Risky Driving Attitudes in Ghana: Is the Use of Fear-Based Messages Operational?

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Abstract  
Scare tactics are often used in road safety campaigns even though years of research into fear appeals have yielded inconsistent results. In Ghana, where all efforts are being made to reduce traffic accidents, the use of fear appeals and threat of enforcement has not been spared. In an experimental study, the researchers investigated the effectiveness of this message on risky driving attitude and also explored the effect of an alternative strategy, fear of prosecution. Findings from this study suggest that fear appeals, fear of prosecution and combination of these two strategies do not have an effect on risky driving attitudes. These findings are used to make conclusions about the design of road safety campaigns incorporating such scare tactics.

Keywords: fear appeal, fear of prosecution, risky driving, road safety campaigns, scare tactics.
Introduction
Recently, the Global Status Report released by the World Health Organisation suggested that injuries from road accidents is the eighth leading cause of death, and the leading cause of death for young people, aged 15 – 29 (World Health Organisation, 2013). Unless urgent steps are taken, the WHO indicates in this report that road accidents are likely to be the fifth leading cause of death by 2030. Amongst the various means of transportation (marine, road, rail and air), road transport have been found to be the one that puts people at greater risk per kilometre travelled (World Health Organisation, 2004). Middle income countries, particularly those in African countries have also been found by the WHO to have the highest road traffic fatality rates (World Health Organisation, 2013). Even though the total number of vehicles in these middle income countries are less than half of the vehicles in the world (48%), about 91% of road accident fatalities occur in such countries (World Health Organisation, 2009).

The impact of road accidents goes beyond the individual and family to affect the economy of nations. The economic and social cost that results from road accidents around the world is estimated at $518 billion annually (World Health Organisation, 2004). Statistics by the Association for Safe International Road Travel (ASIRT) also show that road crashes cost low and middle-income countries $65 billion annually, and this exceeds the total amount they receive in developmental assistance (Association for Safe International Road Travel, 2012). Ghana for example loses about $165 million each year to road accidents accounting for 1.6% of her Gross Domestic Product, hence having a negative effect on the economy (National Road Safety Commission, 2009).

In addition, victims of road accidents may die or get disabled, therefore not being able to work effectively to increase productivity and national development. The WHO Global Status report on road safety (World Health Organisation, 2013) has revealed that the economically active are those mostly involved in road accidents. Thus road accidents in Ghana are seen as both a developmental and a public health issue. It is in light of these alarming statistics that at the 66th section of the United Nations (UN) General Assembly, 2011 - 2020 was declared as a Decade of Action for Road Safety, with a call on all member countries to reduce by 50%, death and injuries that result from road accidents (World Health Organisation, 2013). Hence governments all over the world are committed to taking the necessary steps to saving lives on their roads.

In 2013, it was recommended in the Global Status Report by the WHO that governments of various countries urgently need to pass legislations that meet best practices and invest enough financial and human resources to help enforce these traffic laws (World Health Organisation, 2013). This presupposes that lack of law enforcement contributes to road accidents, hence the need for its improvement. In Ghana, Act 683 of the Road Traffic Act stipulates sanctions that must be given when found engaging in risky behaviours such as driving under the influence of alcohol and drugs, careless driving as well as other traffic related offences (Road Traffic Act, 2004). Notwithstanding such legislations and the efforts of the law enforcement officials, road accidents continue to be a menace to individuals, families and the nation.

Fear in road safety campaigns
Fear appeals have been one of the communication strategies that are often used in health education practice with road safety not being an exception. Fear appeals are prevalent in health communication campaigns and advertisements where they are used to convince audiences to adopt protective and healthy behaviours (Levine, Muthusamy, & Weber, 2009). For such healthy behaviours, people are persuaded to engage in eating a healthy and balanced diet, refraining from smoking and abusing alcohol, exercising regularly etc. For example, an advertisement can show pictures of diseased lungs, someone in agony lying on the sick bed diagnosed of HIV/AIDS or a gruesome scene of an accident. In Africa, fear appeals are often used in public health campaigns to prevent the further spread of HIV/AIDS (Levine et al., 2009).

Fear appeals are usually used on the grounds that people will be attentive to the messages and be persuaded to change their risky behaviour if their related fears are activated (Schneider, Gruman & Coutts, 2005). In the media, it is common to read and hear of words such as ‘over speeding kills’, ‘kill your speed before your speed kills you’ and ‘better to reach home in peace than in pieces’. Scenes of accidents, crashed vehicles and statistics on road fatalities are shown in the media and bill boards as part of road safety campaigns with the aim of persuading drivers not to engage in risky driving. These
have always been intended to communicate to drivers the consequences of reckless driving, and in this way scaring them to change their behaviour. Thus, road safety advertisements usually stress on such consequences thereby appealing to the emotion of fear.

Fear is therefore “a negatively valenced emotion, accompanied by a high level of arousal” (Witte, & Allen, 2000, p. 591). Fear thus elicits a response to physical and emotional danger. Such responses are made to protect one from health risk and also to help one survive. In effect, they stimulate persuasion by motivating people to establish positive goals and subsequent actions (Williams, Briley, Grier, & Henderson, 2003). This is why it has often been used as a social marketing strategy to persuade people to engage in a safe behaviour. Fear appeal is a persuasive communication that presents threatening information to arouse fear in order to promote safer behaviour (Rogers, 1983). In order to arouse fear, fear appeal messages present a threat (e.g. negative consequence of a risky behaviour) that is severe and the recipient of such a message is susceptible to. The presentation of this threat prompts an attitudinal change and the adoption of a safe one.

Among the theoretical perspectives that have been offered to explain the role of fear in persuasion is the protection motivation theory and the deterrence theory. The protection motivation theory (Rogers, 1983) postulates that people are motivated to protect themselves from physical, psychological and social threats. According to the theory, people response to fear messages in one of two ways – adaptive response and maladaptive response – which result from threat and coping appraisals. Thus, either the individual is motivated to protect himself/ herself (adaptive response) by the message or the message rather places the individual's health at risk. From this theory, fear arousing messages (FAM) used in road safety campaigns can therefore motivate drivers to protect themselves from the negative consequences of reckless driving or can rather result in a boomerang effect, not leading to safe driving or even increasing the risky driving.

The next important perspective is the deterrence theory which posits that the strategy for preventing unacceptable behaviours is placing much emphasis on penalties to encourage citizens to obey the laws. At the heart of this theory is therefore the threat of punishment – fear of prosecution (FP). Classical theorists such as Jeremy Bentham (1748-1832) and Cesare Beccaria (1738-1794) are credited for being responsible for some of the earliest formulations of these theories. As part of road safety measures is the use of threat of punishment which usually involves the enforcement of road traffic regulations by the police who arrest defaulters. This is to deter the offender and also the general population from engaging in such acts. Despite the fact that some studies have provided evidence for the effectiveness of fear appeal messages in reducing risky behaviours (Tay, 2003; Lenon, & Renfro, 2010), others have found evidence that suggest such messages can lead to a boomerang effect (Levine et al., 2009; Mukherjee, & Dube, 2012). This inconsistency could be attributed to the fact that such studies have looked at response to threats in the broader context of health promotion behaviours such as smoking, not participating in breast screening and risky driving (e.g. Elliot, 2003; Mowen, Harris, & Bonne). It is probable that people’s response to such fear appeal messages may not be the same with all risky behaviours. Therefore, applying their findings to risky driving may not be appropriate since an ‘appeal most useful for drug campaigns may not be effective for drink driving’ [p.3] (Shore, & Brendan, 1999).

In a study in Namibia, Levine et al. (2009) concluded that the use of fear appeals to persuade audience with high levels of pre-existing fear is ineffective and therefore not to be encouraged. This was after they found out that messages’ threat levels had little impact on people’s attitude, intentions or behaviour as well as on perceptions of fear. Their aim was to investigate the effect that high efficacy-only messages have on attitude, intentions, and behaviours relative to the control condition. This study was however conducted with HIV/ AIDS scary messages hence, findings from this study may not be applicable to other risky behaviours such as reckless driving. The authors also used only student samples in the study, thus majority (91.2%) of the participants were single. Even though the authors had alleged that ‘the logic of the argument should extend to any topic-population’ (p. 337), generalising the finding to another population which includes non-student samples may not be appropriate. Again, the fear appeal messages that Levine et al. (2009) used were not presented on a screen but written for participants to read. This may be inadequate in eliciting fear in respondents as graphic content and other real pictures are absent. Shore and Brendan (1999) also conducted a fear appeal study within the context of drink-diving. They sought to find out in an experiment how teenagers react to anti drink-driving fear appeals. A total of 300 high school students were selected to participate in this study with key variables being social and
physical threats as well as behavioural intentions to drink and drive. They found that physical threats significantly induced positive driving attitudes with participants showing less intention to drink and drive after exposure to these threats. However, like Levine et al. (2009), only printed messages were used to elicit fear. Road safety advertisements are however not limited to printed messages. They also use of graphic imagery as well.

In another study, Lennon and Rentfro (2010) considered using fear arousing messages (FAM) within the context of a host of social issues such as drug abuse, drunk driving, HIV testing and smoking. Contrary to the above findings, they found that the level of fear arousal significantly affect people to adopt safe attitudes. They then concluded that an appeal must arouse high fear for it to be effective. Participants in this study were asked to rate the effectiveness of the FAM they viewed in convincing people to change their risky behaviour. However, the fact that participants may have rated the message to be effective in persuading people to change their behaviour does not mean they would give the same ratings with regards to their own behaviour. Similarly, Mukherjee and Dube (2012), they found among their university samples that FAM alone is ineffective in persuading people to engage in a safe behaviour in a study exploring whether people can be persuaded to use sunscreen lotion to prevent skin cancer. When humour was added to the FAM, participants were persuaded to use the sunscreen lotion. The use of fear messages is very risky and complicated. In a study that reviewed empirical and theoretical evidence with regards to the effectiveness of fear appeals the reduction in fear could not adversely influence acceptance rates. Rejection rates could however be potentially reduced by reduction in fear (Lewis, Watson, Tay, & White, 2007).

From the above review, studies on the effectiveness of fear appeals have yielded contradictory findings. One of the reasons for such inconsistent finding is that some of these studies focused on using fear within the broader context of health promotion and did not focus specifically on risky driving. Similarly, in some of the fear appeal studies, participants were only conducted among first year university students. Considering the spate of death resulting from accidents in spite of the use of fear appeal messages, it has become important to establish whether such messages are effective in reducing risky driving. In addition, an experimental design among non-university participants to explore the effectiveness of fear-based messages on risky driving attitude and the consequence of an alternative strategy [fear of prosecution] was an opportunity for us to embark on this research.

Method

Participants

Drivers of commercial and private vehicles in Accra, Ghana were voluntarily invited to participate. Although located within the smallest among the 10 administrative regions in the country, the capital city of Ghana is ranked the highest in the number of road accidents and casualties (Ministry of Transport, 2012; National Road Safety Commission, 2011). Overall, 70 participants were sampled (21 – 51 years-old participants; M = 34.96, SD = 10.39) consisting of both male (n= 51) and female (n= 19) drivers to help increase the sample’s representativeness. Participants for the study were randomly assigned to four conditions – control group (CG), experimental group 1 (EG1), experimental group 2 (EG2) and experimental group 3 (EG3). The CG was made up of 16 participants, EG1 had 19 participants, EG2 had 17 participants and EG4 also had 18 participants.

Materials

In consultation with Ghana’s National Road Safety Commission, sixty (60) seconds video clip on road safety campaign featuring physical threats and legal sanctions not shown on the Ghanaian media were designed. This was to help minimize previous viewing exposure which could affect participants’ response to the message. The advertisement featuring FAM was framed using pictures and videos of crashed vehicles taken at the Motor Traffic and Transport Unit (MTTU) of the Ghana Police Service. The advertisement featuring the FP was also taken from the MTTU with a police officer stipulating some charges to be brought against drivers when caught driving recklessly. The road safety advertisement for the experimental group 3 (FAM and FP) was also framed by blending some parts of the messages for Experimental group 1(FAM) and Experimental group 2 (FP). The control condition however featured an automobile sale commercial with no content of a fear message. The stimuli used in the study were assigned to the various groups as follows: CG = No fear message, EG1 = FAM, EG2 = FP, EG3 = FAM and FP.
The risky driving behaviour was measured using a combination of the Driver Behaviour Questionnaire and the risky attitude towards traffic safety developed by Reason, Manstead, Stradling, Baxter and Campell (1990) and Ulleberg and Rudmo (2003) respectively and used in a study by Yilmaz (2006). This questionnaire is a 5-point likert scale ranging from 1 ‘strongly disagree’ to 5 ‘strongly agree’ and pilot study conducted showed a reliability of .83.

**Procedure**

Institutional Review Board approval was sought from the Noguchi Memorial Research Institute [NMRI], University of Ghana before conducting the study. Participants who were invited to participate in this study were each given a consent form which informed them of the purpose of the research and all related ethical issues. They were also informed that any information obtained from the study remain confidential. Again, they were made aware of the voluntary nature of the study and their right to withdraw any time without explanation or facing any penalty.

Participants who agreed to their participation were made to sign the consent form before the study begun. Participants were then randomly assigned to one of the four conditions and were exposed to a stimulus (road safety advertisement). Thus each respondent was exposed to one stimulus only.

Questionnaires were administered and immediately after exposure to the advertisement, their response was taken. After the study, participants were individually and extensively debriefed. Many of the participants indicated that they did learn something from the study and found it interesting. Participants received a refreshment package in the form of a fruit drink and thanked for their participation.

**Results**

The pre-test data in table 1 was first analysed using the One-way Analysis of Variance [ANOVA] with condition (no fear message, FAM, FP, and combination of FAM and FP) as the independent variable. This analysis showed no statistical significance ($F_{(3, 69)} = .973, p > .05$) indicating that performance was equivalent in all the conditions (no fear [$M = 41.13, SD = 9.90$]; FAM [$M = 44.68, SD = 10.53$]; FP [$M = 39.44, SD = 11.24$]; combined fear group [$M = 42.59, SD = 7.20$]). All the groups therefore appear to have equivalent risky driving attitudes before they received the independent variable (fear-based messages).

Using the one-way ANOVA to conduct further analysis on the groups after they had been exposed to the independent variable, our post-test revealed that, there was no significance difference between the four groups ($F_{(3, 69)} = .130, p > .05$). Thus none of the experimental groups differed from the control group (no fear [$M = 42.94, SD = 12.47$]; FAM [$M = 43.16, SD = 10.42$]; FP [$M = 41.72, SD = 15.90$]; combined FAM and FP [$M = 40.88, SD = 9.66$]). Therefore, FAM, FP and a combination of these two messaged had any significant positive effect on risky driving attitude. The results from the data analysis are summarised in Table 1.

<table>
<thead>
<tr>
<th>Stimuli Exposure</th>
<th>Variable</th>
<th>Sum of squares</th>
<th>$df$</th>
<th>Mean Square</th>
<th>$F$-Ratio</th>
<th>$\rho$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>Between Groups</td>
<td>272.568</td>
<td>3</td>
<td>90.856</td>
<td>.973</td>
<td>.411</td>
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<tr>
<td></td>
<td>Within Groups</td>
<td>6162.417</td>
<td>66</td>
<td>93.370</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6434.986</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>Between Groups</td>
<td>59.746</td>
<td>3</td>
<td>19.915</td>
<td>.130</td>
<td>.942</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>10074.840</td>
<td>66</td>
<td>152.649</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10134.586</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

This study sought to investigate the impact of FAM and FP in changing risky driving attitude of drivers. The study revealed that fear arousing messages did not reduce the risky driving attitude of drivers. Participants in this study before being exposed to the road safety advertisements were randomly assigned to the various conditions, thereby lessening the possibility of individual
differences affecting this outcome. Perhaps, the most obvious explanation to this finding is that drivers have become desensitized to the use of FAM in road safety campaigns hence, have become less responsive to advertisements incorporating threat to life or physical consequences. Such scary messages are used almost everywhere to remind drivers of the consequences of reckless driving in Ghana. Consequently, what was probably otherwise scary messages to them could now do little to persuade them to change their attitude towards risky driving. It seems possible that this desensitization to fear may be the reason why Mukherjee and Dube (2012) suggested that effectiveness FAM can be increased by adding an element of humour to the advertisement.

The experiment conducted also did not detect any positive impact of FP on risky driving attitude. The finding from the present study might have occurred due to the fact that, there is a public opinion that road traffic regulations are not enforced to the letter in some cases. Hence, using the penalty of breaking those regulations as a strategy could do little to persuade drivers to change their risky driving attitude. More often than not, concerns have been raised in Ghana about law enforcement officials taking bribes from offending drivers in order to let them go without prosecution. A recent Global Corruption Barometer, Transparency International for the third time, ranked the Ghana Police Service as the public organization perceived to be most corrupt in the country (Myjoyonline, 2013). With such generalised negative public perception of the Ghanaian law enforcement officers, using threat of enforcement as a strategy in changing risky driving attitude of drivers could backfire as drivers may think that they can bribe their way through if apprehended.

Perhaps, another possible explanation for the evidence from the present study is that, whereas previous studies that found significant effect looked at specific legislative initiatives such as compulsory breath testing, this study focused on enforcement practices in general. Furthermore, much emphasis was placed on penalties for breaking road traffic regulations as advocated by the deterrence theory in the present study. Previous studies that found significant effect however highlighted on traffic regulations that drivers need to observe and did not place much weight on the threat of enforcement. Thus, the effect on drivers in previous studies could be accounted for, not by the fear of disobeying those laws, but rather from civic responsibility to comply with the laws of the country. Constant et al. (2007) for example found that increasing law enforcement measures led to increased support for restrictions and that many of his respondents realised the necessity of regulations and restrictions on driving behaviour.

When FAM and FP were combined, the risky driving attitude of drivers who watched this video did not reduce. The likely reason for this finding could be attributed to the probability that, combining the two fear stimulus led to a boomerang effect (Levine et al., 2009; Mukherjee, & Dube, 2012; Rogers, 1983). As propounded in the protection motivation theory, one possible response to messages incorporating fear is maladaptive coping. This behavioural response according to this theory could either be the presence of behaviour that can lead to negative consequences or not performing a behaviour (absence of behaviour) that can also result in negative consequence. Drivers who watched the video that combined these two messages were still ready to engage in the same risky driving attitude after watching those messages and this confirms the protection motivation theory.

Limitations and Directions for Future Research

Fear messages used in the study were not varied on different intensities (e.g. high fear, moderate fear and low fear). In this study, the independent variable (fear) was varied on four levels (no fear, FAM, FP and combination of FAM and FP) but not varied on different levels of intensity. This could have also helped the researchers to know whether fear intensity should be considered in framing road safety campaigns. Future studies should therefore explore fear on different levels of intensities.

Again, only negative appeals (fear) were used to persuade drivers to change their risky driving behaviours. This is because the study was aimed at investigating the effect of FAM and FP on risky driving among drivers in Ghana. It did not use positive appeals such as the use of humour in advertisement to also find out whether they can help reduce risky driving behaviour. The absence of such positive appeals may have accounted for the ineffectiveness of the FAM. Future research should therefore explore the role of such positive appeals in road safety campaigns.
Conclusion
From the study, it appears drivers have become desensitised to FAM and therefore seem not to have an independent effect. The alternate strategy explored in this study, FP also seems not to be effective and even when the two messages were combined. These findings suggest that practitioners should use these approaches with caution. Consequently, the study calls for serious reconsideration of the general usage of these strategies in road safety campaigns in the country. Already, road accidents are sweeping away national resources; it therefore becomes a matter of grave worry when efforts (road safety advertisements) aimed at reducing this menace also amount to wasting additional resources. In this study, drivers risky driving attitude did not change even after exposing them to the scare tactics.

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Conflict of interest statement
The authors declare that they do not have any conflict of interest.

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Аннотация. Тактика запугивания часто используется в кампаниях по безопасности дорожного движения, хотя годы исследований дали противоречивые результаты. Гану, где предпринимают все усилия для снижения дорожно-транспортных происшествий, использование страхов и угроз стороной не обошли. Результаты исследования показывают, что запугивание, страх преследования и комбинации этих двух стратегий не оказывают воздействия на отношение к рискованному вождению. Эти данные используются, чтобы сделать выводы о дизайне кампании по безопасности дорожного движения, использующих такую тактику запугивания.

Ключевые слова: страх обжалования, страх преследования, рискованное вождение, кампании по безопасности дорожного движения, тактика запугивания.