Reviewer’s report

Title: A comparison of licensed and un-licensed artisanal and small-scale gold miners (ASGM) in terms of socio-demographics, work profiles, and injury rates

Version: 2 Date: 17 Feb 2017

Reviewer: Douglas Myers

Reviewer's report:

I still have a few major concerns about this manuscript. Overall, it is not clear that the authors' Conclusions follow from their findings.

A main concern is the authors' focus on findings reported in Table 3. The authors have three statistically significant (a<0.05) findings. It seems to me that two of these (regarding number of episodes and experience) would likely become non-significant if they used information on work duration to report incidence rates which I believe they can do as they report rates in Tables 4 and 5. These associations seem likely confounded by employment duration (simply, time at risk). The authors did not explain why they did not report incidence rates in Table 3, as I asked in my first review.

In addition, as for the "number of injury episodes" variable, the authors seem to report total episodes rather than number of people who experienced the respective number of injury episodes. I believe they indicate there were 5 episodes in which 5 or more episodes occurred rather than reporting that 1 person had experienced 5 episodes over their work history during the study period. Individuals should be the unit of analysis here and I believe this result is therefore invalid (even setting aside any consideration of person-time).

The third significant finding in Table 3, regarding use of PPE during the injury event, seems rather trivial as it is not known if PPE 1) was called for by the task done while injured or 2) relevant to the injury (i.e., might have prevented it). More appropriate questions would have directly addressed the needs, availability, use and enforcement policies regarding PPE independent of injury experiences. The authors seem to use results of this question as a substitute for the more appropriate questions that could have been asked.

Concerns about the linking of injuries to the type of mine they worked in when the injury occurred remain. About 35% of the miners had worked in both licensed and non-licensed mines. The authors do not indicate whether they gathered injuries from the entire (up to) ten year history if this spanned mine types or if they restricted information on injuries to the current type of mining. Without more details pertaining to their survey, as I requested in my previous review, I cannot tell how things were done.
From the Discussion:

"Perhaps the most striking finding of the current study was the difference between the licensed and unlicensed miners with respect to their injury rates. The incidence proportion of injury was 17.3% for those working in a licensed mine versus 40.3% for those working in an un-licensed mine. Focusing strictly on the male miners, the injury rate ratio was approximately 1.5 when comparing individuals working in an un-licensed mine (6.1 injuries per 100 person years) versus a licensed mine (4.2 injuries per 100 person years)."

Here, again, the authors use incidence proportion without any stated justification for not using incidence rates. They follow that with incidence rates demonstrating that they apparently could use rates but chose not to. If there's a reason they did not use rates in Table 3, this was not explained. Also, it seems they report results restricted to males here because the overall association, including both genders, was not statistically "striking."

From the Conclusions:

"…first and foremost, small-scale miners are indistinguishable in their operations irrespective of their status (licensed or unlicensed)."

This, at a minimum would require a qualification: "…with respect to the variables gathered and the methods applied here…” or similar. To assert that the two types of mines are utterly indistinguishable in their operations based only on their data is a bit of a stretch. This however, is a relatively minor complaint about the conclusions.

"Thirdly, injury rates were significantly lower at licensed mining sites."

Frankly, I cannot identify any reported findings that support this statement. Overall injury incidence rates were not statistically lower. See comments above on Table 3, see Table 4.

"Finally, although the use of personal protective equipment was generally low among all small-scale miners, it was significantly lower among those working at unlicensed sites."

This claim also appears to be a stretch given their findings. They demonstrate that PPE was used less often at unlicensed mines when injury occurred. They did not report here the data needed to make such a statement that PPE use was lower overall at these sites. It's not hard to believe that PPE use would be lower among non-licensed mine operations. But the wording here has to be scaled back to avoid going beyond their study design and findings.
There are still many questions about the methodology that, at best, need clarification and, at worst, may undermine the conclusions, particularly those regarding differences in injury experience by type of mine.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

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