Reviewer's report

Title: Determinants of suboptimal hepatitis B vaccine uptake among men in the Republic of Korea: Where should our efforts be focused? Results from a cross-sectional study

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Reviewer: Vivian Levy

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Determinants of suboptimal hepatitis B vaccine uptake among men in the Republic of Korea: Where should our efforts be focused? Results from a cross-sectional study

This manuscript focuses on the important public health problem of HBV infection in a country of high endemicity. Unfortunately, the paper has significant methodological shortcomings which limit its usefulness and contribution.

In the Background, the authors need to present clearer data on HBV population rates in Korea. The first and second sentence should list population (per 100,000 persons) rates of liver cancer and not absolute numbers.

The Background second paragraph states that “horizontal transmission of HBV is an important source of infection in HBV endemic areas” but horizontal transmission is exceedingly more common in pediatric populations. A stronger case needs to be made that vaccination is an important use of public health resources in older adults. What is the incidence of acute hepatitis B infections in Korean adults? Sexual transmission would be less likely in an older cohort such as this one where 93% of men are married. What is the prevalence of hepatitis B chronic infection in Korean adults. Importantly, this study did not collect biological specimens for hepatitis B surface antigen (to corroborate chronic infection) or hepatitis B surface antibody (to corroborate prior seroprotection). Given the presumed high prevalence of chronic HBV infection in Korea, biological screening with HBsAg and anti-HBs should have been done on all men prior to vaccination. Men who were chronically infected should have been linked to hepatoma screening and HBV treatment services.

In Methods section, more details are needed about recruitment. Was this a national, population based, probability sample or some other type of sample? In the Methods, first paragraph, sentence reference to exclusion of participants, the authors need to specify if all or any men were tested for HBsAg or anti-HBs as part of this study. If not, this needs to be highlighted as a significant limitation of this study.

Also in the Methods section, more information should be provided about where HBV vaccination was done? In local public health clinics, home visits? Specify exactly what type of HBV vaccine was given.
In Methods, section should clarify if polychotomous logistic regression refers to multivariate and if yes, use this term instead.

In Methods, the term “private insurance for cancer” is not clear. Does this mean vaccination, cancer treatment or both are covered? This term needs to be better defined.

In Results, fourth paragraph, the main reason given for not being vaccinated is “not knowing the necessity of HBV vaccination.” Was there any education of participants regarding utility of vaccination? If yes, this should be specified in Methods and exactly what education was offered. If not, this should be clearly stated in the Methods section as well.

In Discussion, second to last chapter on limitations, one of the major limitations of this study is that biological markers were not collected prior to vaccination. I would cite studies which show self report of vaccination status is not reliable. An example is: Drug Alcohol Rev. 2009 Nov;28(6):669-75. Poor criterion validity of self-reported hepatitis B infection and vaccination status among injecting drug users: a review.

Topp L, Day C, Dore GJ, Maher L.

In Conclusion section, the first sentence states “horizontal transmission is one of the main routes of transmission in endemic areas” There is extensive literature that horizontal and vertical transmission is important in pediatric populations in Asia, a more convincing case needs to be made that this is true for predominantly heterosexual Korean men.”

Figure 1 should be renamed, “Vaccination series completion of hepatitis B virus vaccination…”

Table 1, for the variable area of residence” the difference between Metropolitan and Urban should be specified. “Private insurance for cancer” variable should be defined in Methods.

Table 2. “Complete vaccination” and “Incomplete vaccination” should be top terms in columns.

Minor essential revisions

In Methods, first paragraph, sentence “Among the 2,441 men…” Recommend remove the word “antibody” after “hepatitis C” and simply refer to as “hepatitis C chronically infected.” Sentence that follows should include the word “surface” before antibodies: “ We further excluded 52 men…presence of hepatitis B surface antibodies before vaccination,…”

In Discussion, first paragraph and throughout, would use terms “higher income” and “higher education” instead of “monthly individual income” or “duration of education”

**Level of interest:** An article of limited interest
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