**Reviewer’s report**

**Title:** Impact of a Postcrash First Aid Educational Program on Knowledge, Perceived Skills Confidence, and Skills Utilization Among Traffic Police Officers: A Single-Arm Before-After Intervention Study

**Version:** 0  **Date:** 18 Nov 2019

**Reviewer:** Julie Mytton

**Reviewer's report:**

Abstract.
Background and methods are clearly presented. The conclusion section over-interprets the results which show that less than half of participants utilised a skill taught on the course in the six month follow up period. There is no data to justify the statement that providing necessary resources would increase the likelihood of applying PFA skills.

Background

Justification for focus on traffic police well made. As recommended by many injury research academics, the word 'accident' should not be used due to the implication that the crash event was due to fate or chance, when in likelihood, there was a sequence of circumstances that led predictably to that outcome. For example, on Page 3, line 55 "accident scene" may be better described as 'crash scene', page 5 row 35 'road accident hotspot' may be better described as 'road crash hotspot'.

Please clarify the last sentence of the paragraph under the subheading 'Setting'. The text implies that all crashes on major roads in Dar es Salaam can be observed by traffic police - unless there was a traffic police post every 500m or so, I think this unlikely. It may be helpful to specify number of police posts and the length of road covered if these data are available.

Methods

Generally well reported. There is a lack of information regarding the selection of participants in this study (page 8, section 'Data collection and procedures'). The manuscript refers to a previous publication (Lukumay 2018) which explains that in that cross-sectional study, 340 /~1300 traffic officers were invited to participate following simple random sampling by drawing a ticket from a box. However, this manuscript does not explain how the 135 officers were selected from the 340 participants in the previous study, whether any of the original sample were not available, or what proportion of those offered the opportunity to participate in this study did so. It would be helpful if the text explained that 141 officers were recruited but that only 135 attended the training and completed the before and after questionnaires. A response rate at 6 months of 76% is encouraging, but it would be helpful to know how similar the 102 officers who completed the study were to the 33 officers who did not.

In the section on 'outcome measures' the manuscript would be strengthened by describing the Knowledge of PFA questionnaire as a multiple choice question paper, otherwise this is not clear until you open the supplementary materials. It would be helpful to state that the pre and post test questionnaires used the same MCQs. One of the weaker elements of this study is the assessment of utilisation of PFA skills using the 4 point likert scale; never, sometimes, often, always. The differentiation of 'sometimes' and 'often' is not numerical and therefore prone to subjective judgement on the part of the participant. The option 'always' is redundant since not every crash would generate the types of injuries in the list. It would have been more helpful to have included an objective assessment of the participants ability to utilise their skills on a mannequin or simulated patient.
The methods section could be strengthened by inclusion of more information on ethics. It is unclear what permissions were given by the Dar es Salaam Senior Police Management and whether the officers had a genuine opportunity to decline participation without consequences from their seniors.

Results
Baseline characteristics - The last paragraph of this section describes utilisation of PFA skills at six months. It is not part of baseline characteristics and should be in a separate section. It is not appropriate to comment on whether differences are 'big' or 'large'. Readers need to know if differences are statistically significant and to what degree. Table 2 does not need repetition of the T0 column if the p value columns are clearly labelled to explain what comparison they are describing (as they do in Table 3).
The heading 'perceived PFA skills' is probably misleading since the test did not assess their perceived skills but their confidence in being able to utilise those skills.

Discussion
The authors describe their results in the context of the existing literature. The effectiveness of the training is over interpreted. This was a non-controlled non-blinded before and after study showing that officers participating in the training were on average only able to recall an average of less than three quarters (72.9%) of knowledge taught. It is therefore inappropriate to state that 'police can reliably provide correct interventions over time with minimal refresher courses' since you have neither assessed their ability to deliver interventions (only tested their knowledge) and you have not assessed the effect of refresher courses. Lack of availability of equipment to stem bleeding appears to be a major limitation of this intervention, which is acknowledged.
The statement that officers "had enough time to train, that the content and teaching methods were relevant and that consequently they were well prepared to provide first aid" is also over interpreted and this section should be re-written. It could be anticipated that participants in a hierarchical occupation such as the police service may find it very difficult to criticise those delivering a course which they may have felt obliged to attend. These findings are highly likely to be subject to social desirability bias and although social desirability is mentioned in the limitations, the text interpreting these data should be revised. Further data collection, for example through qualitative interviews, may have revealed greater insights into the confidence and opinion of the participating officers.
The section on implications for pre-hospital care practice is also over-interpreted. It is not possible to say that such training should be scaled up on the basis of this study or that it has the potential to lead to better quality care for RTI victims. A feasibility RCT with clinical injury assessment as the primary outcome measure may be an appropriate next step and a cost-effectiveness analysis would be essential to justify further roll out.

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.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
No

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