Reviewer’s report

Title: The prevalence of alcohol and illicit drug use among injured patients presenting to the emergency department of a national hospital in Tanzania: A prospective cohort study

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Reviewer: Kehinde Oluwadiya

Reviewer’s report:

General Comment

This study is dealing with an important aspect of trauma epidemiology in Africa. For it to be suitable for publishing in BMC Emergency Medicine, the highlighted issues need to be addressed.

Also, The affiliation of the Corresponding author is Department of Emergency Medicine, Muhimbili University of Health and Allied Sciences, Dar es Salaam, in Tanzania, yet the address is in Rwanda, DRC. I thought Rwanda and DRC are two separate countries?

Study setting and population

The full meaning of ED-MNH was written in the Abstract. Please write out the full meaning of ED-MNH the first time it is used in the body of the document. As it is, a reader who did not read the abstract before reading the body of the article may feel that the abstract is referring to two distinct institutions.

The purpose of the Number, "43" at the end of following sentence in line 31 & 32 under Study Setting is unclear "It has 3 adult resuscitation rooms and one paediatric resuscitation room (43)." Is it referring to a reference? If it is, then the numbering is wrong, and it should be corrected.

Study protocol

1. The authors stated that the study took place between 17th October 2015 and 4th November 2015. One would assume that the data was collected from every trauma patient presenting to the hospital during this period; the time of the day notwithstanding. Yet, the authors stated that "Data collection took place during pre-designated collection periods chosen to represent all times of the day, night, weekdays and weekends in appropriate ratios." I am confused by the statement, and I guess most readers would be confused as well. First, why were pre-designated collection periods used? What were the reasons for selecting designated intervals rather than using all of the study period? Then, how were the collection periods "chosen to represent all times of the day, night
weekdays and weekends in appropriate ratios”? What were the ratios referred to, and why were the ratios needed in the first place?

2. As a corollary to the issues raised above, readers would also be interested in the number of patients seen within the pre-designated collection period as a proportion of the total number of trauma patients seen within the study period.

Study Population Demographics

The rationale for the columns in table 1 is not theoretically sound. The reason why the patients were divided into the groups was based on whether or not they could produce urine for multi-drug sampling at the ED. Since this has no relevance to the severity of injury or trauma outcome, I considered it an inappropriate choice. Perhaps, a better choice would have been to look at the demographics based on positivity to the test substances. Then you could have the following columns: Total enrolled, Tested positive to alcohol only, tested positive to drugs only, tested positive to drug and alcohol, and tested negative to all. You may then statistically compare the proportions using chi-square or any other method. In that case, table II would probably no longer be needed.

This should make the discussion richer because the study can show how demographics affect the use of alcohol and illicit drugs among the study participants.

3. Since the study centre is a referral centre for the whole country, it would have been revealing to show where the patients are coming from and compare the source among users and non-users along the line of urban versus rural or region versus regions

Results of alcohol and illicit drug testing among injured patients (and Discussion)

1. The authors found that 46.7% of the patients tested positive for alcohol, and 23.7% tested positive for both alcohol and illicit drugs and 67.2% tested positive for either. Based on this, the authors concluded in the discussion section that 47% tested positive for alcohol and 36% positive for illicit drugs. This is wrong, because the authors have failed to include the proportion who tested positive to either alcohol or drugs. Furthermore, the total alcohol prevalence rate in this study should be calculated from the following formula: those who tested positive to alcohol + those who tested positive to both alcohol and drugs + the proportion of those among the either group who tested positive to alcohol. Based on the figures, this should be at least 70.4% (the indeterminate either group not included). This is obviously too high. Its either the methodology is flawed or the description of the methodology is confusing. I suspect the later and the authors should clarify this. I suspect that the alcohol positive actually include all three!

2. In table 2, the last column "Both alcohol and illicit drugs negative (n=122)" "n" should be 143 and not 122, since all 143 patients were tested for alcohol.

24-Hour and 30 days morbidity and mortality
The authors did not take the null value (i.e. 1) into consideration while interpreting the CI statistics. In RR, if Confidence Intervals (CI) includes 1, then the RR is not statistically significant. Based on this, only RR for risk of surgery should be interpreted as significant, the others are not.

Finally, a major confounding was the fact that the injury severity was not measured. The authors assumed that the higher rate of surgery among the patients who tested positive to drug and alcohol was due to higher severity of injuries among them. They ought to have confirmed this by including this as part of the data to collected. They should include this as a limitation.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

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Yes

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