

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | A descriptive epidemiologic study on the patterns of occupational injuries in a coastal area and a mountain area in Southern China |
| <b>AUTHORS</b>             | Li, Liping, Liu, Xiaojian, Choi, Bernard C.K., Lu, Yaogui and Yu, Min  |

### VERSION 1 - REVIEW

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| <b>REVIEWER</b>        | William Pickett<br>Professor<br>Queen's University<br>Canada<br><br>I have no competing interests to declare. |
| <b>REVIEW RETURNED</b> | 20/04/2012  |

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| <b>RESULTS &amp; CONCLUSIONS</b> | <p>Thank you for the opportunity to review this scientific article from China that describes occupational injury in two regions, and compares occupational injury patterns in these two areas.</p> <p>The primary aim of this descriptive epidemiological study was to develop new information that could inform prevention initiatives. It is described as a cross-sectional study, but really this is a basic descriptive study of injury patterns in two different populations (although this point is not a big deal).</p> <p>The authors do a reasonable job of establishing the fact that occupational injuries are important worldwide, and China contributes substantially to this global burden.</p> <p>Surveillance studies such as this are important to the establishment of priorities for prevention. Yet, it was not clear to me upon first read why a comparison of the two regions of China could actually help in injury prevention efforts. I think there needs to be a more compelling argument, up front, as to what such a comparison could actually contribute and to what specific injury prevention efforts in occupational sectors. The arguments as presented are vague.</p> <p><b>Methods:</b><br/>While some quality control measures were put in place to promote accuracy in data collection, there is no quantitative information provided to describe the accuracy (e.g., reliability or validity) of the case reports, completion rates, and whether these varied between regions of the study or over time. If it exists, such information would be helpful for an informed reader to appreciate the qualities of this surveillance system. It would also be helpful to know the origins of the questions and their psychometric properties (if any are known), for the same reasons. They look familiar, and I suspect they were developed from an Australian or Canadian model.</p> |
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In terms of results:

While the age and gender comparisons are pretty standard, I'm not sure how they are helpful in terms of the planning of prevention programs. Surely they just reflect the demographic natures of the occupational workforces in the two regions. While it could indicate some sort of differential level of risk, that is hard to conclude in the absence of rates. We also know little about variations in opportunities to receive hospital-based emergency care in the two settings, and if this could account for some of the observed differences.

Similarly, with respect to the comparisons of the injury patterns by occupational type, size of community, and education of the injured person – on first glance it is not evident how knowing these differences helps in prevention efforts. I have the same comments on the severity and disposition of the injury cases between the two areas.

An obvious point here is that the presentation of rate information within demographic and occupational subgroups would be an important addition to this analysis. This might provide a better picture of the true risks experienced in the two groups. I imagine that such information is not available, but if it was, it would be helpful.

I would encourage the authors to be more selective in the presentation of figures (currently n=4) and tables (n=3). I'm not sure that we need figures to describe the obvious patterns by month, time of day, and day of the week. Their prose should suffice.

In reviewing the references at this point, I noticed that the authors had not adhered to standard instructions for their presentation. The information provided on mechanisms of injury is more interesting, and has some potential to direct prevention efforts. It would be nice to see these mechanisms broken down in much more detail to be of use to specific prevention activities. It would also be nice to see these mechanisms broken down for different population subgroups who may be vulnerable to injury (e.g., by age, gender, education level, industry type etc.), and perhaps by anatomical site and nature of injury, as well as severity.

In terms of the discussion:

The authors appear to be unaware of the standard approach to discussions in scientific manuscripts that I believe are promoted by BMJ and its family of journals. Their approach seems to be to repeat the major descriptive patterns that were observed, to cite evidence that others have found similar patterns, and then to inform the reader that more research is needed to figure out how to prevent such patterns. This is not very helpful. More evidence about exactly what to do in terms of prevention is needed from this piece, best informed by trials and other high levels of evidence.

Injury surveillance at its best identifies common and very specific patterns of serious injury that warrant attention by society. The better surveillance studies also provide direction for intervention through the presentation/analysis of highly specific patterns of injury occurrence and treatment, and then a careful analysis of preventive evidence surrounding those patterns. In fact, some of the best work in this area that I have seen is based upon investigators reading their records (including cases narratives) individually on a case-by-case basis, summarizing very specific, recurrent patterns from those

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|  | <p>reviews, and then using these data to point to priorities and possible countermeasures from experience or the literature. That is creative and helpful, and the authors appear to have the opportunity to do this with some further work. Less helpful research in this field are quick summaries of basic demographic and other very non-specific patterns from large databases, without insight into what is actually causing the patterns and what, exactly, needs to be addressed in order to fix any identified problems. General statements that the identification of basic patterns provide direction for prevention and its targeting are nice, but do not equip the injury prevention community with evidence about exact priorities and what to do about them. In the end, I think that the authors have some more work to do, identifying such specific and compelling patterns, to help the occupational workforce in their area.</p> |
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| <b>REVIEWER</b>        | A/Prof Tony Lower<br>Director - Australian Centre for Agricultural Health & Safety<br>University of Sydney<br>AUSTRALIA |
| <b>REVIEW RETURNED</b> | 30/04/2012  |

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| <b>THE STUDY</b>                 | <p>This is a straight forward descriptive study of occupational injuries in a geographical region which is steadily building the epidemiological information base on which to develop interventions. The results provided appear to reflect the underlying demographic and occupational contexts for the coastal and mountain areas, so are not unexpected. I think this needs to be stated more explicitly in the discussion, as effective intervention approaches already likely exist for many of the injuries observed.</p> <p>Some brief discussion on use of these data to inform interventions (has the data already been used to develop some approaches?) is also required. Additionally, it would be useful to assess if there are any other newer references in this area. Most of those used are from the early 2000's and there may well be more recent work to draw on.</p> |
| <b>RESULTS &amp; CONCLUSIONS</b> | <p>The paper needs to be tightened up. There are some good points made in the introduction but it is quite disjointed and lacks flow. Similarly, the discussion repeats many of the results and while comparisons with previous studies are provided, there is little discussion on the strengths and limitations of the study design. Addressing these issues would enhance the clarity of the findings.</p> <p>One would also naturally expect some seasonal variation (particularly in the mountain area) because of different agricultural production phases around harvest etc.</p>  |
| <b>REPORTING &amp; ETHICS</b>    | No ethics issues discussed  |
| <b>GENERAL COMMENTS</b>          | This descriptive study does provide some important baseline information for improving worker safety in China.   |

### VERSION 1 – AUTHOR RESPONSE

Reviewer: William Pickett (Canada)

1. The primary aim of this descriptive epidemiological study was to develop new information that could inform prevention initiatives. It is described as a cross-sectional study, but really this is a basic descriptive study of injury patterns in two different populations (although this point is not a big deal).

Answer: In the abstract we have changed the design of the study from “cross-sectional” to “descriptive epidemiologic”.

2. Surveillance studies such as this are important to the establishment of priorities for prevention. Yet, it was not clear to me upon first read why a comparison of the two regions of China could actually help in injury prevention efforts. I think there needs to be a more compelling argument, up front, as to what such a comparison could actually contribute and to what specific injury prevention efforts in occupational sectors. The arguments as presented are vague.

Answer: On page 4 last paragraph, we have added “The coastal and mountain areas were chosen for the study because they represent the two major types of economic development in China.”

3. Methods: While some quality control measures were put in place to promote accuracy in data collection, there is no quantitative information provided to describe the accuracy (e.g., reliability or validity) of the case reports, completion rates, and whether these varied between regions of the study or over time.

Answer: We have added a section on the limitations of the study (pages 11-12). We have included in the limitations, “Also, while some quality control measures were put in place to promote accuracy in data collection, no quantitative information was available in the surveillance system to describe the accuracy (reliability and validity) of the case reports or completion rates.” (page 12).

4. Results: While the age and gender comparisons are pretty standard, I’m not sure how they are helpful in terms of the planning of prevention programs ... Similarly, with respect to the comparisons of the injury patterns by occupational type, size of community, and education of the injured person – on first glance it is not evident how knowing these differences helps in prevention efforts. I have the same comments on the severity and disposition of the injury cases between the two areas.

Answer: We have a different view from this reviewer. We think that information on comparison of occupational injuries by age, gender, occupational type, size of community, education of the injured person, and severity and disposition of the injury cases, is important for the planning of prevention programs.

5. Results: An obvious point here is that the presentation of rate information within demographic and occupational subgroups would be an important addition to this analysis. This might provide a better picture of the true risks experienced in the two groups. I imagine that such information is not available, but if it was, it would be helpful.

Answer: We have included in the limitations, “Furthermore, presentation of rate information within demographic and occupational subgroups would be desirable, but this information was not available in the surveillance system.” (page 12).

Reviewer: A/Prof Tony Lower (Australia)

1. This is a straight forward descriptive study of occupational injuries in a geographical region which is steadily building the epidemiological information base on which to develop interventions. The results provided appear to reflect the underlying demographic and occupational contexts for the coastal and mountain areas, so are not unexpected. I think this needs to be stated more explicitly in the discussion, as effective intervention approaches already likely exist for many of the injuries observed.

Answer: In the discussion, we have added “Accumulation of descriptive studies of occupational

injuries like ours steadily builds the epidemiological information base on which to develop interventions. Effective intervention approaches may already exist for many of the injuries observed. Identification of the local geographic patterns of occupational injuries helps to import proven interventions from other similar geographic areas.” (page 12, paragraph 2).

2. The paper needs to be tightened up. There are some good points made in the introduction but it is quite disjointed and lacks flow. Similarly, the discussion repeats many of the results and while comparisons with previous studies are provided, there is little discussion on the strengths and limitations of the study design. Addressing these issues would enhance the clarity of the findings.

Answer: We have added a section on the limitations of the study (pages 11-12).

3. This descriptive study does provide some important baseline information for improving worker safety in China.

Answer: We have added “Our study does provide some important baseline information for improving worker safety in China.” (page 12, paragraph 2).

### VERSION 2 – REVIEW

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| <b>REVIEWER</b>        | A/Prof Tony Lower<br>Director Australian Centre for Agricultural Health & Safety<br>University of Sydney |
| <b>REVIEW RETURNED</b> | 10/05/2012   |

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| <b>RESULTS &amp; CONCLUSIONS</b> | There is a need to more comprehensively indicate the strengths of the study in the discussion. This has not been done. |
| <b>REPORTING &amp; ETHICS</b>    | It is unclear what the ethical requirements may be for China.  |
| <b>GENERAL COMMENTS</b>          | Issues around strengths of study need to be incorporated.  |

### VERSION 2 – AUTHOR RESPONSE

Reviewer: A/Prof Tony Lower (Australia)

1. There is a need to more comprehensively indicate the strengths of the study in the discussion. This has not been done. Issues around strengths of study need to be incorporated.

We have added a new paragraph on the strengths of the study (page 12, last paragraph) as follows: “China has seen rapid economic growth in recent decades, and the associated increase in occupational injuries. The main strength of our study is that it was the first in China to examine occupational injuries in a coastal area and a mountain area. The two areas were selected to represent the two major types of economies (industrial and agricultural) in China, so that our findings are likely to be relevant to other parts of China. Additionally, the study was a first attempt to utilize a routine administrative database (Hospital Injury Surveillance System) for the development of occupational injury prevention strategies. The database has built-in data quality control mechanisms.”

2. It is unclear what the ethical requirements may be for China.

See #2 above.