Official government statistics of road traffic deaths in India under-represent pedestrians and motorised two-wheeler riders

Kavi Bhalla,1 Nidhi Khurana,1 Dipan Bose,2 Kumari Vinodhadi Navaratne,3 Geetam Tiwari,4 Dinesh Mohan4

ABSTRACT
Background Reliable data on traffic deaths are important for planning road safety programmes and evaluating progress. Although pedestrians comprise approximately 40% of traffic deaths in low-income and middle-income countries, official government statistics in India suggest that pedestrians comprise less than 10% of deaths.

Objective To assess the accuracy of official tabulations of traffic deaths among various road users in India.

Method We reviewed police first information reports (FIRs) of traffic deaths in one district (Belgaum) in 2013 and 2014 and extracted information about crash victims. We validated the FIRs by linking with case files from four police stations in the district. Finally, we compared the information on types of road users killed based on FIRs with the district’s official tabulations.

Results We found that the distribution of deaths by types of road users reported in official tabulations differed substantially from the underlying police reports. While official tabulations reported that only 9% of deaths in 2013 were pedestrians and 37% were riders of motorised two-wheelers, FIRs showed that these groups accounted for 21% and 49% of deaths, respectively.

Discussion Official tabulations of traffic deaths in India do not correctly represent the types of roads users killed. Until the Indian National Crime Records Bureau has corrected the process of generating statistical tabulations from police reports, data on the types of road users killed in India should not be used for research and policy. In the interim, researchers and policy makers who need such information should extract it from police case files.

BACKGROUND Reliable measurement of road traffic deaths is important for prioritising investments in road safety and for the evaluation of safety programmes. In India, as in most countries, traffic police is the only source of statistics for monitoring road traffic deaths at the population level. Police reports are also the basis of official government statistics of road traffic injuries in the country, which are released annually by the National Crime Records Bureau (NCRB) as a set of standard statistical tabulations (which we refer to as ‘official tabulations’) that include crash statistics at the national, state and city levels.1 Road traffic deaths reported in official tabulations are cited extensively in national policy dialogue, research studies and media reports. Although official tabulations also provide statistics on non-fatal injuries, these are less commonly quoted because police severely under-report non-fatal crashes in India;2 as is also the case in high-income countries.3

A neglected and potentially serious issue with official tabulations of traffic deaths in India relates to reporting on the type of road users (pedestrian, motorcyclist, car occupant, etc) killed. Figure 1 illustrates the problem. It shows that as per the official tabulations produced by NCRB, pedestrian deaths were less than 10% of national traffic deaths between 2001 and 2014.1 The proportion of pedestrian deaths is also unusually low at the sub-national levels of reporting. Figure 1 shows that official tabulations from the state of Karnataka reported only 5% of traffic deaths as pedestrians in 2014. In fact, of the 53 large-sized and medium-sized cities included in NCRB’s annual reports, 17 reported 0 pedestrian deaths in 2014,1 and 12 reported 0 pedestrian deaths in 2013.4 These proportions of pedestrian deaths are unrealistically low for a lower-middle-income country where vehicle ownership levels are low and most road users are pedestrians. In contrast, the Global Burden of Disease project estimates that pedestrians accounted for 40% of traffic deaths in 2013 in Low- and Middle-Income Countries (LMICs) (39%, globally).5 Similarly, the percentage of pedestrian deaths reported by traffic police in neighbouring countries was much higher (Bangladesh: 41%, China: 25%, Pakistan: 41%, Sri Lanka: 32%).6

Despite the large discrepancy and its implications for research and policy, the issue has not been systematically investigated. However many researchers are aware of the problem,2 7 8 and in private conversations speculate that official tabulations likely report the type of vehicle blamed for the crash rather than the mode of transport of the victim. NCRB appears to have taken steps to address the issue in their 2014 report, Accidental Deaths and Suicides in India—2014. The report states, ‘it is of paramount importance to understand the trends and patterns of traffic accidents. Considering this aspect, the NCRB has designed a detailed proforma for traffic accidents inter-alia road accidents’.1 In particular, a special effort has been made to separate out culpability and victim. Thus, the report contains a new table titled ‘Number of persons affected by road accidents (culpability vis-a-vis Fatality) during 2014 (Mode of Transport wise)’. However, it is evident from figure 1, which includes statistics from this table for 2014, that the new methods for data collection have not solved
the problem. The reported number of pedestrians killed remains unrealistically low (5% in both India and Karnataka state).

In contrast, our experience with case-level police reports suggests that deaths of pedestrians as well as riders of motorised two wheelers (MTWs) are more common than the low proportions seen in official tabulations. In 1985, Mohan and Bawa reviewed police reports from Delhi and reported that 70% of traffic deaths were vulnerable road users (pedestrians: 33%, bicyclists: 21%, MTW riders: 16%) but official statistics for the city did not report deaths disaggregated by type of road user at the time. More recently, we (DM and GT) reviewed a sample of police First Information Reports (FIRs) registered in the cities of Agra, Amritsar, Bhopal, Ludhiana, Vadodara and Vishakhapatnam between 2008 and 2011. The proportion of pedestrian deaths in the sample ranged from 27% (Amritsar) to 43% (Vishakhapatnam). In contrast, official tabulations for these cities showed pedestrian deaths that ranged from 0% (Agra, Amritsar) to 17% (Vishakhapatnam). Similarly, the proportion of MTW deaths in the FIRs from the cities ranged from 35% (Vishakhapatnam) to 44% (Bhopal). However, official tabulations for these cities showed MTW deaths that ranged from 4% (Amritsar) to 31% (Vishakhapatnam). In a separate study, Naqi and Tiwari reviewed FIRs of fatal crashes that occurred on a two-lane undivided highway in Rajasthan (2008–2012), a four-lane divided highway in Uttar Pradesh (2010–2013) and a six-lane divided highway in Haryana (2009–2013), and found that pedestrians comprised 20%, 27% and 34% of the victims, respectively.

In order to confirm that there is a problem with official tabulations in India, we searched the literature for studies that used data from sources other than traffic police (ie, household surveys, hospitals and mortuaries) and reported the mode of transport of the injured victim. Table 1 compares the percentage of victims that are pedestrians and MTW riders reported in these studies with the percentage reported in official tabulations for the same year and region. It is clear that official tabulations consistently report a lower percentage of pedestrian and MTW deaths than other data sources. On average, pedestrians in these settings comprised 13% of traffic deaths in official tabulations but 30% in other data sources; MTW riders comprised 20% of traffic deaths in official tabulations but 36% in other data sources. Of particular note is the study by Hsiao et al, which is based on a large, nationally representative, household survey of mortality in 1.1 million homes. The study included over 122 000 deaths from all causes, including 2299 road traffic deaths. It estimated that in 2005, 37% of traffic deaths were pedestrians and 20% MTW riders compared with only 7% pedestrians and 14% MTW riders in official tabulations for the same year.

Our literature search also identified two studies that had extracted information from case-level police reports. Gururaj et al examined police case files for road traffic deaths in 2011 in Tumkur district in Karnataka state. They report that 20% of deaths were pedestrians and 45% were MTW riders, much higher than the percentages (9% pedestrians and 26% MTW riders) reported in official tabulations for the same year in Karnataka. Similarly, Dandona and Mishra examined police case files in Hyderabad city in 2004 and reported that 40% of deaths were pedestrians and 32% MTW riders, compared with only 23% pedestrians and 20% MTW riders reported in that year’s official tabulations for the city.

Thus, while there is clearly a problem with the distribution of victims reported in official tabulations, it is likely that the underlying reports from which these tabulations are generated are accurate. Therefore, in this study we reviewed 2 years of case-level records of police reports of road traffic deaths in Belgaum district in Karnataka, India, and compared the proportions of pedestrian deaths in the district with the official tabulations reported by the district to NCRB.

**METHOD**

Case-level police reports were available from the office of the Superintendent of Police in Belgaum city in two formats—paper-based police investigation reports (‘case files’), and electronic summary FIRs (‘summary FIRs’). While case files contain detailed and updated information about the event from the investigation by the police, summary FIRs often contain only a few sentences that summarise the information about victims, (age, sex, road user type) vehicles involved, date and time, and location (name and type of road) that are known to the
informant when the event is first reported to the police. Data extraction from summary FIRs is substantially easier than from case files. While summary FIRs were available by querying an electronic database, case files are occasionally unavailable because of an ongoing investigation or otherwise hard to locate. Therefore, we started by validating the quality of the information in summary FIRs by comparing with the case files. A researcher extracted information about victim demographics and crash characteristics (including victim’s mode of transport) for all summary FIRs for road traffic deaths in the district of Belgaum in 2013 and 2014. In addition, the researcher extracted the same information from case files for four police stations (Marihal, Murgod, Nesargi, and Belgaum Traffic North) for 2014. The records from the two databases were linked deterministically using the case report numbers, and the quality of information in the summary FIRs was checked for the following variables: age and sex of victim, date and time of crash, type of road user killed, impacting vehicle, and type of road. Finally, we obtained the official tabulations of traffic crashes that are produced for Belgaum district by the district’s crime records bureau. Data were provided in a set of 17 tables in a nationally standardised format. The tables provide information on distribution of crashes by severity (fatal, grievous injury, minor injury, non-injury), month, time of day, type of road, location, type of road users involved, weather conditions, type of crash, driver attributes (age, education, licence status), vehicle attributes (age, overloading status, defects), road attributes (type of surface, condition), nature of collision and sex of victim, among others. Note that while age of drivers involved in collisions is included, age of victims is not tabulated separately.

Permission for data access for this study was provided by the Inspector General of Police and Commissioner for Road Safety in Bangalore. The Johns Hopkins University Institutional Review Board approved the study protocols.

The process by which official tabulations in India are generated is poorly documented. The following is a summary of the flow of information from individual police stations in Belgaum to the national level based on our experience with the system and informal discussions with government and police officials. In the district of Belgaum, there are 24 police stations. Individual police stations produce summary statistics of the crashes that occur within their jurisdiction annually. They report these statistics to their District Crime Records Bureau (DCRB) in a set of 17 tables, which have been standardised at the national level by the NCRB. The DCRB collates the data from these paper forms and enters the aggregated district tables into a computer database, which is transmitted to the State Crime Records Bureau (SCRB) in Bangalore. The SCRJ collates the district level tabulations received from all the districts in the state and transmits to the NCRB for the generation of national

<table>
<thead>
<tr>
<th>Study</th>
<th>Region</th>
<th>Data source used by study</th>
<th>Reported by study</th>
<th>Official tabulations</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ped (%)</td>
<td>MTW (%)</td>
</tr>
<tr>
<td>Hsiao et al</td>
<td>India/national</td>
<td>Nationally representative mortality survey of 1.1 million homes; &gt;122 000 deaths; 2001–2003, including 2299 traffic deaths.</td>
<td>37</td>
<td>20</td>
</tr>
<tr>
<td>Uthkarsh et al</td>
<td>Bangalore (Karnataka)</td>
<td>Road traffic injury cases admitted to MS Ramaiah Hospital, Bangalore (Karnataka, India); Oct 2008–April 2009.</td>
<td>17</td>
<td>61</td>
</tr>
<tr>
<td>Menon et al</td>
<td>Bangalore (Karnataka)</td>
<td>Records of fatal and non-fatal road traffic injuries seen at 23 hospitals in Bangalore; 2007.</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>Menon et al</td>
<td>Pune (Maharashtra)</td>
<td>Records of fatal and non-fatal road traffic injuries seen at 12 hospitals in Pune; 2007.</td>
<td>18</td>
<td>46</td>
</tr>
<tr>
<td>Aerob-Thomas et al</td>
<td>Bangalore (Karnataka)</td>
<td>Household survey; 20 000 households; 83 deaths supplemented by 156 deaths from police and hospital records; 2000.</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td>Thomas and Sridhar</td>
<td>Hyderabad (Andhra Pradesh)</td>
<td>Hospital admissions for 450 road traffic injury cases in 2011.</td>
<td>8</td>
<td>37</td>
</tr>
<tr>
<td>Kual et al</td>
<td>Allahabad (Uttar Pradesh)</td>
<td>2246 autopsies at a hospital mortuary; 2004.</td>
<td>36</td>
<td>31</td>
</tr>
<tr>
<td>Kanchan et al</td>
<td>Manipal (Karnataka)</td>
<td>344 autopsies at a hospital mortuary; 2005–2009.</td>
<td>33</td>
<td>43</td>
</tr>
<tr>
<td>Jha et al</td>
<td>Pondicherry UT</td>
<td>726 road traffic injury cases seen at a hospital mortuary; 1994.</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>Sharma et al</td>
<td>Chandigarh UT</td>
<td>1109 road traffic fatalities at a hospital mortuary; 1996–2005.</td>
<td>39</td>
<td>34</td>
</tr>
<tr>
<td>Singh et al</td>
<td>Ambala (Haryana)</td>
<td>1238 road traffic injuries seen at a tertiary care hospital; 2009–2011.</td>
<td>13</td>
<td>41</td>
</tr>
<tr>
<td>Patil et al</td>
<td>Karad (Maharashtra)</td>
<td>350 road traffic injuries seen at a hospital; 2003–2004.</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Verma and Tiwari</td>
<td>Delhi, NCT</td>
<td>Household survey, 5412 households, 680 non-fatal injuries; 2002.</td>
<td>25</td>
<td>46</td>
</tr>
<tr>
<td>Singh et al</td>
<td>Guwahati (Assam)</td>
<td>1872 autopsies for road traffic cases; 1999–2003.</td>
<td>47</td>
<td>Not available</td>
</tr>
<tr>
<td>Chaudhary et al</td>
<td>Sevagram (Maharashtra)</td>
<td>125 fatal and non-fatal road traffic injury cases at a hospital; 1999–2000.</td>
<td>44</td>
<td>Not available</td>
</tr>
</tbody>
</table>

NCT, National Capital Territory; UT, Union Territory.
statistics. Thus, there is only one underlying process through with official crash statistics originate and this involves police personnel at each police station filling standardised paper forms. When aggregate statistics reported by different government agencies had discrepancies, for instance between those reported by the Ministry of Road Transport and Highway (MORTH) and NCRB, it is likely because MORTH collated the district or state level tables differently from standard NCRB procedures. The differences are not because they represent an independent count.

RESULTS

Validation of summary FIR data

Case files were available for 204 crashes that resulted in 281 deaths. One of these crashes was from a prior year (2012). Summary FIRs were available for 203 of these crashes that resulted in a total of 280 deaths. Case files could be linked with summary FIRs for 202 crashes (99% of crashes), which had 277 deaths (99% of deaths). The age and sex of victim reported in summary FIRs matched with those reported in case files in 94% and 92% of death cases, respectively, including matches where this information was marked unknown in both sources. The mode of transport of the victim reported in the summary FIR matched the case file in 98% of cases; impacting vehicle matched in 98% of cases; and type of road in 94% of cases, including matches where this information was unknown in both sources.

Comparison of summary FIR data and official tabulations

In 2013, the official tabulations for Belgaum district reported 742 deaths. Our FIR database included 759 deaths in 2013, 2% more than official tabulations, and 722 deaths in 2014. About a fifth of these deaths were pedestrians (21% in 2013 and 22% in 2014; figure 2) and about half were riders of MTWs (49% in 2013 and 53% in 2014). In contrast, official tabulations for the district reported that in 2013 only 9% of deaths were pedestrians and 37% were riders of MTWs. Overall, vulnerable road users (pedestrians, bicyclists and motorcyclists) comprised 75% and 79% of deaths in the FIRs in 2013 and 2014, respectively, but only 48% in the official tabulations for 2013.

Trucks were the most common vehicles identified as impacting vehicles in FIRs (25% in 2013 and 20% in 2014), followed by MTWs (13% in both 2013 and 2014). However, a large percentage of deaths did not involve an impact with a specified type of vehicle and are shown in figure 2 as ‘Other’. This category includes single-vehicle crashes in which only one vehicle was involved, including run-off-road collisions, roll-overs, and collisions with fixed objects. The who-hit-whom matrix (table 2) provides a more detailed breakdown of the impacting vehicle for different types of road users. Notably, it shows that single-vehicle crashes account for 30% of all traffic deaths.

A comparison of the distribution of impacting vehicles extracted from FIRs with the distribution of vehicles assigned responsibility in official tabulations shows some similarities with similar percentage for cars, trucks, buses and others (figure 2). However, a notable difference is that although the FIRs showed that impacts with pedestrians did not kill any other road users (ie, pedestrian impacts only killed pedestrians) official tabulations listed pedestrians as the ‘vehicle (sic) primarily responsible’ for 4% of deaths.

Finally, figure 3 compares official tabulations with summary FIRs for the four other variables (sex of victim, month of crash, time of crash, and type of road) for which a direct comparison was possible. The distributions of these variables are only slightly different between the two sources.

The distribution of deaths by type of road was consistent between official tabulations and summary FIRs (figure 3). Official tabulations do not report the types of road users killed on different types of roads separately. However, the summary FIRs (2013 and 2014) show that vulnerable road users (pedestrians, bicyclists and MTW riders) comprised a substantial proportion of fatalities on all types of roads: 65% on national highways, 74% on state highways and 88% on other roads. Riders of MTWs were the most common road users killed on all types of roads. Pedestrians comprised a substantial proportion on all types of roads, including national highways (27%).

DISCUSSION

We sought to understand why the official statistics of road traffic deaths in India report unusually low proportions of deaths

![Figure 2](image-url) Comparison of types of road users killed in Belgaum district (Karnataka state) based on data extracted from record-level police first information reports and official tabulations. Note: The ‘Other’ impacting vehicle category includes single-vehicle crashes.
Table 2 shows the distribution of road users killed as well as the type of vehicle that hit them. For instance, of the 1485 deaths in 2013 and 2014, 73 were pedestrians killed from being struck by motorised two wheelers. Cell shade indicates the magnitude of deaths. Source: Extracted from summary first information reports.

<table>
<thead>
<tr>
<th>Victim</th>
<th>Pedestrian</th>
<th>Motorized 2 Wheeler</th>
<th>Motorized 3 Wheeler</th>
<th>Car/Jeep/Van/Taxi</th>
<th>Light Truck</th>
<th>Heavy Truck</th>
<th>Bus</th>
<th>Tractor</th>
<th>Other</th>
<th>Unknown</th>
<th>Total</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian</td>
<td>73</td>
<td>2</td>
<td>55</td>
<td>17</td>
<td>48</td>
<td>38</td>
<td>18</td>
<td>69</td>
<td>320</td>
<td>22%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td>17</td>
<td>11</td>
<td>2</td>
<td>11</td>
<td>5</td>
<td>12</td>
<td>1</td>
<td>4</td>
<td>63</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorized 2 Wheeler</td>
<td>105</td>
<td>3</td>
<td>79</td>
<td>42</td>
<td>120</td>
<td>45</td>
<td>58</td>
<td>3</td>
<td>243</td>
<td>51%</td>
<td></td>
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<tr>
<td>Motorized 3 Wheeler</td>
<td>2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>13</td>
<td>1%</td>
<td></td>
<td></td>
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<tr>
<td>Car/Jeep/Van/Taxi</td>
<td>1</td>
<td>9</td>
<td>3</td>
<td>40</td>
<td>5</td>
<td>10</td>
<td></td>
<td>84</td>
<td>156</td>
<td>11%</td>
<td></td>
<td></td>
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<tr>
<td>Light Truck</td>
<td></td>
<td>4</td>
<td>20</td>
<td>5</td>
<td>3</td>
<td>11</td>
<td>1</td>
<td>4</td>
<td>44</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Truck</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>1</td>
<td></td>
<td>51</td>
<td>63</td>
<td>4%</td>
<td></td>
<td></td>
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<tr>
<td>Bus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>2</td>
<td>9</td>
<td></td>
<td>16</td>
<td>1%</td>
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<tr>
<td>Tractor</td>
<td></td>
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<td></td>
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<td>3</td>
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<td>69</td>
<td>262</td>
<td>98</td>
<td>105</td>
<td>3</td>
<td>451</td>
<td>1485</td>
<td>100%</td>
<td></td>
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<tr>
<td>(%)</td>
<td>13%</td>
<td>0%</td>
<td>10%</td>
<td>5%</td>
<td>18%</td>
<td>7%</td>
<td>7%</td>
<td>0%</td>
<td>30%</td>
<td>9%</td>
<td>100%</td>
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</tbody>
</table>

Table shows the distribution of road users killed as well as the type of vehicle that hit them. For instance, of the 1485 deaths in 2013 and 2014, 73 were pedestrians killed from being struck by motorised two wheelers. Cell shade indicates the magnitude of deaths. Source: Extracted from summary first information reports.

Figure 3 Comparison of four crash variables (sex of victim, month of crash, time of crash and type of road) for road traffic deaths in Belgaum district in 2013 based on data extracted from record-level police first information reports (FIRs) and official tabulations. Notes: Of the 759 death records extracted from summary FIRs, 2 (0.3%) were missing information about sex and 139 (22%) were missing information about time. Official tabulations had no missing information.
among pedestrians, bicyclists, and motorcyclists. Traffic police are the source of official statistics on road traffic deaths in India, as in most countries. We conducted an in-depth investigation of police reporting in one district, Belgaum. The process through which police reports of crashes in Belgaum are reported to NCRB is similar to the process used across India. Our analysis reveals that there is a serious problem with police reporting of road traffic death statistics in India—deaths of vulnerable road users (pedestrians, bicyclists and motorcyclists) are substantially under-represented, while deaths of car occupants, buses and trucks are over-represented. These statistics have the potential to substantially misdirect road safety efforts in India. Furthermore, because of India’s large population, they threaten to bias global policy discussions as well. For instance, WHO’s 2015 Global Status Report on Road Safety (GSRRS) reports that only 13% of traffic deaths in the South-East Asia region are pedestrians and suggests that ‘… these rates are relatively low in the South-East Asia Region…partly reflects the level of safety measures in place to protect different road users …’. (page 8, GSRRS). In fact, these proportions are low in the region because of problems with official tabulations from India, which account for the bulk of the traffic deaths in the region. Furthermore, numerous studies have documented that in fact pedestrian safety remains neglected in safety policy in the country.7 12 33 34

Our study highlights that pedestrians, bicyclists and motorcyclists comprise a large proportion of deaths on all types of roads in India. Unlike economically developed countries, where vulnerable road users are the focus of road safety efforts primarily in urban areas, in India these groups comprise almost two-thirds of deaths even on national highways. Clearly, measures to protect vulnerable road users needs to be the core focus of road safety policy efforts in the country.

The reasons for the discrepancy in India’s official tabulations are not clear. It may be that official tabulations in some police jurisdictions report the offending vehicle, that is, the type of vehicle of the driver judged to be responsible for the crash. Since pedestrians and bicyclists are rarely assigned fault by police, this would explain the low proportion of these road users in the official tabulations. However, it should be noted that official tabulations provide separate tables for types of victims killed and types of vehicles responsible (figure 2). The two distributions are markedly different and neither resembles the true distribution of victims based on the FIRs. Studies are needed that document the processes involved in police reporting and help explain how these lead to biases in reported statistics.

Our study does not address the important but separate issue of under-reporting of traffic deaths by police. Assessing under-reporting would have required our study to have an independent source of information about deaths. Notable in this regard is the study by Hsiao et al13 that used data on deaths reported in a nationally representative household survey. They estimated a national road traffic death toll in 2005 that was 50% higher than reported by police. Under-reporting of road traffic deaths in India is important to address especially for ensuring that traffic injuries are appropriately prioritised in the national health agenda.13 35 However, from the perspective of monitoring trends and evaluating the effect of safety programmes, under-reporting is a comparatively less serious issue as long as the level of under-reporting remains relatively stable over time.

Until the problem with official tabulations is fixed, researchers and policy makers should use other sources (such as those shown in table 1) of information on types of road users affected by traffic crashes. One approach that we recommend is extracting information from FIRs and/or police case files depending on the type of information needed. The logistical difficulties of doing such data extraction vary across states. Some cities make all FIRs readily available online. However, in others, researchers need to visit individual police stations to access FIRs, which can be time-consuming. Although FIRs do not present the final findings from the police investigation, many of the most important policy-relevant variables (such as types of vehicles involved, location of crash) are reliably documented in FIRs. Case files include additional details but are substantially more difficult to access than FIRs. In this study, all case files for the district were available at the DCRB office in Belgaum. However, in other parts of the country, case files may be available only at individual police stations.

CONCLUSION

Reliable data on deaths of pedestrians, bicyclists, motorcyclists and vehicle occupants are essential in the design and implementation of road safety programmes. Such data are needed for prioritising various safety interventions, setting meaningful safety targets, and for monitoring progress towards these targets. Until the national reporting has been fixed, researchers and policy makers should not use official tabulations for understanding the epidemiology of types of road users killed in traffic crashes.

What is already known on the subject?

▸ Reliable data on traffic deaths are important for developing countermeasures, and for monitoring and evaluating the outcomes of safety programmes.

▸ Official government statistics of traffic injuries in India show unusually low numbers of vulnerable road user deaths.

What this study adds?

▸ The study shows that official government statistics in India do not correctly tabulate the types of road users killed. The underlying police case files show a substantially higher proportion of vulnerable road users.

▸ Until reporting procedures are fixed, researchers and policy makers in India should extract information about types of road users killed from police case files.

Acknowledgements The authors thank the staff of the karnataka health sector development and reform program (KHSRDP) and karnataka state highways improvement project (KSHIP) projects, the Road Safety Cell of the Ministry of Transport, and the IG Police and Commissioner for Traffic and Road Safety for helping us get suitable access to data. In particular, the authors thank Dr Aashik Abikar, Dr Basaraj Dhabadi, Mr Amit Nell, Mr Joachim D’Souza, Dr K Ramachandra Rao, Mr CP Narayanswamy, Dr G Gurunaj and Mr Abdul Sattar for their support.

Contributors All authors contributed to the design of the study, and interpretation of data. KB wrote the first draft of the manuscript, which was revised critically by all authors. All authors read and approved the final manuscript.

Funding This study was supported by funding provided to Johns Hopkins University (JHU) from a trust fund supported by the Bloomberg Philanthropies at the World Bank.

Competition interests None declared.

Ethics approval Johns Hopkins School of Public Health Institutional Review Board.

Provenance and peer review Not commissioned; externally peer reviewed.

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Kavi Bhalla, Nidhi Khurana, Dipan Bose, Kumari Vinodhani Navaratne, Geetam Tiwari and Dinesh Mohan

Inj Prev published online July 25, 2016

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