Reviewer's report

Title: High prevalence of HCV infection and associated risk factors in a Chinese population: a cross-sectional study

Version: 3 Date: 27 April 2015

Reviewer: Tim Walker

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This is a well-performed and interesting study describing investigation of the reasons for high HCV prevalence in a Chinese population with cultural practices involving needle-sharing that may have led to the high prevalence. The study question is interesting and well-defined. The methodology is sound and the results solid. However, the English needs significant revision as there are many grammatical errors throughout the text. The presentation of the statistics also needs revision, with p-values <0.001 being reported as such, not with E-numbers as currently. The discussion also contains several logical flaws and lacks any discussion of the limitations of the study.

- Major Compulsory Revisions

1. The study does not contain a detailed discussion of the limitations of the study methodology used. What biases might be expected from convenience sampling in this population? What are the limitations of relying upon self-reported risk factors? What data on potential confounding variables are missing?

2. Line 174-175: Where is the data that supports the conclusion that “The rate and geographical pattern of prevalence of antibodies to HCV in Fuyu and surrounding villages confirmed the risk factor (PCNBSS) in our study”? It appears that no data on geographical pattern were presented?

3. Line 201-205 The lack of association between ear piercing and tattooing and HCV in the multivariate analysis is ascribed to the fact that those so-exposed were young and female. How would this protect them from HCV? Is it proposed that the study was underpowered in this group to detect an increase in HCV? The logic here needs explanation.

4. Line 215-217 How would participants being unaware of their HCV status change their self-reported behaviours, with regard to a total population which presumably was also largely unaware of its HCV status?

5. Line 235-238 How does individual risk factors being common point to high HCV prevalence being due to PCNBSS? Why does the final conclusion recommend healthcare assurance quality measures when no mention has been made of them to this point, and how might they be expected to improve the situation? The logical flow in the conclusion generally seems flawed.

- Minor Essential Revisions

7. Abstract Line 41 (and many instances throughout paper). P-values <0.001 could just be reported as such, not reported exactly with E-numbers.

8. Line 61-63. This statement of the previous implication of PCNBSS as a risk factor for HCV needs a reference.

9. Line 136-137. HBV infection is reported as significantly associated with HCV positivity on bivariate analysis, but the confidence intervals cross 1 (0.60-1.02), suggesting it is in fact not significant. This needs revision.

10. Line 135 “occupation” is listed as associated with HCV positivity but it is not made clear in the text what occupations were associated with HCV (it is however clear in the table).

11. Multiple language errors, too numerous to mention here. Examples include “who’s” (line 36), “to be independently variables” (line 41), “got more strict regulations” (line 60), “elicit” (line 82), no verb in sentence on line 118 etc.

- Discretionary Revisions

12. Consider changing the title to include a reference to PCNBSS as the key risk factor in this population, or at least the fact that a novel risk factors has been found. Eg “High prevalence of HCV infection, associated with a novel risk factor, in a Chinese population: a cross-sectional survey.”

13. Consider rewording “teeth repair” to “prior dental surgery”.

14. More background on PCNBSS, and any prior research on its relationship to bloodborne virus exposure would add interest and value to the study.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests