Letter to editor

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A recent paper from Malawi compared the risk of mortality among vehicular trauma patients transported by different modes of transport [1]. After adjusting for injury severity, the paper reported higher risk of mortality among patients transferred by police vehicles. India, like Malawi, is a low- and middle-income country and has a large burden of trauma [2]. Similarly, India has limited pre-hospital services such and different forms of transport, such as police vans are used to take trauma patients to the hospital [3, 4].

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| **Variable** | **TITCO-India** | **Purcell et al., 2020** |
| Gender (female %) | 13.69 | 19.8 |
| Age, years, mean (SD) | 35.4 (12.9) | 31.6 (15.9) |
| Injury Severity, median (IQR) | 10 (8-14)\* | 8 (5–9)\*\* |
| **Mode of Transport (%)** |  |  |
| Ambulance | 23.77 | – |
| Police Vehicle | 39.59 | 9.4 |
| Private vehicle | 21.87 | 68.8 |
| Motor Rickshaw, Taxi car | 14.52 | – |
| Minibus | – | 17.4 |
| Others | – | 4.4 |
| Time of Presentation, median (IQR) | 1 (0.6-2) | 1 (0-3) |
| Mortality (%) | 15.25 | 7.8 |

We used the Towards Improved Trauma Care Outcomes (TITCO) in India cohort, based on data from four tertiary care hospitals across urban India (collected between 2013-2015), to measure the risk of mortality by mode of transportation to the hospital in directly admitted vehicular trauma patients. We estimated the relative risk of mortality using a Poisson multivariate regression. We adjusted for age, sex, and trauma severity using Injury Severity Score (ISS).

*Table 1: Patient Characteristics in TITCO-India Data set and Purcell et al. 2020*

*\* Injury Severity Score*

*\*\*Malawi Trauma Score*

Of the 16000 patients in the TITCO cohort, 1668 were adult vehicular trauma patients who were directly admitted to the study sites. Of these complete data was available for 1109 patients. A brief comparison of the patient profile of the Indian and the Malawi cohorts is given in Table 1. The overall mortality was 15.19 per cent. The most common mode of transport used for direct vehicular trauma patients was police vehicles (39.96%), followed by ambulance (23.51%), private vehicles (22.33%), and public transport such as motor rickshaws and cars (14.2%).

# The Poisson multivariate regression analysis showed that the relative risk of mortality for police vehicles was higher when compared to patients transported by ambulances (RR 1.52, 95% CI 1.03– 2.32, p value = 0.03), when adjusting for age, sex, and ISS. This was higher than the relative risk of mortality due to private vehicles or taxis and motor rickshaws when compared to ambulances (Table 2).

*Table 2: Relative Risk of Mortality of patients brought by Police Vehicles*

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|  | **TITCO-India** | **Purcell et al., 2020** |
| Relative Risk | 1.529\* | 1.56\*\* |
| CI at 95% | (1.032, 2.321) | (1.13–2.17) |
| p-value | 0.03 | 0.08 |

# *\* Adjusted for time to presentation, injury severity, and injury mechanism, Reference group Ambulance*

# *\*\*Adjusted for time for presentation, age, sex, and injury Severity, Reference group private vehicles*

# Nearly one-fourth of the patients in the TITCO cohort arrived by ambulance, indicating the maturity of the pre-hospital care system existing in urban India. The relative risk of mortality of patients brought by police vehicles are very similar (1.53 vs 1.56) in both the countries. Our analysis underscores that the solutions suggested by the authors for Malawi may be be applied in the urban Indian setting. Therefore, there is a need to explore context-specific strategies such as training the police personnel to address the burden of trauma mortality in LMIC settings with underdeveloped pre-hospital system.

# References

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