The Impact of Vehicle Speed Dispersion on Fatal Road Traffic Collisions on Rural Highways in Ghana

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Background: Speed dispersion is a neglected risk factor for road safety discourses. Often times, road safety discussions in Ghana are limited to excessive speeding. Consequently, motorists travelling far below the posted speed limits are considered as innocuous. If all vehicles were travelling at uniform speed and two motorists set-off from one place to another, *ceteris paribus*, the one who left earlier will arrive before the second motorists with the latter arriving within the time lag separating their departures. The mixture of fast and slow vehicles in the traffic stream is causing traffic conflict and engender traffic perturbation in the traffic stream. The faster drivers try to overtake slower ones at the least chance. The overtaking maneuvers engender multiple vehicle collisions such as head-on, side swipes and rear end. **Objective:** The objective of the research was to establish the proportion of road traffic fatalities associated with high-speed dispersion on rural highway in Ghana. Rural vehicle speed data published earlier was used to estimate the prevailing speed dispersion. **Method:** Road traffic crash data available at the Building & Road Research Institute were queried. The analysis was limited to vehicle occupant collisions in rural sections of Ghana highways. Basic descriptive statistics were used with limited inferential statics using differences between two sample proportions. **Results:** Between 2013 and 2022, there were 62,685 vehicle occupant casualties on rural highways in Ghana. Out of this, 15% (n=9073) were fatal. Among the fatalities, head-on collisions constituted 38%, run-off-road constituted 30%, rear-end collisions constituted 12%, side swipe constituted 7% and angle collisions constituted 3%. Casualties during day-times were significantly higher than night-time collisions ostensibly due to the higher traffic volume in the day. Nonetheless, the proportion of fatal casualties at nighttime were significantly higher than those during the day time. Depending on highway type, the average travelling speeds and speed dispersions on rural highways ranged between 84±19 km/h and 90 km±19 km/h depicting a high speed dispersion. Casualties from slower vehicles such as trucks, tractors, bicycles and tricycles were more likely to be affected than faster vehicles. This means that speed dispersion plays an insidious role in rural highway collisions. **Conclusion:** Collisions possibly emanating from traffic conflict is higher on rural highway sections in Ghana. Therefore, minimum speed limit law is required for Ghana. Enforcement of the minimum speed limit law should be prioritized to reduce traffic perturbation and its associated crashes.