Author's response to reviews

Title: Burden of injuries in Iranian children in 2005

Authors:

Mohsen Naghavi (nagham@u.washington.edu)
Farshad Pourmalek (purmalek@u.washington.edu)
Saeid Shahraz (saeid_shahraz@harvard.edu)
Nahid Jafari (nahidjafari_b@yahoo.com)
Bahram Delavar (bahramdelavar@hotmail.com)
Mohammad Esmail Motlagh (motlagh@health.gov.ir)

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Author's response to reviews: see over
Response to reviewers’ reports
Authors’ responses to reviewers’ report are provided under each revision item in blue font.

Title: Burden of injuries in Iranian children in 2005
Version: 1 Date: 3 October 2009

Reviewer number: 1
Reviewer’s report:
- Major Compulsory Revisions
The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.
1. Authors need to strongly justify how this study is different from the study they published in 2009 with 2003 data (reference #2)
Differences of the current study with reference # 2: (1) This study provides estimates for 2005, whereas reference # 2 provides estimates for 2003. (2) This study is on burden of injuries, whereas reference # 2 is a national burden of disease study providing estimates for all diseases and injuries. (3) This study is based on data from provinces that are different from provinces studied in reference # 2. (4) This study is based on data for four random weeks, one in each season, but the reference # 2 data on injuries were collected in three consecutive months.

2. Page 6, first paragraph: authors say deaths in 1971, 2001, and 2006 are not completely comparable. Please explain why this is so.
Here is our reason why we believe that these deaths from 1971, 2001, and 2006 are not completely comparable ‘without taking into consideration the geographical area and population they cover’:
Child injury deaths from Tehran in 1971 with those from 18 and 29 provinces in 2001 and 2006 are not completely comparable in terms of the geographical area and population they cover, which include one city (Tehran), 18 provinces, and 29 provinces (out of total 30 provinces of Iran) respectively.

We completed the fourth sentence in paragraph below the subtitle “(A) Trend of changes in incidence of injuries” as follows:
“The child injury deaths in city of Tehran in 1971 are not completely comparable with child injury deaths in 18 and 29 provinces of Iran in 2001 and 2006 respectively, unless the differences in the geographical area and population they cover are taken into consideration. However, the 1971 cause-specific data for city of Tehran data is the only data available about cause-specific deaths in Iran during 70’s. Figure 1 indicates a rise in proportion of child deaths due to external causes during the recent 36 years.”

Therefore, we have included deaths of Tehran city in 1971 in this comparison of cause-specific mortality fractions because there is no other source of data available for cause-specific mortality experience in before 1990. If even with taking into consideration such difference in geographical area and population, cause-specific mortality proportion from city of Tehran in 1971 should not be comparable with that in 18 and 29 provinces in 2001 and 2006 at all, we may still omit 1971 from this comparison but in that case the past level of
cause-specific mortality rates will be unknown and no estimation of its trend of change will be available.

3. Page 6, first paragraph, last sentence: explain how this study is different from reference #4.
Reference # 4 shows the mortality data source for the current study (National Death Registration System of Iranian Ministry of Health and Medical Education, 2001-2006) that are re-analyzed by authors for estimation of injuries' burden in children, and therefore, reference # 4 is not another study. It shows our source for mortality data. We also used morbidity data from survey we implemented that is described under subtitle “(B) Morbidity” in Methods section.

4. Page 7, 2nd paragraph, 6th sentence: "incidence rates" does this refer to deaths? Non-fatal injuries? Both?
Yes, "incidence rates" in this sentence accurately refers to death rates and the sentence was modified accordingly. We made four modifications marked with underlines below.

“A large difference in child death rates due to unintentional and intentional injuries between the rural and urban areas in 2005 is demonstrated in figure 2 (death rates in rural areas are higher). The similar difference was less for inpatient rates. Outpatient rate in urban areas was higher than that in rural areas. Figure 3 shows the injuries mortality rates in 0-14 years children by place of residence. Mortality rates for all external causes were higher in rural areas than urban areas, except those for injuries due to inanimate mechanical forces. Mortality rates for all external causes were higher in boys compared with girls, except for insect bites and venomous arthropods stings.”

We also made the following two subtitles more clear for the readers:
“(B) Pattern of deaths due to all causes and due to injuries 2001 to 2006”
“(C) Incidence and pattern of fatal and non-fatal injuries in 2005”

5. Figure 3 is not referenced in the text.
Figure 3 is referenced in the first sentence on (current) page 9.

6. Figure 4, unclear why authors chose to present urban vs rural. Either combine, or describe why this was done and discussion of differences.
Since we observed different patterns and levels of mortality and morbidity for urban and rural areas, we presented the results by urban or rural place of residence.

However, in response to comment # 1 from the reviewer 2 about shortening the manuscript, we omitted figure 4 and modified the second sentence under the subtitle “(D) Burden of fatal and non-fatal outcomes of injuries” on (current) page 9 (which referred to figure 4) to the following sentence.

“For different types of injuries, DALY rates of 0-14 year old children in 2005 were higher in rural areas than the similar rates in urban areas, except for falls and inanimate mechanical forces.”
7. Figure 5: presents DALYs, unclear why authors did not just show death rates?
We did not show death rates in figure 5 because the patterns of mortality and morbidity are different and showing the mortality rates alone cannot represent the burden of injury or disease. Figure 5 presents DALYs because DALYs show burden of death and disability. Using death rates only does not reflect burden of death (YLL) and burden of disability (YLD).

However, in response to comment # 1 from the reviewer 2 about shortening the manuscript, we omitted figure 5 and modified the first sentence in the first whole paragraph of page 9 (which referred to figure 5) to the following sentence. “Comparison of Iran’s DALYs from injuries in 0-4 year children in 2005 (current study) with the same metric for world sub-regions of WHO in 2004 [11] shows that the former is less than the world average and more than EMR-B (i.e. low adult and child mortality countries of Eastern Mediterranean Region).”

8. Starting page 9, F-section: what year are all these results from?
We added the following sentence below the title “(F) Detailed description of main types of injuries in children”:
Our estimations for deaths, hospitalization, and outpatient care due to injuries in children in year 2005 show the following details for specific types of injuries.

9. Page 10, F2 section: unlike other sections, no quantitative numbers are presented for falls. Same comment for first 4 sentences of F3 (burns) section.
We added the following numbers to the first and second sentence of section F2: “The most frequent places in which children died due to falls were, in transit (including sidewalks and pavements of streets) (33%), home (33%), and school (17%). The most frequent places in which children suffered non-fatal injuries from falls leading to hospitalization were home (60%), transit places (11%), and schools (10%).”

We added the following numbers to the paragraph under “(F3) Burns”:
“Burns leading to death were most frequent due to fire with gasoline and petrol (72%). Burns leading to hospitalization were most frequent due to hot liquids (38%). Burns leading to outpatient care were most frequent due to hot liquids and hot substances (65%). Burns due to fire from gasoline, petrol, and wood were more frequent in rural areas (54%) and burns with hot liquids were more frequent in urban areas (47%).”

The sentence referred to is: “During the 2001 to 2006 period in Iran, the reason for rise in proportion of child deaths due to external causes during the recent 36 years (figure 1) can be either a decrease in other competing causes or a true rise in injury deaths.”

With modified the above sentence as follows: “Proportion of child deaths due to injuries out of all child deaths has increased from 1971 to 2001 to 2006 (figure 1). This increase can result from a combination of true rise in injury deaths and fall in other competing causes of death.”
11. Page 14, first paragraph, 5th sentence: give examples of environmental and social risk factors.
We modified the paragraph as follows:
“Wazana had performed a critical review of the literature on pedestrian injury and had concluded that child risk factors make a consistent but minor contribution to injuries in comparison with environmental and social risk factors (e.g. traffic volume or visual obstacles and poor supervision or family stress respectively), and there is need for adding voice to the efforts to bring into effect engineering and legislative interventions [18].”

12. Page 14, first paragraph, last sentence: why say "there is nothing with children who get injured or die in injuries"? Am I missing the point of this statement?
The following sentences were replaced:
“Children who get injured or die in injuries do not have intrinsic traits that expose them to significantly more risk of getting injured or die because of injuries. The adult populations of the countries have the responsibility of providing safe environments for children. Children are not to be blamed, but adults are to be accountable in materializing children’s rights.”

13. page 14, second paragraph: I do not understand what this paragraph is saying.
The paragraph referred to is: “Although the main right of children is their right for survival [19], including living in a safe environment to survive, child safety has an inferior position as compared with the available unsafe environment for children and if the child survives the early years, would be confronted with external causes of injury and death, and if s/he has to survives this period as well through adolescence to youth, or otherwise would die like the pattern described above. Child safety legislation and provision of child-safe environment are almost negligible as compared against the actual child death due to external causes in Iran.”

We modified the above paragraph as follows:
“United Nations Convention on the Rights of the Child indicates that children have the right to remain alive when they are born (the right for survival) [19]. This right includes living in a safe environment that supports children from injury and death from accidents. However, adequacy and effectiveness of the safe environments for prevention of external causes of injury and death in children are not enough. Therefore, injuries impose a large burden of disability and death on children that can be largely prevented. Child safety legislation and provision of child-safe environment are almost negligible as compared against the actual child death due to external causes in Iran.”

14. Page 16, first full paragraph: how can Iran move forward to better protect children from injury. Are there any specific examples of what the country could be doing, or are there any lessons learned for Iran's successes with vaccine-preventable diseases, pneumonia, diarrhea, etc?
We added the following sentence to the end of first full paragraph in (current) page 18:
“Prerequisites for effective child safety include but are not confined to accountable and transparent high-level political commitment to decrease burden of injuries in all ages, including children and full realization of child rights, plus effective management arrangements at middle and peripheral levels.”

- Minor Essential Revisions
The author can be trusted to make these. For example, missing labels on figures,
the wrong use of a term, spelling mistakes.
1. in Abstract, the authors mention three timeframes: 2005, 2001 to 2006, 2003 and 2005. Here and in the body of the article, it is confusing which timeframe the authors are talking about. Authors should better clarify these timeframes they are interested in and which results are from which years. For example, the last sentence of the first paragraph on page 3 says "2005", but on page 4 the first sentence say "2001 to 2006". We added the following sentences below the main title “methods” in page 4. “Reference year for estimation of child injury DALYs in this study is 2005. For describing the trend of child injury mortality, we re-analyzed death registry data from 2001 to 2006. Besides the current study, the only national estimates of injuries burden are available from national burden of disease study for year 2003, that are used for comparison.”

2. Page 3, move second paragraph to Methods section. Moved the second paragraph of page 3 to first paragraph in Methods section.

3. Page 6, 2nd para, 3rd sentence: change "...under one year of age to 23 in 14 years" to "...under one year of age to 23 in 1-14 years of age." Changed to:
“This rate decreases from 79 in 100,000 in under one year age to 23 in 10-14 years.”

4. Page 7, first sentence: identify that Table 2 is only INJURY cause-specific mortality. Changed to:
“Table 1 shows the cause-specific mortality rates for external causes (i.e. injuries) and indicates that the traffic injuries were the first cause of children's death.”
(We have dropped table 1 (and table 6) to make the manuscript shorter according to comment # 1 of Reviewer 2.)

5. Page 7, first sentence: is there a difference between "traffic" and "transport", which is said in Table 2. If not, use same term throughout the paper. Used the same term 'transport' throughout the paper.

6. Page 7, 2nd paragraph, 4th sentence: should read "Outpatient rates were higher in urban and rural areas." Changed to:
“Outpatient rate in urban areas was higher than that in rural areas.”

7. Page 8, 2nd full paragraph, first sentence: indicate that Table 4 is about YLL, YLD, and DALYs, not just "burden" Changed to:
“Table 3 shows the burden of injuries in 0-14 year children of Iran in 2005 in terms of YLL, YLD, and DALYs.”
(We have dropped table 1 (and table 6) to make the manuscript shorter according to comment # 1 of Reviewer 2.)

8. Page 12, first sentence of discussion: change "important" to "common" or "frequent" Changed to:
“Injuries were the most common cause of death in 1-14 years old children.”

Changes made by authors that were not requested by referees and their rationale:

We noticed the second sentence under the tile ‘Background’ (on page 2) did not refer whether death or disability was mean by ‘cause of’. The sentence was:

Road traffic injuries are the second leading cause in 5-14 years children [1].

We replaced it with:

Globally, injuries are the leading cause of death for 10-19 year old children, and among them, road transport injuries are the leading cause of death for 15-19 year olds and the second leading cause in 10-14 years children.
Reviewer's report:
Major Compulsory Revisions
1) Article is too long and has too many tables and figures. I suggest that the authors should insert all the analysis. Instead pick important findings and have them in article. e.g. Figure of comparison of Iran with other WHO region. Is it necessary? The article in current format reads like a surveillance report. Again I suggest that the authors only discuss important findings.
We dropped table 1, table 6, and figures 4 and 5 to make the manuscript shorter.

2) Missing information - Can you add analysis by month to understand seasonality issue, SES and injury burden. I also suggest adding provincial/state level analysis for Iran instead of WHO region analysis
Analysis by month illuminates seasonal distribution. Analysis by province illuminates geographical distribution. Seasonal and inter-province variations exist for burden of injuries in 5-14 years old children but they are negligible for 0-4 years old age group. Description of such results will elongate the manuscript.

3) The authors did not discuss limitations of the study anywhere. I think since the burden is estimated with WHO estimation limitations of data need to be discussed. for ex. how sensitive is injury surveillance in Iran. How many injuries don't get reported.
We added discussion of limitations to the end of Discussion section:

“Under-registration of deaths in death registry systems tends to underestimate mortality level if not controlled for [8,9]. Our results underestimate mortality level since we did not control for it. We used time- and place-limited hospital sample registry for collecting hospitalization and outpatient data. Selection of time was designed to capture the events across the four seasons of the year 2005, so that the time-limited sample results can be generalized to the whole year time. Selection of place, i.e. choosing the provinces was done to include provinces with higher, middle, and lower socioeconomic and health development so that the results can be generalized to all the country provinces. Validity of our generalization of results from time and place limited sample depends on the suitability of the design of times and places chosen to represent the whole year 2005 all over Iran. Moreover, capturing the outpatient care episodes in rural areas is more prone to underestimation than in urban areas. Trivial injuries managed at home without using any healthcare services were not included.”

Moreover, in this study, burden of injuries in Iranian children in 2005 is not “estimated with WHO estimation”. It is estimated using death registry and survey of injuries’ deaths, hospitalizations, and inpatient care episodes. Similarly, we did not estimate burden of injuries in Iranian children in 2005 using data from “injury surveillance in Iran”.

Minor Essential Revisions
1) Tables and figures show unintentional and intentional together. all the tables need to be sorted based alphabetical, burden or intention
We have dropped table 1 and table 6 to make the manuscript shorter according to comment # 1. Tables 2, 3, and 4 (in version 1, that are tables 1, 2, and 3 in version 2 of the manuscript) are sorted by burden and sum of intentional and sum of unintentional injuries.

2) Figure needs correct title. Figure 2 has rural urban and by gender
Changed to:
“Figure 2 - Rates of outpatient, inpatient, and mortality due to all injuries in 0-14 years children in Iran 2005 by sex and urban or rural place of residence”
“Figure 1 - Proportions of deaths due to injuries in age groups of children in city of Tehran in 1971 [13], 18 provinces of Iran in 2001 and 29 provinces of Iran in 2006 [4]”

3) Abstract should have national fatal and nonfatal rate in the results
National fatal outcome rates mentioned in the results part of the Abstract:
“Injuries were the most important cause of death in 1-14 years old children with 35, 33.4, 24.9, and 22.9 deaths per 100,000 in 0-14, 1-4, 5-9, and 10-14 years respectively.”

National non-fatal outcome rates added to the results part of the Abstract:
“Incidence rates of injuries leading to outpatient care were 1812, 2390, and 1650 per 100,000 in the same age groups respectively.”

4) Figure 1 is misleading - we cannot compare unless you can show rate. Proportion is difficult to compare as mentioned in the conclusion (1st sentence)
Figure 1 compares proportions of deaths due to injuries to deaths due to all causes in age groups of children in three different years. Comparing absolute death counts across time or place is misleading because it does not take into account the denominator of population in which deaths occur or the denominator of all deaths in which deaths occur due to a specific cause or causes. Taking into account these two types of denominators, provides cause-specific mortality rates and proportion respectively that provide a basis for meaningful comparisons. For instance, proportions of deaths due to leading causes to deaths due to all causes of mortality in US 1996 can be compared without misleading (figure 10, Michaud CM et al. The burden of disease and injury in the United States 1996. Popul Health Metr. 2006 Oct 18;4:11.). Moreover, unavailability of Tehran’s 1971 population breakdown by age precludes providing mortality rates instead of mortality proportions in figure 1.

5) Result B- This rate decreases 79 in .... Please rewrite this sentence
“This rate decreases from 79 in 100,000 in under one year age to 23 in 10-14 years.”

6) Please refrain from using word 'Accidents'
Done.

7) Please clarify if the Bam earthquake data was included in the analysis
The Bam earthquake data was not included in the analysis, since such huge disasters are not to occur each year.
Page 7, first paragraph: “All the above estimates are performed without taking into calculations the mortality from Bam earthquake in southeast of Iran in 2003 that claimed 8800 deaths in 0-14 years old children [14].”

8) 1200 children died due to intentional injury - is it because of underreporting?
Can you compare with violence data from Iran
Death of 1200 children due to violence in Iran in 2005 - among all other values - should not specifically be due to underreporting since the violence data published by law enforcement forces (police) in Iran declare 3000 deaths due to violence in all ages in 2005 (no age breakdown published). However, we have discussed the underreporting in general within the study limitations at the end of Discussion section in response to comment # 14.

9) There were no hospitalization due to drowning in the country. Is it possible? Is this because of missing Data? or reporting issue? Please discuss
Prerequisites for hospitalization of severe near-drowning cases include effective first aid and cardiopulmonary resuscitation by persons present at the scene immediately after the victim is pulled out of water and in-time and effective transfer of the patient to hospital, so that the patient reaches the hospital alive. Severe near-drowning cases that need hospitalization do not reach hospital alive. Less severe cases that survive do not need hospitalization.

10) Please conduct regional analysis and present it instead of WHO region comparison
Please refer to response to the major compulsory revision # 2 above.

11) Use the word ‘unintentional’ instead of non-intentional

12) Result F6 - what is the difference between animal bites (32%) and being bitten by animal (8%)?
Changed to:
“Animal bite is injury from teeth of animals, and being beaten by animals is injury from their kick or horn. The sentence was completed as: “being beaten or struck by animals’ kicks or horns (8%).”

13) Result F7 - Please discuss why drowning is 4 times higher in Urban areas.
The authors talk about natural bodies as a risk factor for drowning. Then it should be rural areas and not urban areas. Need better reasoning.
Natural bodies of water are a risk factor for drowning and prevalent in rural areas more than in urban areas. Drowning cases frequently occur in shores of Caspian Sea in north of Iran during warm seasons and the victims are primarily urban residents. Deaths are categorized according to rural or urban place of residence. Therefore, drowning death cases are those who lived in urban areas and die at sea shores.

14) The authors need to discuss the issue of underreporting or poor surveillance for low burden in rural areas
We added discussion of limitations to the end of Discussion section:

“Under-registration of deaths in death registry systems tends to underestimate mortality level if not controlled for [8,9]. Our results underestimate mortality level since we did not control for it. We used time- and place-limited hospital sample registry for collecting hospitalization and outpatient data. Selection of time was designed to capture the events across the four seasons of the year 2005, so that the time-limited sample results can be generalized to the whole year time. Selection of place, i.e. choosing the provinces was done to include provinces with higher, middle, and lower socioeconomic and health development so that the results can be generalized to all the country provinces. Validity of our generalization of results from time and place limited sample depends on the suitability of the
design of times and places chosen to represent the whole year 2005 all over Iran. Moreover, capturing the outpatient care episodes in rural areas is more prone to underestimation than in urban areas. Trivial injuries managed at home without using any healthcare services were not included.”

15) Need to remove or rewrite sentences -
There is nothing wrong with children who get injured or die ..... The following sentences were replaced:
“Children who get injured or die in injuries do not have intrinsic traits that expose them to significantly more risk of getting injured or die because of injuries. The adult populations of the countries have the responsibility of providing safe environments for children. Children are not to be blamed, but adults are to be accountable in materializing children’s rights.”

16) Instead of table 6 - I suggest that the authors create a table to compare burden reported in ref 12 Shanechian et al, Ref 17 Akbari, Other government reports/sources to compare their results
Reference # 12 (Shanechian) contains death counts by cause and age in Tehran 1971. Reference # 17 (Akbari et al.) provides cause-specific death rates. These references or any other governmental reports / sources do not provide information on non-fatal outcomes of injuries. Therefore, estimation of injuries burden is not possible based on them.

We have dropped table 1 and table 6 to make the manuscript shorter according to comment # 1.

17) Table 1 - Not sure if it is needed for burden of injury paper. If want to keep please compress into 3/4 categories - Infectious, Chronic and injuries
We have dropped table 1 and table 6 to make the manuscript shorter according to comment # 1.

18) Figure 2 - need correct title and overlapping of bars is not necessary
Done.

19) Please have maximum 3 important tables and 4 figures
We have dropped table 1, table 6, and figures 4 and 5 to make the manuscript shorter.

Discretionary Revisions
1) 95% of injuries are unintentional should you only focus on unintentional?
We prefer not to intentionally drop the intentional injuries in children.

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Changes made by authors that were not requested by referees and their rationale:

We noticed the second sentence under the tile ‘Background’ (on page 2) did not refer whether death or disability was mean by ‘cause of’. The sentence was:

Road traffic injuries are the second leading cause in 5-14 years children [1].
Globally, injuries are the leading cause of death for 10-19 year old children, and among them, road transport injuries are the leading cause of death for 15-19 year olds and the second leading cause in 10-14 years children.