



FACTORS INFLUENCING THE USE AND NON-USE OF CRASH HELMET BY TERTIARY EDUCATION STUDENTS IN THE WA MUNICIPALITY, GHANA

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Abstract

The motorcycle has become a preferable means of transport in Ghana due to its cost effectiveness and convenience. Apparently, motorcycle use involves a number of risks such as head injuries and deaths due to non-use or improper use of crash helmets. Against this background, an explorative case study design was conducted with the objective of ascertaining the factors that influence the use and non-use of helmets among student motorcyclists. Quota sampling technique was used in selecting 90 student motorcyclists from the University for Development Studies- Wa Campus, Wa Polytechnic and University of Education, Winneba-Wa Center. In addition, 11 key informants were purposely selected. Primary data was gathered through interviews. The study found that; traveling distance, discomfort and the type of 'hair- do' were some of the major factors accounting for the non- use of helmets. The study also revealed that protection of the head against danger and the eyes against foreign materials are the main motivating factors for the use of crash helmets. This study recommends that the Police Motor Traffic and Transport Department, the National Road Safety Commission, the Management and Student Leadership of Tertiary Institutions, the Health Ministry, the Media and Drivers and Vehicle License Authority should develop holistic education and enforcement measures to prevent the non-use of crash helmets among student motorcyclists.

Keywords: *Crash Helmet, Tertiary Students, Motorcycle, Wa, Ghana*

Introduction

The proliferated use of motorbikes has become an alternative in the search for easy mobility across the world, especially in developing countries (Turkson, Akple, Biscff, Dzokoto & Klomeagah, 2013). Motorcycle usage has increased the users' ability to save time and cost as an accompanying advantage. They also provide affordable mobility options and offer ease in navigability in congested traffic conditions as well as providing ease of parking. In times of petroleum price hikes, motorbikes offer users reduced expenditure on energy and transportation (Njiru, 2014).

However, the proliferation of motorbikes and non-use of crash helmets have made motorists

more vulnerable to road traffic accidents. The World Health Organization (WHO, 2010) for instance, identified the improper or non-use of motorcycle crash helmets as one of the five high risk factors for road safety. United Nations Economic Commission for Europe (UNECE, 2016) asserted that finding creative ways of ensuring the wearing of crash helmets is a much more important safety measure for the protection of the head in order to decrease the incidence of deaths and the severity of non-deadly head injuries in motorcycle crashes in a global world with the influx of motorcycles. Apparently, most motorcyclists do not use crash helmets, the most important of safety gears in motor cycling, even

though there are regulations on the use of crash helmets. Many motorcycle fatalities which are mostly due to head injuries could have been prevented if crash helmets were worn by riders (Ackaah & Afukaar, 2010; Afukaar, Antwi & Amaah, 2010). Studies conducted by several scholars reveal diverse forms of injuries experienced by non-helmeted victims such as head and brain injuries and lifetime deformities (Iddrisu, Salifu & Abubakari, 2017; WHO, 2015; World Bank (WB), 2014).

In Ghana, many students as well as the working class prefer motorcycles to other private means of transport both within the economically busy urban and rural areas of the country especially in the northern part of the country (Ackaah & Afukaar, 2010; Afukaar et al., 2010). However, as the use of motorcycles is on the increase, the use of the most important component of the package, crash helmets, is insignificant among motorists across the country. In a study conducted by the Ghana Road Safety Commission (2016), it was found that only 42 percent of motorists wear crash helmets. Although crash helmets do not prevent accidents, yet, they play a very crucial role in reducing the tendencies of severe injuries and mortalities in the course of crashes (UNECE, 2016). According to Ghana News Agency (GNA, 2018), annual accident reports from the Ghana Motor Traffic and Transport Department (MTTD) for instance, reveal that 2,198 and 2,076 accident victims died through road transport accidents in 2016 and 2017 respectively.

The Wa Police MTTD Road Traffic Accident Data (2017) for the periods of 2013, 2015, and 2016 in the Upper West Region, indicate that, Wa Municipality, the study locality successively recorded the highest figures of road traffic accident cases in the region. For instance, in 2013 while the Region recorded 172 motorcycle related accidents, Wa Municipality alone recorded 113. Similarly, in 2016, while the Region recorded 132, Wa Municipality recorded 104 representing about 78.8 per cent of all road accidents recorded in the Region. In these reports, it was revealed that motorcycles represented the highest vehicle type involved in road traffic accidents within the Region, making Wa Municipality a principal motorcycle accidents prone community. Although there was

a drastic reduction in motorcycle accidents in the year 2015 with 85 reported cases within the Municipality, a discouraging trend developed in 2016 which revealed an increased number of 104 reported cases, although lower than the case of 2013. This implies that some intervention might have been employed by the key actors involved in road safety resulting in the reduction of the accident rate. This study does not, however intend to suggest that much had not been done in 2016. However, it could be said that as motorcycles represented the highest number of cases reported, empirically a higher proportion of the high figures of injured persons were motorcyclists. Most of the fatalities are construed as preventable if riders were riding with crash helmets (National Road Safety Commission (NRSC), 2016).

It is against this background that this study was conducted with the objective of ascertaining the factors that influence (1) the use and (2) non-use of crash helmets by student motorcyclists. It is envisaged that the findings from the study will place stakeholders in a better position to develop holistic measures to encourage crash helmets' use and at the same time, discourage the non-use of helmets by motorcyclists.

Motorcycle Transport, Road Traffic Accidents (RTAS) and Crash Helmet Usage

Statistics from several literature (Iddrisu et al., 2017; WHO, 2015; WB, 2014) among others confirm that a great number of people suffer severe and, in most cases, life-altering injuries due to road accidents. The proliferation of vehicles and expanded road transport sector pose a great challenge to human health as far as road transport safety is concerned (WHO, 2014). These challenges include road transport fatalities, respiratory complications, physical and psychological disabilities, among others. In view of these challenges, roads across the globe especially developing countries, as noted by Awuni (2011), have become death traps against their main purposes of facilitating movement of road users from place to place. According to WHO (2015), about 1.25 million persons die every year through road transport accidents globally. Road transport accidents have however, been identified in relation to human errors such as speeding, wrongful overtaking, drunk-driving,

as well as gross indiscipline including riding without crash helmets.

Globally, motorbike ownership or occupancy and its usage have hiked over the years among other types of vehicles in the transport sector, especially in developing economies. The increase in motorbike usage, however, has been accompanied with high risks of crashes resulting in head injuries and at worse, death of riders and other victims (UNECE, 2016). WHO (2014) expressed that in order to achieve road safety in the spheres of injuries and deaths reduction, factors such as speed, drunk-driving, helmet usage, seat-belt usage, and other human and structural factors within the system must be critically considered.

According to UNECE (2016) and the Center for Disease Control (CDC, 2012), using a crash helmet is the single most effective way of reducing head injuries and fatalities resulting from motorcycle crashes. National Highway Transport Safety of America (NHTSA, 2010) noted that riding motorcycles without crash helmet exposes the rider to high risks of dying from head injuries or sustaining severe injuries during crashes because the helmet protects the head from injuries. The Center for Disease Control (CDC, 2012) stated that the unique utmost effective means of saving lives and saving costs is the enforcement of a universal helmet law.

Whilst much has been done to promote helmet usage across nations, there is a continuous challenge with law enforcement in the developing countries which are habituated to road traffic lawlessness (Asibey, 2011). This implies that governments of both low- and middle- income countries require much more legislative enforcement efforts to ensure helmet usage and the adaptative application of international standards and approaches (WHO, 2006).

Theoretical Framework

This study is grounded in the Rational Choice Theory. The Rational Choice Theory emanated from earlier theorists Cesare Baccaria and Jeremy Bentham. The Rational Choice Theory posits that would-be offenders or criminals consider the potential costs and benefits of their perceived actions before deciding to engage in

crime. The classical school of thought and its philosophies suggested earlier that criminals would desist from committing crime due to the fear of punishment (costs). This fear of punishment (potential costs) of committing crime formed the basis for the deterrence theory in criminology (Bouffard & Wolf, 2007).

Ahmad and Emeka (2014) wrote that the Rational Choice Theory had aided the development of other theories such as the Lifestyle and Routine Activities theories. The theory's protagonists, according to Akers (1990) purported to work beyond just broadening of the theory in view of deterrence perspectives. They actually had suggested an integrative viewpoint to the theory, research and policies of criminology.

The Rational Choice Theory in its entirety sought to explain human behaviour from the fields of psychology and economics. The theory as explained in the eighteenth century posited that offenders tend to commit crime based on the costs and benefits associated with the potential crime. This implies that there is a sense of reasoning in every individual's actions (whether good or bad, lawful or deviant) as suggested in several, but unrelated criminological studies journals, papers as well as scholarly articles (Dobash & Dobash, 1984). Thus, people in evaluating actions consider the pains and pleasures involved. Individuals, therefore, tend to choose options that present the least pain or cost. It is assumed that student motorcyclists, both users and non-users of crash helmets are rational and have calculated their choices and are therefore responsible for their actions. As rational beings, it is assumed that student motorcyclists have determined the pain or punishment and rewards or pleasure associated with the use and non use of crash helmet before using the motorcycle.

Methodology

Selection of Study Location

The research location was Wa Municipality and focused on three selected tertiary institutions namely, University for Development Studies (UDS), University of Education, Winneba- Wa Center, and Wa Polytechnic. These institutions were purposely selected because they host a number of tertiary students, most of whom are motorcyclists. As noted by Maxwell (2005),

purposive sampling is defined as a type of sampling in which, particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices. The purposive technique used in the selection of the three institutions was considered appropriate since the focus of the study was on tertiary students.

Sampling Units

According to Marfo (2014), sampling unit refers to the element, group or system considered from a sampling frame. In other words, the sample unit is the individual or case under study. In this study, the sample units included student motorcyclists from the three selected tertiary institutions and other key informants who had information on the subject being studied.

Selection of Research Participants

Sampling is the process of selecting a subset of population for the purpose of study (Panneerselvam, 2007) and it could be probability or non-probability sampling technique (Creswell, 2009). With probability sampling, the chance of each case being selected from the population is equal for all cases. Consequently, probability sampling techniques are often associated with quantitative studies (Saunders, Lewis & Thornhill, 2009). Non-probability sampling techniques on the other hand, are more akin to qualitative studies in that all the cases under consideration do not have equal chance of being selected for observation (Babbie & Mouton, 2004).

Given the objectives of the study, 90 student motorcyclists comprising 68 males and 22 females were selected through the use of quota sampling technique. The criteria for the selection were that; (1) the person should be a male or female student motorcyclist, (2) someone who uses or does not use crash helmet, and (3) a student from any of the three selected institutions. The distribution of the respondents from the three institutions was given as follows; UDS- 30 (26 males and 4 females), Wa Poly- 30

(16 males and 14 females), and UEW, Wa Center- 30 (26 males and 4 females). Quota sampling technique was required because, according to Sarantakos (2005), it is appropriate if it becomes difficult coming by respondents and sample size through simple random or systematic sampling techniques as well as in the absence of an already existing sampling frame.

The technique was also used with the objective of getting a cross-sectional view from the selected institutions. All willing and available qualified male and female students per the selection criteria from the three institutions became part of the study sample. This explains the variation in female respondents from the three selected institutions. The skewed nature of the sample in favour of males is due to the fact that motorcycle transport is popular among males (Iddrisu et al., 2017).

Besides the student respondents from the selected institutions, 11 other key respondents were purposely selected from the MTTD (1), National Road Safety Commission (1), Department of Urban Roads (1), Wa Regional Hospital (1), Drivers Vehicle and License Authority (DVLA) (1), management of the selected institutions (3), and security personnel of the selected institutions (3), bringing the total number of respondents selected to 101 (See Table 1 below). These key informants were intentionally selected because in the judgment of the researchers they had important information to contribute to the success of the study.

Abdalla (2007) and Sarantakos (2005) opine that large samples do not, in general, necessarily guarantee higher levels of validity and success. Sarantakos (2005) suggests that a quality study is influenced by the methodology adopted, available resources allocated, and homogeneity of the target population as well as its purpose and sample size. These are factors influencing the degree of quality of every study. The quota sampling and purposive selection approaches used in selecting a combined 101 respondents could be considered as appropriate to ensure the quality of the study.

Table 1: Selected student Respondents (absolute figures)

Categories	Males	Females	Total
UDS	26	4	30
UEW	26	4	30
Wa Polytechnic	16	14	30
Key informants	10	1	11
Total	78	23	101

Source: *Field Study (2018)*

Sources and Methods of Data Collection Tools

This study made use of both primary and secondary sources of data. Primary data were gathered from 90 tertiary student motorcyclists from the three selected institutions through survey interviews with the aid of semi-structured questionnaires.

Surveys, though used largely in quantitative research, could also be used to gather qualitative data. Babbie and Mouton (2004) have indicated that survey research is suitably fit for descriptive studies of large populations but could also be used for explanatory and exploratory studies as in qualitative research. Survey is a useful data collection technique to use when collecting data that is more general than specific and thus, can be generalised to reflect trends in whole populations. For this study, what Babbie and Mouton (2004) referred to as survey interview was used in the collection of primary data from the student respondents. According to Babbie and Mouton (2004), the survey interview usually uses semi-structured questionnaires, which makes room for both closed and open ended questions to be asked. Its usefulness stems from the fact that information is gathered from a number of respondents within the shortest possible time. It also has an advantage over self-administered questionnaire in that the response rate is very high.

The semi-structured survey questionnaires accompanied with an audio recording device helped the researchers to gather general views/information on personal demographics of the 90 respondents and the reasons for the use or non-use of crash helmets. The various interviews took place on the Campuses of the three

institutions. Each interview session lasted about 12 minutes.

In-depth personal interviews with the aid of interview guides and an audio recording device were used to collect primary data from the 11 key informants. Each interview session lasted between 25- 30 minutes and was conducted between January 2018 and February 2018.

Secondary sources of information was gotten by reviewing relevant literature from sources including: journals, newspapers, magazines, articles as well as the websites. Secondary data provided a broader view of the problem which necessitated the study.

Data Analysis

The qualitative approach of data analysis was adopted. The raw data such as field notes were typed, interviews recorded with an audio device were transcribed and carefully edited where necessary to ensure that the original meanings given by the respondents were preserved. Data from secondary sources were arranged based on pre-set themes. Themes or patterns which are the ideas, concepts, behaviours, interactions, incidents, terminologies or phrases used were identified. As noted by Ader (2008), analysis of data is a process of editing, cleaning, transforming and modelling of data with the goal of highlighting useful information, suggestion, conclusion and supporting decision making.

Findings and Discussions

Biographic Characteristics of Respondents

Sex Distribution of Respondents

The sex distribution of the respondents was examined. The study sampled 90 student motorcyclists from three tertiary institutions in

the study area from which semi-structured survey questionnaires were completed and each case was analysed. It was found that 68 (75.6%) of the student motorcyclists were males and 22 (24.4%) were females. The use of motorcycles as means of transport could therefore be seen as more popular among males than women, even though males are not the sole users. The finding corroborates the works of Iddrisu et al. (2017). In their study, it was found that males were almost three times associated with the use of motorcycles as means of transport compared to females.

Motorcycle Usage and Age Distribution of Respondents

The age distribution of respondents in this study as represented by Table 2 below shows that the prevalent age group in terms of motorcycle usage is the age bracket of 21- 25, recording 60 respondents. The age bracket 26-30 witnessed 22 respondents with the age bracket 31-35 being the least users of motorcycle recording 3 respondents representing about 3.3%. The age bracket of 21-25 which recorded the large number of respondents probably could be attributed to youthful exuberance.

Table 2: Motorcycle Usage and Age Distribution of Respondents

Age bracket	Number of usage	Percentage
21-25	60	66.7
26-30	22	24.4
31-35	3	3.3
36+	5	5.6
Total	90	100

Source: Field Study (2018)

In respect of the key informants, none of them was below 40 years. The findings show that both the student respondents and the key respondents were all adults (above 18 years) and therefore constituted reliable source of data gathering for the study. The matured nature of the respondents also implied that the issues raised were within their understanding.

Gender, Helmet use and non-use by respondents

The study sought to find out from the student motorcyclists the category of users and non-users of crash helmets. The study revealed that out of the 68 male respondents drawn from the three Tertiary Institutions, 41 (60.3%) were helmet users whilst 27 (39.7%) were non-users of helmets. In terms of the female respondents, the study revealed that 8 (36.4%) were helmet users whilst 14 (63.6%) were non-users of helmets (See Table 3 below). What the informant presents is that female non-users of helmets (63.6%) are more than male non-users of helmets (39.7%) not in terms of absolute figures but in percentage wise. This information points out that all things being equal, female motorcyclists are more likely to be non-users of helmet than male motorcyclists.

The study revealed that 49 respondents, representing 54.4% wear helmet, yet, a substantial number of 41 representing 45.6% do not wear helmets. The findings suggest that there is the need for more education on crash helmet usage especially, among female motorcyclists. As noted by Center for Health Systems Research and Analysis (2013), even though the wearing of crash helmets does not prevent accidents, yet, it significantly reduces the traumatic brain injury-related cases. The implications for development and road safety is that motorcycle accident related fatalities could be mitigated if riders wear crash helmets.

Table 3: Sex, Users and Non-Users of Helmets (Absolute figures)

Sex	Users of helmets	Non-users of helmets	Total
Males	41	27	68
Females	8	14	22
Total	49	41	90

Source: Field Study (2018)

Gender, Institutional Affiliation and Helmet use and non-use

Given the fact that the student motorcyclists were drawn from three institutions, the study sought to find out crash helmet usage behaviour among the respondents in the respective institutions. Table 4 below depicts the institutional affiliation of the respondents and their helmet usage habit. In comparative terms, helmet usage practice among male respondents (motorcyclists) from UDS was quite encouraging as compared to the male respondents from UEW and Wa Poly. In UDS, 21 males (80.8%) wear helmets as against only 5 (19.2%) who do not wear crash helmets. Table 4 below shows that UEW has the highest male non-users of helmet, 15 (57.7%) as against 11 (42.3%) users. On the contrary, in terms of female non-users of helmets, UDS had the highest number (75.0%), followed by Wa Poly (57.1%). The finding from this study shows clearly that non-use of helmets cuts across respondents from all the three selected institutions.

Table 4: Sex, Institutional Affiliation and Helmet use and non-use (absolute figures)

Institution	Males (Helmets)		Females (Helmets)		Total
	Users	Non-Users	Users	Non-Users	
UDS	21	5	1	3	30
UEW	11	15	2	2	30
Wa Polytechnic	9	7	6	8	30
Total	41	27	8	14	90

Source: *Field Study (2018)*

Motivating Factors for Using Crash Helmets

A major objective of the study was to ascertain from the respondents the factors which motivate the use of crash helmets. All the 49 respondents who wear helmets were asked to explain the motivating factors of their behaviour. The respondents gave virtually similar reasons based upon their own experiences of the use of helmets as well as knowledge available to them on the use of helmets. All the 49 respondents indicated that they use helmets because it protects their heads against unintended danger. Further, 32 respondents said they wear the crash helmet because it protects their eyes against foreign bodies. Another 9 respondents also expressed that they use helmets because it is part of the accessories of a motorcycle which users are enjoined to use. This is what two respondents said during an interview in January, 2018 and February 2018 respectively:

'The crash helmet offers protection to the head, a sensitive part of the body. I feel safe when riding. I use it because it also prevents dust particles and insects from distracting my attention and impairing my vision when riding' (Interviewee Remark, 2018).

'To me, the fact that the motorcycle comes with a helmet is an indication that it has a major role to play. I have never missed wearing my helmet when riding. I have not done it before and I will not attempt. I don't know when I may get involved in an accident and my head will be affected. I equally ride without any fear of incurring the displeasure of the police or any of the law enforcement agents of road safety' (A Respondent's Remark, 2018).

This finding supports Clarke and Cornish (1986)'s Rational Choice Theory which posits that individuals calculate the costs and benefits of their actions before engaging in any activity. Those who wear crash helmets as identified in this study have found that the cost of not using crash helmets is quite disastrous. Their reasons confirm the findings of WHO (2014), Faryabi et al. (2014), Kudebong et al. (2011),

Motorcycle Safety Foundation (MSF, 2017) and Iddrisu et al. (2017). Again, as revealed by several earlier studies, this study's findings support the views that crash helmet use promotes safety and lessens the fatalities of injuries sustained in motorcycle crashes (Olakuhin et al., 2015; Tuffour & Appiagyei, 2014). Helmet users are conscious of the benefits of wearing the equipment when riding. The implication is that the probability of non-helmeted motorists suffering head injuries or death could be high since the riders could not predict accidents and their related fatalities.

Contributory Factors to the non-use of Crash Helmets

This study examined the contributory factors to the non-use of crash helmets among the respondents. To be able to achieve this objective, the 41 non-users of helmets were asked to explain their behaviour. The study revealed a number of reasons. These reasons were grouped into 10 themes including forgetfulness, rush, lending of helmets to friends and not having any at all, fear of distortion of hair-dos, distance, and discomfort among others. Table 5 below depicts the reasons given by respondents for not using the crash helmet.

Table 5: Reasons for non-use of helmets by respondents

Reasons	Gender		Total
	Males	Females	
Don't wear, unless going on a long distance trip	7	3	10
Forgetfulness	3	1	4
In a hurry	1	0	1
Because of hair-do	0	5	5
Lending out	2	0	2
Only wears when riding through security designated checkpoints	2	2	4
Head size and helmet weight	1	0	1
Not important	3	0	3
Do not have	4	1	5
Discomfort	6	4	10

Source: *Field Study (2018)*

From Table 5 above, it was found that among male non-users of helmets, a major reason is attributed to distance. The respondents were of the view that they only wear the helmet when they embark on a long distance trip. This is what one of the respondents said:

'In riding in town or to Campus, you don't need to worry yourself about the helmet. After all you can't speed. But you know, when travelling to a distant place on the highway, it will be necessary to wear the helmet' (Respondent's Interview, 2018).

Another male respondent in support of this assertion remarked in February, 2018:

'Wearing helmet whilst riding in town or to Campus to me is nothing. But to travel to a place involving long distance, you can use the helmet because of the speed'.

The information received from the respondents indicates that riders have reduced the risk of riding without helmet only to long distance trips. From the perspective of the male non-users of helmets, discomfort ranks second, receiving 6 responses, this was followed by those who indicated that they do not wear the helmet simply because they don't have one. On the contrary, among the female non-users, hair-do (5 responses), discomfort (4 responses) and distance (3 responses) were the dominant reasons respectively. This is what one respondent said:

'It is not easy to come by money nowadays. So as a woman, if I manage to style my hair, I make sure that nothing disturbs it. This is why I personally don't wear the helmet. The helmet may be good in some instances, but for the ladies, generally it does not help us'.

Common factors identified among the reasons for non-use of helmets among both males and females are; distance and discomfort, besides hair-do. As if road accidents knew distances, quite a number of respondents reported crash helmets could be useful only in long distance trips. This implies that any efforts targeting the problem should be focusing on these three identified issues. This however, does not mean that the other reasons as given by the respondents are not important. The findings from this study were not different from that of Akaateba et al (2015). In their study they identified that the leading reasons stated for helmet non-use among non-users were not traveling a long distance and the fact that helmets block vision and hearing. In their study they found that positive attitudes and beliefs were also significantly correlated with helmet use.

The finding from this study is in direct disagreement with the findings of Iddrisu et al. (2017) which sought to suggest that their respondents did not use crash helmets except during short distant trips. On the contrary however, the long distance riders in the study by Iddrisu et al. (2017), were also prone to accidents outside their own locations. This attitude concurs with the views of the key informants. As indicated by one of them:

'Road accident is not limited to a distance, and for that matter crash helmets ought to be used by riders always. Even within the confines of your resident, you could be involved in an accident. This is why we insist that motorcyclists should wear their helmets at all times' (A key Informant interview, February, 2018).

Those who attributed their failure for using the helmet due to discomfort mentioned issues such as heat, poor visibility through the visor, and pressure on the neck associated with the wearing of helmets. Three respondents in separate interviews respectively in February, 2018 remarked:

"Crash helmet is quite heavy and makes movement of the head difficult for me. In addition the visor makes vision blurry at night'.

'I don't feel comfortable using a crash helmet, because the weather is always hot in this part of the country. Also the police are not strict on non-users of crash helmet'.

'Wa is too hot and wearing the crash helmet in this weather, especially in the day time is very difficult and uncomfortable. I would prefer to wear in early parts of the day and late evening because the weather becomes a bit cold when riding within these periods'.

The findings from this study corroborate Khan et al. (2008) and United Nations Development Programme's (UNDP, 2010) studies. Khan et al.'s (2008) findings suggest that their respondents did not use helmets on reasons such as physical discomfort and visual limitations. The UNDP (2010) report pointed out that crash helmets are more likely to be used in early hours of the day and late hours of the night within the tropics where annual day sunshine is almost eight (8) hours. Due to excessive heat from the sun during the day, especially in the study area where temperatures range between 36 and 39 degrees Celsius (Daily Ghana's Weather Report), some motorcyclists prefer to ride without crash helmets to prevent being discomforted by heat when riding. This issue of discomfort which stems from heat calls for geographically adaptive designs of crash helmets to reduce heat, especially in the tropical regions as suggested by Iddrisu et al. (2017).

Three of the respondents were of the view that crash helmet usage has no safety importance as promoted. This is what one of the respondents said in February, 2018:

'Death could occur whether you are wearing crash helmet or not in an accident. To me there is no need wearing it. I have witnessed an incident when two motorcyclists crashed. Apparently, the

rider in a crash helmet died instantly whilst the non-user was spared of death, even though he sustained serious injuries on his body’.

The respondents' view, that the use of crash helmet is unimportant, is not different from the views expressed in other research works of Iddrisu et al. (2017), and Grimm and Treibich (2014). Persons wearing crash helmets could die or sustain injuries in an accident which is not disputable. However, in general, evidence has proven that non-helmet users stand the risk to suffer more fatalities than helmet users in accidents (WHO, 2016). Respondents who therefore think that crash helmet has no safety mechanism do so with limited information or knowledge. This calls for a more intensive and collaborative safety education by the various stakeholders responsible for the health and safety of all persons including motorcyclists.

Conclusion and Recommendations

Per the Rational Choice Theory, reasons assigned by both users and non-users of crash helmet as found in this study suggest that motorists are aware of the benefits and costs of the use and non-use of crash helmets. They are therefore responsible for their decisions or actions and should face the law when found culpable. On the basis of the findings, it is recommended that;

The promotion of crash helmet usage should be done through sectorial collaboration. The management and student leadership of tertiary institutions, the MTTD, NRSC, the media and the Health Ministry should closely work together. Periodic educational campaigns should be carried out to orient student motorcyclists about the dangers of non-use of crash helmets.

The penal codes of the various institutions should be revised to include sanctions for non-use of crash helmets as per the suggestions of Clarke and Cornish (1986). The costs of non-use of crash helmet such as suspension for first and second offenders, and dismissal for recidivists should be adopted in the tertiary institutions to deter non-users from engaging in such negative and dangerous practice. This in effect would help protect the image of the institutions and also promote the safety of both student motorcyclists and pedestrians.

To help reduce the practice of non-use of helmets, all strategic entry points and exits of the various institutions should be closely monitored by the security officers of the institutions to allow only compliant riders into their campuses. This also calls for beefing the strength of the security and also empowering them by giving them the necessary security accoutrements.

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