Author's response to reviews

Title: Knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Disease (CASHD) among a population in India

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Version: 3 Date: 6 October 2008

Author's response to reviews: see over
September 17, 2008
Editor, International Health and Human Rights

Dear Editor,

It is a pleasure to submit our paper titled “Knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Disease (CASHD) among a population in India” to the Journal.

We believe this investigation is significant as it quantifies previously unmeasured knowledge gaps of modifiable risk factors of coronary atherosclerotic heart disease in an urban Indian population. Also, there is analytical isolation of specific demographic segments that exhibit poorest levels of knowledge. Such an investigation provides crucial framework for effectively implementing education based preventive strategies to reduce the growing burden of cardiovascular disease in India.

The Journal, with its open access policy, is a perfect vehicle for this work to reach a vast array of general practitioners, Cardiologists and policy makers deep within India and other developing nations.

We should point out that this is a repeat submission of our manuscript, which is now drastically changed to answer all of the concerns that were initially raised by reviewers. Furthermore, this cover letter addresses below all the changes made in response to the reviewer’s comments in a point by point manner.

We eagerly await your favorable decision.

Sincerely,

Melvin Ku, M.S.
Michigan State University
East Lansing, MI USA
Responses to reviewers’ comments

Reviewer number one

Reviewer's report
Title: Knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Disease (CASHD) among the population in India
Version: 1 Date: 19 April 2008
Reviewer: Viswanathan Mohan

Reviewer's report:
This article reports on the knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Diseases (CASHD) among out patients attending a teaching institution in Delhi. There are several issues which needs to be addressed are given below:

1. The data is collected from a tertiary hospital and hence not applicable to the general population.

   We agree with this statement and the paper no longer extrapolates findings from the study population to the entire Indian population. This is stated clearly in the discussion as follows: “Also, demographics of the study participants might not be reflective of the general Indian population. For example, the sample was predominantly male and with a greater level of education than present in the entire country. Thus, extraction of findings to the entire Indian population can not be reliably done here.”

2. There seems to be a definite referral bias in the subjects studied. For eg., the prevalence of self reported diabetes is 1% whereas that of known myocardial infarction is 7%. The usual prevalence of self reported diabetes, even in rural areas of India is higher than this while the prevalence of known MI would be considerably lower than this. This suggests that a highly selected population has been studied which vitiates detritus the results of the study.

   We do agree that the reported prevalence of Diabetes and myocardial infarction is lower than would be expected and this could appear as a selection bias. However, we must argue that all participants were approached at random and included in the study if they met inclusion criteria stated in the methods section. Our study population, is younger, healthier and more educated than the Indian population at large. Which could account for significantly lower number of DM and MI here.

3. The gender bias could also affect the results.

   Yes, gender bias can affect results, however the adjusted adds ratio control for the higher numbers of males in our study group.

4. Table 2 is unnecessary.
Table 2 is a bit redundant, but we feel that it is necessary to drive home a major finding of the study.

5. Table 3: It is surprising that the authors have done detailed statistical analysis with one case of known diabetes.

We agree with this criticism and logistic regression analysis have been repeated without inclusion of the one reported case of DM.

6. The other major limitation relates to small numbers of subjects studied. When stratified into different groups, the numbers become extremely small and therefore the results are not reliable.

Yes, our study population numbers are relatively small and when stratified into specific groups, these number become even smaller. Thus, further analysis of very small groups is not done, as explained in response to questions 5 above. However, for the stratified groups that are analyzed, the logistic regression analysis does take these smaller numbers into account as evident by the large confidence intervals and the resultant significance of groups is statistically appropriate. We have stated this limitation in the discussion section but it should be emphasized that this study has more value as a pilot project to practically evaluate local third world populations at risk for prevalent diseases. As far as reliability, this would certainly increase if a larger population was studied, which can be done in later studies.

7. The title says knowledge of modifiable risk factors among the population in India. This is neither a population based study nor a study covering the whole of India but a tertiary hospital in one city of India. Hence the title is misleading.

We, have changed the title to read Knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Disease (CASHD) among a population in India. Now the title is no longer misleading and findings are kept in perspective to the studied population.

**Reviewer number 2**

**Title:** Knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Disease (CASHD) among the population in India  
**Version:** 1  
**Date:** 21 April 2008  
**Reviewer:** Julie J Zerwic

**Reviewer's report:**

1) The importance of identifying the current knowledge of modifiable risk factors for coronary atherosclerotic heart disease is clearly emphasized with the predictions of India becoming the MI capital of the world by 2020, along with the current rates of heart disease. The results from this study offer insight into where
interventions need to be focused to have the most impact on increasing knowledge of risk factors for CASHD.

The authors focus throughout the paper on “modifiable” risk factors but were subjects asked to identify “modifiable” risk factors or just “risk factors”?

The participants were asked specifically to mark “modifiable” risk factors of coronary atherosclerotic heart disease. This is stated in the methods section as follows: “Before filling out the survey, participants were instructed to only mark “yes” for modifiable risk factors that they felt definitely contribute to CASHD or mark ‘no’ if it does not contribute to CASHD; otherwise participants were instructed to mark ‘not sure’ if they felt uncertain of the risk factor’s effect on CASHD.”

Further appendix #1 shows the actual survey which reads as flows “Which of the following are modifiable risk factors contributing to a heart attack.” Thereby clearly instructing participants to mark modifiable risk factors.

2) Title: change “…among the population in India”, be more specific or state “…among a population in India”

We have changed the title and its reads as follows: “Knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Disease (CASHD) among a population in India”

3) The second sentence in the abstract is not clear. Is it that the “public” (researchers/health care providers) are not sure what knowledge the public has or is it that the public does not know what the risk factors are?

This sentence is now changed to the following: “Public knowledge of such risk factors among the urban Indian population is largely unknown.” This emphasizes that public’s knowledge of risk factors associate with CASHD is unknown.

4) Remove reference to trends.

Many references to trends are removed but some still left to preserve credibility.

5) The authors should mention the statistical incidence of CASHD in India and in the urban setting and how it increased in the last 5 or 10 years in order to show the evidence of CASHD.

We now state the incidence of CASHD in urban India as follow: “Prevalence of coronary artery disease and coronary risk factors in rural and urban populations of north India. Specifically, according to Singh et. al., the prevalence of CASHD is nine percent in urban areas compared to three percent in rural ones. Further details of trends can be found the following listed references eleven and twelve.

6) Reference the statement about the WHO and the ICMR prediction of India
being the MI capital of the world by 2020.

This is now cited with reference number 4.

7) Remove “and” from “risk factors to CASHD and is an important step”.

This grammatical error is now corrected as reads as follows: “Knowledge of predisposing risk factors to CASHD is an important step in the modification of lifestyle behaviors conducive to optimal cardiovascular health in developing countries

8) Is ‘cardiovascular health modifiers” the same as risk factors? Avoid the use of different words to describe one variable.

Yes. The phrase “cardiovascular health modifiers” is changed to modifiable risk factors to avoid confusion.

9) Remove “of” from “of knowledge of modifiable…” Given the similarity of the countries a little more information about the results of the Pakistan study should be provided.

This grammatical error is corrected and the sentence reads as follows: “A lack of cardiovascular health knowledge in a population in neighboring Pakistan is demonstrated by a study conducted in Karachi, which reported limited knowledge on modifiable risk factors of heart disease in patients that have experienced an acute myocardial infarction.”

Although both countries are similar, we feel that going into the results of the Pakistani study could detract from our aim here, as this paper is not a comparative analysis between two nations. If one is interested in the results of that paper reference number 10 is provided.

10) Combine the first two sentences in this paragraph.
11) Change “…there are no measures…” to “…there are no studies…”
12) Change “These” to “The five modifiable”
13) Remove “plethora of”.

All of the above four grammatical changes are now corrected.

14) Further description in this [methods] section should include information about how many subjects were patients and how many were family members. The average age seems quite young given these individuals were accessed in a hospital.

Unfortunately, we did not collect information regarding a participant’s status as a patient or a family member. Yes, also to our surprise, the average age of participant’s is relatively young even though the participants were approached at random.

15) Is the questionnaire been used before? Where did the questions come
from? Who developed them, the researchers from this study? If the questions were developed specifically for this study, how were questions chosen or identified as risk factors, modifiable risk factors or non-associated risk factors? How many total items were included? Has the survey been tested for validity or reliability? Give a description of how the questions are asked and how respondents must answer. Did participants answer yes, no, or not sure to each question? The line stating “before filling out the survey.....instructed to only mark ‘yes’ for risk factors...otherwise mark ‘not sure’” is a little misleading allowing the reader to think these were the only two options given.

Our questionnaire tool is not a previously validated tool. However, the following explanation as written in the discussion section explains its valid usage here: “the survey questionnaire used in this study was not rigorously validated prior to administration. However, it is reliable as each of the correctly identifiable risk factors is proven to cause CASHD. Moreover, each risk factor serves as an independent knowledge domain since its identification is not influenced by other questions.”

As far as the explanation of the administration of the study tool to the participants this is now clearly delineated in the methods section as follows: “Before filling out the survey, participants were instructed to only mark “yes” for modifiable risk factors that they felt definitely contribute to CASHD or mark “no” if it does not contribute to CASHD; otherwise participants were instructed to mark “not sure” if they felt uncertain of the risk factor’s effect on CASHD.”

16) Are the “…five clearly known to cause CASHD” the modifiable risk factors? If so, this needs to be clearly stated.

Yes, the five modifiable risk factors namely are smoking, hypertension, high cholesterol levels, DM and obesity are clearly known to cause CASHD. This is stated in the methods section as follows, “Out of the ten modifiable risk factors listed in the survey, five are clearly known to cause CASHD.”

17) Further explain why the other study that used grouping of knowledge levels to determine poor or good level of knowledge is relevant to this study. Also, why was three chosen as the determining number for knowledge level?

Knowledge grouping levels are used to segregate participants into groups with differing levels of knowledge. Here, we use identification of three modifiable risk factors as a segregating point because it is the midpoint in the total (five) number of risk factors. This boundary is arbitrary.

18) Did any participants identify non-associated risk factors as risk factors for CASHD?

Yes, these are the number of incorrect responses.
19) How did you know that these were confounded with knowledge?

This is in reference to previous diagnosis of hypertension or myocardial infarction. If an individual has these diagnosis than there knowledge of modifiable risk factors would be higher than the overall studied population as that individual would have had more discussion about risk factors of CASHD with their physicians. Thus, our analysis controls for these confounding variable.

20) Change “On” to Upon further analysis.
21) At the end of the sentence before [12] change “it” to cigarette use.
22) Change “showing success” to successfully.

The grammatical changes suggested in numbers 20 –22 have all been made.

23) Include statistical findings when discussing results such as smoking status related to knowledge level.

These statistical findings are now included in the discussion and read as follows: One particular area of interest is knowledge of cigarette smoking as a modifiable risk factor for CASHD. Importantly, 67.7% of participants correctly identified smoking cigarettes as a modifiable risk factor of CASHD. Damages of smoking even surpass CASHD as recent evidence suggests that nearly 20% of male premature deaths in India are related to cigarette use.”

24) Change “making” to educating the masses, delete “aware”, change “its” to cigarette smoking’s.

The grammatical change suggested in number 24 has been made.

25) Be careful with generalizing findings to the public-“This reflects poor knowledge of this risk factor on the part of the public”. This sentence should be rephrased.

The sentence is rephrased as follows: “This reflects poor knowledge of this modifiable risk factor on the part of the studied population.”

26) The statement about findings in tune with previous studies regarding low level of awareness of DM should be clarified. Can we really determine a participant’s knowledge about DM by assessing DM as a risk factor for CASHD? This may not be what you are trying to indicate by that statement. It would help to include more about the previous studies that have found adult Indians have a low level of awareness about regarding DM (i.e. DM as a risk factor for other diseases including heart disease). This idea is made a little clearer on page 10.
lines 3-5 by connecting the impact of DM on CASHD.

We agree that knowledge of DM as a risk factor for CASHD is not the same as sole knowledge of DM. Here we are only interested in the former, as the knowledge of the linkage of DM the CASHD is very limited in our study population.

27) Delete the sentence, “Stronger emphases…” since it does not relate to the findings of this study.

This sentence is now deleted.

28) Include statistical findings for exercise and smoking status associated with poor knowledge level.

These findings are included in the table 3.

29) Additional limitations:
- Could translation have been an issue reflected in the results?

Lengthy efforts were undertaken to make sure surveys were translated accurately and this is stated in the methods section as follow: “Translations in Hindi were thoroughly checked by bilingual speakers to assure that questions intentionally worded as negatives remained appropriately meaningful. Furthermore, individuals who spoke only Hindi verified correct impression and idiomatic meaning of each question to the research team prior to survey administration.”

But despite our best efforts it is possible that accuracy of the data could be effected by mistranslation, but this would be difficult to quantify.

30) 400/day influx of patients in an emergency room could have increased measurement error, how was this issue addressed to attempt to reduce environmental influences?

Yes, a high influx of participants increases measurement error. To avoid or minimize this we conducted the study in a relatively short time (one week). Also, participants were chosen from the same area for the entirety of the study to minimize environmental alterations.

31) Questionnaires were also given to patients, do you think there may have been barriers preventing participants from answering questions accurately, such as pain or other illnesses?

This is a very valid concern. Those patient’s with afflictions that limited their ability to answer a survey were not chosen as participants. This is stated in the methods section a follows: “any participant who felt that their afflicted would make it difficult to respond to a survey was not included.”
32) Conclusion: Any suggestions for future research?

Yes, these are made in the discussion as read as follows: “This investigation can serve as a pilot for further studies designed to evaluate knowledge of cardiovascular disease and isolate key demographic segments to effectively target educational strategies in a local population.”

33) Figure 1 Delete since it does not add any information.

Although figure one is a bit redundant it does provide a quick visual representation of our findings and we have chosen to include it.

Reviewer number 3

Title: Knowledge of modifiable risk factors of Coronary Atherosclerotic Heart Disease (CASHD) among the population in India
Version: 1 Date: 2 May 2008
Reviewer: Alexander M Clark
Reviewer’s report:

1) The study is small and contains a population that is very unrepresentative of the wider and very large Indian population. These weaknesses are acknowledged briefly at the end of the manuscript but do not prevent the authors from generalizing from this small sample of literate and highly educated people to the rest of the Indian population. This is very unconvincing. I would suggest packaging up the paper more as a pilot study that might be used to shape and develop further surveys. The study was simply not large enough or sufficiently broad in terms of population studied to be general sable.

We completely agree with this assessment and now the paper is presented as a pilot project without any generalizations to the entire Indian population. This is further stated as follows in the discussion section: “Another limitation here is that our sample population was relatively small in numbers, as evident by several large confidence intervals. Also, demographics of the study participants might not be reflective of the general Indian population. For example, the sample was predominantly male and with a greater level of education than present in the entire country. Thus, extraction of findings to the entire Indian population can not be reliably done here. However, this investigation can serve as a pilot for further studies designed to evaluate knowledge of cardiovascular disease and isolate key demographic segments to effectively target educational strategies in a local population.”

2) It is not clear how many people were excluded from those approached based on the exclusion criteria. For example, not all attendees at the ER would have been able to read or understand Hindi. How many were excluded based on this
A total of 238 participants were initially approached but 21 were excluded. Of these 21 excluded participants, 15 did not consent and 6 did not meet inclusion criteria. This is stated in the methods sections.