Author’s response to reviews

Title: Effect of health education on severe thalassemia prevention and control in communities in Cambodia

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Effect of health education on severe thalassemia prevention and control in communities in Phnom Penh, Cambodia

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Archives of Public Health

Dear Editor,

I would like to thank you and the reviewers very much for your all kind concerns and giving me comments and suggestions in critical points. I have already answered and changed as per your comments and suggestions as the following. Hope to hear the good news from you soon.

Very best regards,

Arunee Jetsrisuparb, MD
Answer to the Reviewers:

Reviewer #1:

I have only one comment for a very small modification. The quality of the English is excellent but there is one sentence which uses a word in an unclear manner. The top of page 6 line 2-3 says "There has never been a severe thalassemia prevention protocol...."

The word severe is not correct. The authors mean, possibly, "serious" or "significant" but severe is not the proper word as it has a negative connotation which is not correct in this context.

Other than that I have no comments for revisions.

Answer: We have changed the sentence as per reviewer 1’s recommendation and added into line 2 of page 6 and also added in the abstract.

There has, moreover, never been a significant program for prevention or control of severe thalassemia in Cambodia; so, we assumed cross-contamination between groups would be minimal.

Reviewer #2:

1. How long after the educational intervention the case group filled the questionnaire? And what was the rationale behind selecting this time interval?

Answer: As the following, we added it into the text (10th line, Page7).

In the intervention groups, we gave the second questionnaire just after the health education finished. The rationale for this interval was that their acquired knowledge of thalassemia and attitude towards prevention and control of severe thalassemia were the result of the intervention that we provided and was not due to any contamination from other means including more time to study.

For more concern in this, we also added the following in the last part of page 6.

The field study was run over three consecutive days to avoid any potential cross-contamination between groups.
2. In knowledge and attitude studies, it is critically important to evaluate validity and reliability of questionnaire before conducting the main study. Why did you use Richardson test to evaluate the reliability? What was the sample size for the reliability study? Regarding the type of questionnaire it seems to be necessary to consult with professors in the field of health education. In the reliability study, what was the time interval between filling the primary questionnaire and the main one? Were participants of the reliability study included in to the main study?

Answer:

a. We used Kuder and Richardson Formula 21 test to evaluate the reliability test in the evaluation of attitude part which there was only 2 answers “agree or disagree”. The reliability test was done by 26 participants who lived in Samaki community in Toul Kork Khan, Phnom Penh, Cambodia and were not the participants in the main study, before using it as the tool (we expected before the real situation to test in 30 participants). The interval between the reliability test and the main study was around 2 months.

We added more information into the text to make it clear between page7 and 8 before the participants.

Individuals were interviewed using a questionnaire to gather information about their knowledge and attitude toward severe thalassemia prevention and control. The questionnaire developed by Jopang et al. [13] for participants between 18 and 40 was translated into Khmer by a certified organization and validated by 1 doctor and 3 nurses. A reliability test for the attitude towards severe thalassemia prevention and control—which had only 2 answers (agree or disagree)—was performed on 26 participants before using it as the tool (P= 0.76 by Kuder and Richardson Formula 21) [14]. The 26 participants (i.e., 4 less than we expected) lived in Samaki community in Toul Kork Khan, Phnom Penh, Cambodia and were not participants in the main study. The interval between the reliability test and the main study was around 2 months.

b. In the part of knowledge of thalassemia, the questionnaire assessing knowledge of thalassemia through multiple choice answers were validated by a doctor and 3 nurses who have been working in the field of thalassemia and have experiences in health education and genetic counseling of thalassemia.
c. The present study followed Jopang’s study for a PhD candidate because there are several factors in this part of Thailand (north eastern) and Cambodia being similar such as the way of life, socioeconomic status, culture and belief. In Jopang’s study, there were a professor in epidemiology, a professor in public health, a professor in medical associated sciences for thalassemia and a professor in pediatric hematology specialized in thalassemia having experiences in health education and genetic counseling, involved with Jopang’s study. Therefore, the questionnaire of knowledge of thalassemia had been validated and the attitude part was test with Kuder and Richardson reliability test by 30 participants who were not included in the main study. We used Jopang’s questionnaire with permission. The questionnaire were translated into English and then into Khmer by a certified organization and then validated again by a doctor and 3 nurses as mentioned.

d. The ultimate outcome for evaluating of knowledge and attitude towards the prevention and control of severe thalassemia was the number of the participants who considered in having a blood test for thalassemia. That was the hard outcome to confirm the effect of health education on severe thalassemia prevention and control of the present study.

3. Sample size need more consideration.

Regarding the little sample size and many job stratifications, the number of cases and controls in each job stratum tend to be low. It results in erroneous results of the study. It seems to be favorable to integrate some job strata.

Answer: We integrated agricultures and labor into the same group, as these participants’ jobs were quite similar. The p-value was also rechecked. (Change in table 1 was done.)

4. Study participants were 18-40 years of age. Since 18 year old people have at last high school degree and on the other side of spectrum people with 40 years of are more likely to have academic degrees, level of education is also an important variable in knowledge and attitude studies. May be low sample size of study resulted in insignificant result in this domain, however this was not discussed in the discussion.

Answer: We also added this discussion into the last part of page 12.
The present study’s participants were between 18 and 40 years of age. Since 18-year-olds normally have a high school education and 40-year-olds are more likely to have a higher academic degree, these education realities we thought would have an impact on knowledge and attitude. In fact, the level of education in the present study was not a significant factor perhaps because of the small sample size or the older participants had never had opportunity to study due to the political conflict in Cambodia [11].

We added more discussion on age and education including in the discussion of factors in table 9, in page 13.

Table 9, age and education level should, nevertheless, be considered as potentially contributing factors whenever health education in thalassemia is provided.

5. In the "statistical analyses" it was mentioned that multivariate logistic regression model was used, however tables illustrated nothing related to this model. What were criteria for including variables into multivariate logistic regression model, if this model was used?

Answer: The criteria for including variables into multivariate logistic model were the variables that had p-value < 0.25 from univariate logistic model. (Some reference advises to use p-value < 0.2 and include other factors that we think those are significant to be performed multivariate analysis, and some recommends p-value < 0.25. Therefore, we selected the factors in which p-value < 0.25.) After multivariate analysis was done, we selected the factor having p-value < 0.05 as the significant factor. We demonstrated these in table 8 and 9. We also discussed more concerning the wide 95% CIs of the result might cause from low sample size. And we discussed on the significant and non-significant factors in the first part of page 13.

Factors affecting participation in blood testing in the intervention group are presented in Table 9. Despite having a significant effect (p-value < 0.05), the 95% CIs were wide, reflecting our small sample size. The factors in Table 9, age and education level should, nevertheless, be considered as potentially contributing factors whenever health education in thalassemia is provided. The other factors did not result in any significant difference vis-à-vis consideration of blood testing but should not be discounted until a study with a larger sample size is conducted.
6. Direct questions to evaluate the level of income may result in information bias. In order to evaluate socioeconomic status, it seems to be more appropriate to integrate several economic indexes and use concentration index.

Answer: We agree to your comment and we had a limitation in this. As we reviewed the large-scale studies usually use economic index/or concentration index, we therefore add the rationale in the limitation, the first part of page 15.

Concerning socioeconomic status, direct questions for evaluating the level of income may result in information bias. In order to evaluate this factor, an economic index and concentration index should lead to a more accurate evaluation of socioeconomic status. The economic index—a statistical measure of changes in a representative group of individual data points—may be derived from any number of sources, including company performance, prices, productivity, and employment. The concentration index is a frequently used indicator of socioeconomic inequality of health. We, however, used a less complicated means for evaluation because ours was not a large-scale study; thus, we evaluated occupation, income, and self-evaluation of their economic status as in Jopang’s study of northeastern Thailand

7. Reporting only p-value for univariate analysis is inappropriate. It is necessary to report odds ratio (OR) and confidence interval (CI) in addition to the p-value for each variable.

Answer: We have changed this as per your comment in Table 7.

8. Some variables in table 2 have low frequency. Including these variables in to analysis results in erroneous results. Some variables in table 2 have low frequency.

Answer: We combined some variables which were quite similar into the same groups and made changes in table 2. We rearranged the right to health coverage and means of hearing about thalassemia.
9. In table 7, it is necessary to report OR and discuss the results according to that.

Answer: We reported OR, 95% CI in table 7 and added this in the result part (last paragraph).

The proportion of participants willing to have a blood test in the intervention group was significantly higher than in the control group. Among the 124 participants in the intervention group, 105 (84.7%) agreed to do blood screening compared to 65 (55.6%) in the control group (p-value <0.001) with an odds ratio (OR) of 4.3 (95% CI, 2.4 to 7.9). (Table 7).

We also discussed this as per your suggestion in the first part of page 13.

The odds ratio presented in Table 7 demonstrates that the probability of participants’ health education in the intervention group considering getting a blood test for thalassemia was 4.34 times that of the control group.