



Original Research

Perception of Alcohol Use and Alcohol Use Disorder among Persons Involved in Road Accidents at an Emergency Department: A Cross-Sectional Study

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Abstract

Background

Alcohol plays a significant role in road traffic accidents in Ghana. However, little is known about the perspectives of victims who suffer road traffic accidents, RTAs, and the extent to which alcohol use disorder is involved.

Methodology

We conducted a three-month cross-sectional study in a teaching hospital involving 102 patients involved in a road accident and presented to the hospital's emergency. The Alcohol Use Disorder Identification Test, AUDIT, was used to assess for Alcohol Use Disorder, AUD, at a score of 8. In addition, we used open-ended questionnaires to assess their perception of alcohol use and road accidents.

Results

Of the 102 respondents, 75% were males, and 60% were between 15 and 35 years old. About 69% of respondents admitted to using alcohol, while 31%, including a single female, screened positive for alcohol use disorder. A significant majority of about 90% of respondents believed in some myths of alcohol use in Ghana, and a similar percentage were aware of the risks alcohol use posed to road use. Over 30% of respondents, mainly drivers or riders, had used alcohol within 12 hours of the accident. All but three respondents knew alcohol-induced aggression and poor coordination of movements. A similar number of respondents knew alcohol made people cross roads carelessly and were hyperactive or disinhibited.

Conclusion

Alcohol use and alcohol use disorder are significantly high among persons presenting with RTA to the emergency. Knowledge of the deleterious effects of alcohol is high, yet their behavior did not reflect the knowledge. Therefore, a significant reduction in RTA can be achieved by enforcing blood alcohol concentration limits for road users and intensive education to the populace.

Keywords: Alcohol Use Disorder, Identification Test, Emergency Department, Ghana, Myths of Alcohol Use, Road Accidents.

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Introduction

Road traffic accidents (RTA) are a significant public health concern, claiming 1.35 million global lives annually¹. In Ghana, more than three lives are lost daily due to RTAs². The factors leading to RTAs vary widely worldwide, with alcohol use and distracted driving ranking high in developed countries like the USA^{3,4}. The poor state of roads and vehicles and driver carelessness contribute significantly to RTAs. Alcohol consumption by road users significantly contributes to carelessness, distraction, and delayed response time to emergencies, making it one of the significant preventable factors to consider in RTA⁵⁻⁷.

Studies using breathalyzers revealed that up to 21% of drivers in relatively more prosperous southern Ghana and 9.3% in the relatively poorer northern Ghana tested positive for alcohol^{5,8}. Furthermore, another study in the Upper West Region of Ghana (also in the north) noted that 34% of road users, including drivers, pedestrians, and passengers, involved in RTAs had detectable alcohol in their blood⁹. Thus suggesting that the role alcohol plays in motor vehicle accidents in Ghana is quite significant.

Education would be a key component in an attempt to intervene in the impact of alcohol on RTA on the Ghanaian population. A previous study suggests that only 4% of drivers knew the legal limits of blood alcohol concentration¹⁰. Thus far, it is unknown whether drivers and road users understand the extent to which alcohol can alter their abilities and increase the risk of accidents. Understanding the perceptions of alcohol users on the effect of alcohol on RTAs would be necessary for tailoring and administering interventions that can reduce the rate of RTAs. In addition, it will be essential to identify persons with alcohol use disorder (AUD) who, despite knowing the effects of alcohol on road usage, will still go ahead and risk it. Such persons should be the focus of tailor-made interventions where possible.

In this study, we assessed the perceptions of persons involved in RTA and presenting to the emergency of Ho Teaching Hospital, a new teaching hospital in Ho municipality. The municipality has about 220,000 people on 164,000 sq km of land¹¹. The primary means of transport are taxis, mini-buses, and, in the past few years, motorized cycle rickshaws, which have become most people's primary means of transport. Motorized cycle rickshaws have become the primary means of transport outside Ghana's first two cities (Accra and Kumasi). They are popularly referred to as *Kεkε* in Ho and *Pragia* or *Aboboya* in other municipalities in the country.

We also assessed them for AUD using the Alcohol Use Disorder Identification Test (AUDIT) in the respondents to determine the extent to which extra intervention may be warranted in reducing alcohol-related RTAs.

Methodology

A cross-sectional survey was conducted over three months, from May to July 2021. Information was obtained from road users involved in RTAs presenting to the Emergency Department (ED) of the regional hospital in the Volta region of Ghana.

We included all 102 persons between the ages of 15 and 60 who presented with RTA for the duration of the study. The Alcohol Use Disorder Identification Test (AUDIT) was used to assess alcohol use disorder (AUD) among respondents. A score of 8 or more out of a maximum score of 40 was associated with AUD. A score of 8 gives the maximum AUROC [area under the ROC (Receiver Operational and Characteristic - graph of sensitivity against 1 - specificity curve)] and was used to screen persons with AUD¹². Also, open-ended questionnaires were used to generate responses on their perceptions of alcohol use and knowledge of AUD. We used thematic analysis to group the responses for the following results.

Results

The ratio of males to females who presented with RTA was 3:1, and over 70% of the respondents were aged between 15 and 35. This age group was also more likely to have AUD, with 56.3% being positive. Of the 32 respondents who screened positive for AUD, only one was female. About 19% of respondents admitted taking alcohol within 12 hours of the RTA, and 67% of respondents who had taken alcohol in the

preceding 12 hours were either a driver or *Kekε* rider. Thus, those who had more control to prevent an RTA were more likely to be impaired by alcohol use than their passengers who had little control.

Perception of Alcohol Consumption:

Almost all respondents (98%) agreed they consume alcohol to enhance sociability, increase work performance, and boost confidence. In addition, 55.9% of the respondents noted that they consume alcohol to escape personal issues, while 15.7% simply consumed it to get drunk. However, almost all (94.1%) had some myths or misperceptions of alcohol use, such as use for medicinal purposes or to improve appetite, similar to misperceptions found among engineering workers in Ghana¹³. Most respondents, 91.1%, agreed that they consume alcohol for enjoyment, while 87.3% agreed that they consume alcohol to deal with fear.

Perception of Alcohol-Induced Behavior:

About 97% of the respondents were aware that alcohol causes people to be aggressive and induces poor coordination of movements. Furthermore, over 83% agreed that alcohol causes loss of consciousness, while 95.1% noted that it causes drowsiness and inattention. Also, more than 95% said alcohol causes people to cross busy roads carelessly, while 94.1% stated it causes hyperactivity or disinhibition. Finally, 89.2% noted that alcohol causes poor vision.

Discussion

It has been previously noted that alcohol use contributes significantly to traffic accidents in Ghana. Besides the poor nature of roads and inadequate maintenance of some vehicles, alcohol use can contribute to almost all factors that increase the risk of RTA, including distracted driving, nonadherence to traffic rules and regulations, and overspeeding¹⁰.

An essential step in mitigating the role of alcohol in RTAs is the education of the masses. A good understanding of the perceptions of victims of road traffic accidents who have used alcohol will help develop practical educational tools to prevent RTAs. Also, identifying people with alcohol use disorder can help prevent recurrent offending.

Alcohol consumption resulting in RTAs was more rampant among drivers under 35 than those older, with a male preponderance. This is consistent with the study in Accra by Mock *et al.*^{8,9}. The preponderance of young adult males in alcohol-related RTAs was further reflected in the high prevalence of alcohol use disorder among them. AUDIT assessment revealed that 56% of young drivers under 35 had alcohol use disorder, of which 96% were male. The estimated rate of AUD in the Ghanaian population is 7.3%; thus, a 56% rate among drivers involved in RTAs in the municipality suggests a disproportionately high rate.

To develop practical educational tools, we thought it essential to know why respondents drank before using the roads. Most respondents claimed they consumed alcohol to improve their sociability and confidence levels. Some said they drank to deal with fear and improve their appetite. These responses are consistent with the general theory for reasons for alcohol use, mainly social and coping with stress¹⁴. The Ghanaian culture is rife with many social opportunities for drinking, including out-dooring, funerals, and weddings, which are available for attending nearly every weekend. Educating drivers to limit alcohol consumption and strategies like alternative transportation or having designated substitute drivers on these occasions would be beneficial in curbing alcohol-related RTAs¹⁵.

Prevention or significant reduction of avoidable deaths, injuries, and disabilities can be prevented by enforcing the regulation on blood alcohol concentration, BAC, limits (of 80 mg alcohol per 100ml of blood or 0.08% BAC in Ghana)¹⁶. This can be achieved at a lower cost if the police do random checks on the road with Breathalyzers just as they check the roadworthiness of vehicles.

When assessed on the implications of alcohol use, it was apparent that many of the respondents did know the deleterious effects of alcohol on driving, including increased aggressiveness, hyperactivity, loss of consciousness, and poor vision. Thus, they drink alcohol and drive despite their knowledge of its deleterious effects. This construes high levels of AUD among the respondents, as noted in the AUDIT evaluations. Policies for implementing screening and brief interventions may be necessary to reduce alcohol use among this population and hopefully reduce RTA recurrence rates.

Because AUD would require intervention beyond education, more extensive studies, including multicenter studies, will be needed to assess the extent of AUD among drivers involved in RTAs and the appropriate interventions proposed. Also, efforts should be made for future studies to utilize breathalyzers and actual blood alcohol levels to have more objective measurements of alcohol use.

Conclusions

Persons involved in RTAs who have consumed alcohol were predominantly young males, with a significant proportion of them most likely having AUD. Over 90% of respondents know the harmful effects of alcohol and the risks it poses to them when using the road, yet they took it. Knowledge of the deleterious effects of alcohol is high, yet their behaviour did not reflect the knowledge. Reduction in road accidents can be achieved by enforcing blood alcohol concentration limits for road users and intensive education of road users.

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