised transportation, they are the most common means of transportation in many low- and middle-income Countries like Ghana.

As revealed by the WHO 2023 Status report on road safety, as aforementioned, head injuries are the main cause of death in most motorcycle crashes. Meanwhile, quality helmets reduce the risk of death by over six times and reduce the risk of brain injury by up to 74% [16]. Despite this, several challenges slow the uptake and proper use of quality helmets, particularly in developing countries like Ghana. These challenges include availability and affordability of quality helmets, improperly fastened helmets, a lack of available helmets for children, hot weather, and even misinformation.

The absence of protective structures sadly offers motorcyclists a greater risk of serious injury and fatality during road crashes [17]. Most of these deaths result from severe head injuries. Meanwhile, Ghana is among the countries that have been experiencing increasing usage of motorcycles. Between 1995 and 2016, motorcycle registration in Ghana rose from 11.5% of all vehicles to 29%.

As at the end of 2018, the World Health Organization reported that Ghana had a total number of 515,000 registered motorcycles nationwide, even though, a considerable number of them ply the roads without being registered [18]. The increase in the numbers of motorcycle couple with other vehicles on the roads put pressure and increase traffic flow on the road. This has led to an increase in motorcycle involvement in crashes. Studies indicate that nationwide, motorcycles are the second leading cause of traffic deaths (accounting for 18% of all traffic deaths), after pedestrian deaths (46%) [19].

The situation is more pronounced and devastating in Northern Ghana, where motorcyclists account for 39.6% of road traffic deaths [20]. According to data issued by the NRSA, between January to June 2024 alone, a total of 2,591 crashes involving motorcycles were recorded [21]. In January 2024, motor bikes constituted 74% (324) of crashes involving all cycles whilst tricycles constituted 23% (101). Even though this is not acceptable, it is obvious that this figure may not be a true representation of the crashes as this may have been under reported.

The proper use of motorcycle helmets is one important policy that promotes motorcyclists' safety. Studies have unearthed that crash victims who do not wear helmets are four times more likely to sustain severe head injuries than those who wear helmets. Enforcement of legislation on helmet use stands to increase helmet use rate to over 90%, which will drastically reduce head injuries and deaths from motorcycle-related crashes. Enforcement of helmet use among pillion riders has often not been prioritised for road safety, despite the benefits of helmet use [22].

In addition, many motorcyclists in Ghana do not use motorcycle crash helmets, as the law requires. Those who use helmets, as findings indicate, use substandard helmets, which may limit the potential benefits of helmet use interventions. More importantly, helmet use is not well addressed in Ghana. It is common to find motorcyclists not wearing helmets, let alone with regards to its standards. There has always been a low prevalence of helmet use in Ghana. The increasing rate of injuries and alarming mortalities resulting from motorcycles in Ghana call into focus the urgent need to develop standard motorcycle helmets fit for Ghana's weather condition and road network, with key considerations to its affordability, availability and access etc.

Another factor worth considering is planning the enforcement of a helmet programme in Ghana. This exercise will include that after the development of the helmet standards, there is the need to plan how it will be enforced/implemented. As the initial plan will be to import helmets which will fit the standards to be developed, there is the need for a functioning laboratory for a testing regime to have the imported products meet the set criteria. It is important to use test methods that are realistic and give the helmet manufacturers new goals to achieve in the struggle to improve the energy absorption in the only safety barrier that is between the brain and the obstacle.

It should however be stressed that the most important thing is that people wear a helmet and that the helmet meets the standards required. However, in terms of cost consideration, the testing method should not result in too expensive helmets. The laboratory testing must be able to measure the rotational energy absorption in a helmet during an angled impact. Therefore, the following basic requirements need to be fulfilled; a) simple, robust and cost effective, b) impact conditions based on real crash data and c) adjustable for several helmet segments.

CHALLENGES IN DEVELOPING HELMET STANDARDS

The development of, and maintaining helmet standards faces certain challenges including balancing safety which is an important component with comfort and practicality, ensuring that it meets global standards, and adapting to new technologies and impact dynamics. The following are some of the challenges;

1. **Balancing Safety and Practicality:**

In terms of comfort and fit, helmet standards must ensure adequate protection without sacrificing comfort or fit, which can lead to riders disliking or avoiding wearing them. However, in most helmets, a smooth plastic skin holds the helmet's foam together as it crashes and helps it skid easily on the crash surface, rather than jerking one's head to a stop. In activities that involve forward speed on rough pavement, rounder helmets are safer, since they skid more easily. The straps keep the helmet on the head during a crash sequence. Hence, a helmet must fit well and be level on the head for the whole head to remain covered after that first impact.

Another consideration is the weight and ventilation which may pose a challenge; A heavy or poorly ventilated helmet can also discourage use, especially in hot climates like Ghana. Helmet liners are made of foam that hold heat well. As human beings, our bodies use the

head to radiate excess heat during exercise. Only a flow of air over the head can carry that heat out of the helmet, so ventilation becomes critical in hot weather, and is needed even in cold weather to carry moisture away.

On aesthetics, some riders may prefer helmets that are not as bulky or that have certain designs, which can make it difficult to enforce standards that prioritize safety.

2. Global Applicability and Adaptation:

Ghana has a diverse road environment, including both urban and feeder roads. Therefore, helmet standards should be adaptable to different riding conditions and varying climates. Another challenge is cultural differences. Helmet usage and acceptance can vary greatly across cultures and regions, requiring tailored enforcement strategies. For instance, in the northern part of Ghana, socio-cultural factors and certain perceptions continue to fester, affecting women attitudes towards wearing of protective crash helmets, to the neglect of safety considerations. Economically, the cost of helmets and enforcement efforts can be a barrier in Ghana, where affordability and access are crucial considerations.

3. Keeping Up with Technology and Impact Dynamics:

New Materials and Designs. The constant evolution of materials and helmet designs requires ongoing research and development to ensure standards remain relevant. Modern helmet standards are placing greater emphasis on rotational impacts, which can lead to serious brain injuries. This has driven the development of new testing methods and helmet designs. Therefore, in designing and developing Ghana's standards for helmet, key considerations should be paid to safety and impact dynamics.

4. Enforcement and education could be a challenge to reckon with:

Even with robust standards, effective enforcement and public education are crucial to ensure helmet usage and compliance. Therefore, as GSA has the mandate in establishing standards, key considerations should be factored into making the standards on helmet mandatory for all and that there is sustained enforcement of the law to ensure compliance.

CONCLUSION

The rate of motorcycle crashes - one of the most fatal categories of motor traffic incidents worldwide - is alarmingly high, and Ghana is no exception. Day in day out, the risk of passengers; pedestrians and motorcyclists getting involved in crashes increases, making them the most vulnerable road users as motorcyclists have the poorest safety record compared to other road users.

Meanwhile, motorcycle use has become one of the most popular modes of transport in Ghana. They serve as an important alternative mode of transport used in both rural and urban areas. This mode of transport has become popular in recent years because of the relative low cost of purchase and maintenance, possibility to maneuver in traffic jams, and usability in areas where coverage and frequency of travel by other motorized transport are deficient.

As motorcycle use continues to grow across cities, towns, and villages in Ghana, it is essential for riders to use standardized helmets that are suited to Ghana's weather conditions and diverse road network. These helmets should also meet international best practices to help reduce crashes, injuries. Achieving this requires that the NTC with its working committee and policy makers pay particular attention to the various recommendations proffered below.

POLICY RECOMMENDATIONS

To ensure the development, adoption, and effective use of standardized motorcycle crash helmets that are suitable for Ghana's weather conditions and road network—ultimately aimed at significantly reducing motorcycle crashes—it is recommended that the following proposals be taken into consideration in the planning of a national helmet programme;

1. As the core working group (CWG) composed of the GSA, DVLA, MoT and NRSA are being prepared to kick start the development of the standards for motorcycle crash helmets with its subsequent implementation of a helmet programme in Ghana, there is the need to consider factors such as cost, affordability, access etc. so that there will be no inhibiting factor in its acquisition and use in minimizing road crashes.
2. As there is no one fit helmet recommended for use across the globe, it is recommended that in developing the standards, the CWG implores key factors including considerations on Ghana's weather condition and road network so as to develop helmet standards for both adults and children that meet the peculiar needs of Ghana and are also of international best standards;
3. As the rate of road crashes involving motorcycles increases, there is the need for targeted helmet educational campaigns accompanied by enforcement of helmet laws so as to aid in improving upon helmet use among motorcyclists.
4. As the standard helmets are being developed, the helmet educational campaigns must consider appropriate helmet use practices such as using proper fastening helmets and using full-face helmets to ensure that the helmet programme to be commenced in Ghana yields its potential benefits.
5. As Ghana develops standards for motorcycle crash helmets, there is the need to start to plan the enforcement of a helmet programme. As the enforcement of a helmet programme is integrated to achieving the set objective, it is core for Ghana to commence discussions and preparations towards how to enforce a helmet programme in Ghana in order to be proactive and not reactive.
6. There is the need for sustained advocacy interventions to sensitise the citizenry to the dangers of not wearing quality and standardized helmet. This exercise should include advocacy actions for acceptance, usage and compliance once the helmet standards are developed and Ghana plans and implements its helmet programme.

7. As studies indicate that helmets being imported into the country are mostly sub-standards, it is key for the government through the NTC and other relevant stakeholders on road safety to factor the concerns of the various associations in the helmet value chain such as the importers association so as to carry everyone along in this exercise towards acceptance, usage and compliance of using standardized helmets fit for Ghana`s weather condition and road network.
8. Also, another factor worth considering is to engage the individuals, institutions, groups, and dealers composed as importers of automobile products including helmets into the Ghana. As all manner of helmets are being imported into the country, it is key to engage them to appreciate the relevance of Ghana having its unique helmet standards fit for its context and road network.

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