PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	What is the extent of COVID-19 vaccine hesitancy in Bangladesh? A cross-sectional rapid national survey
AUTHORS	Ali, Mohammad; Hossain, Ahmed

VERSION 1 – REVIEW

REVIEWER	Yeoh, EK Chinese University of Hong Kong
REVIEW RETURNED	15-Mar-2021

GENERAL COMMENTS	Comments for the part of the manuscript regrading vaccine hesitancy in Bangladesh 1. Page 2, line 46, Abstract. It should not be “multilevel logistic regression” according to the main text, which says the authors used a “multiple logistic regression”. 2. In Method section, there is no sampling strategies and how the data were collected, which make it difficult to assess the sample representativeness and the appropriateness of analytical methods. 3. In Page 8, paragraph “Univariate analysis”, the authors should report the vaccine hesitancy rates of different subgroup of the participants as well as the P values in the text. 4. Some variables listed in Page 22-23, Table 2 are very similar. For example, “Perceived likelihood of getting infected in the next 1 year” and “Level of concern about getting infected in the next 1 year”. I would suggest the authors to explain why including these variables at the same time, and they should perform a test for multicollinearity of the independent variables used in multiple logistic regression. 5. In Page 22-23, Table 2, the authors need to explain why they use “Which developers’ vaccine would you prefer” as independent variable of multiple logistic regression and what implications can be found in its result, as it is natural that those who report preference for any vaccine developer (compared with “no idea”) are more willing to accept the COVID-19.

REVIEWER	O'Malley, Patricia

	Premier Health System Support- Nursing Research, Nursing Research
REVIEW RETURNED	25-May-2021

GENERAL COMMENTS	The reviewer provided a marked copy with additional comments. Please contact the publisher for full details.

REVIEWER	Lavoie, Kim Montreal Behavioural Medicine Centre, Psychology, UQAM
REVIEW RETURNED	28-May-2021

GENERAL COMMENTS	Summary This was a study that conducted a nationally representative cross-sectional survey to assess COVID-19 vaccine intentions and predictors of vaccine hesitancy among 1134 adults 18 and over in Bangladesh. Main findings were that 32.5% of respondents showed vaccine hesitancy (defined as being not likely or definitely not going to get the COVID-19 vaccine). Hesitancy was higher among men, those over age 60, those who were unemployed, from low-income families, living in central Bangladesh, living in rented homes, smokers, those without a chronic condition, and those who were politically affiliated with the opposition party. Hesitancy was also higher in those who doubted the vaccine's efficacy. Multivariate analyses revealed that there was a higher odds of hesitancy if respondents were transgender, married, healthy (no chronic condition), affiliated with the opposition party, doubted vaccine efficacy, and had low COVID-19 risk perceptions (re: themselves or family members getting infected). The authors concluded that communication efforts in Bangladesh should target those with these profiles to increase vaccine acceptance. Strengths 1. This was a timely study in the context of the COVID-19 pandemic and the importance of optimizing vaccine acceptance around the globe to reduce pandemic morbidity and mortality. 2. This appears to the first study to assess vaccine intentions/hesitancy in a Bangladesh population, where relatively little is known about vaccine intentions in LMIC's. 3. The survey assessed a range of sociodemographic variables, as well as some important psychological variables (eg, risk perception). 4. Statistical analyses were generally appropriate and well conducted. Weaknesses Despite several strengths, this study could be strengthened by addressing the following questions: 1. Could the authors discuss the qualifications and training of the interviewers, and discuss how face-to-face interviews may have biased some responses relative to anonymous surveys. 2. In the introduction (page 5), the authors justified the focus on respondents from Bangladesh, and put forth a set of hypotheses that we would have expected to be tested during the study. For example, they stated that since Bangladesh did not participate in any COVID-19 trials, there was a lack of awareness of the impact of vaccines in this population, which may increase hesitancy to get the COVID-19 vaccine relative to others. However, they did not

	seem to assess awareness of the impact of vaccines or the comparative hesitancy rates between COVID vaccines and others. The study objectives listed on page 5 seem totally disconnected from these points, please clarify. 3. Vaccine attitudes are often influenced by both the epidemiology of the virus and the availability of vaccines at the time; this study was conducted at the end of January 2021, but the authors did not discuss the context of the pandemic or vaccine campaign at the time. This will be crucial to interpret vaccine attitudes and so the authors are encouraged to present this information and discuss their findings in this context. 4. One important problem with the question on vaccine intentions is that is asks about willingness to get a vaccine that 'would prevent coronavirus infection' – however, the data available at the time would suggest that COVID-19 vaccines did not prevent infection, just severe disease. So one of my main concerns with the assessment of hesitancy is that it is asking about attitudes towards a vaccine that prevents infection (like most traditional vaccines) when in this case, COVID vaccines did not. The authors are encouraged to address this potential problem in their discussion. 5. On page 8, it is easier to interpret the results if they present descriptives as present (tobacco smokers) rather than non-users or not having a chronic condition. 6. One of the most interesting findings were those related to low risk perception as being related to increase hesitancy, yet the authors did not discuss this at all in their discussion. This is seen as an important missed opportunity and limitation of the study as presented. 7. There were several limitations that were not acknowledged, including the failure to provide any details about the interviewers (qualifications, training), interview fidelity, and the fact that the sample was likely not representative if it was nearly 60% male. 8. Please add details about the interview/survey: how long was it designed to be, how long did it take on average? 9. There were no details provided on how respondents were recruited (from where? How many were approached vs refused etc). This should be added.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Comment# 1. Page 2, line 46, Abstract. It should not be "multilevel logistic regression" according to the main text, which says the authors used a "multiple logistic regression".

Response

Reply # 1. Dear reviewer, thank you very much for the correction. The word "multilevel" has been replaced by "multiple."

Comment# 2. In Method section, there is no sampling strategies and how the data were collected, which make it difficult to assess the sample representativeness and the appropriateness of analytical methods.

Response

Reply # 2. Thank you very much for raising this important issue. Bangladeshi people aged 18 and above were randomly invited in for a face-to-face interview. We have revised the “Design and Participants” paragraph and added an additional paragraphs entitled “Recruitment and training of data collectors” and “Data cllection” in the Methods section of the manuscript.

Comment# 3. In Page 8, paragraph “Univariate analysis”, the authors should report the vaccine hesitancy rates of different subgroup of the participants as well as the P values in the text.

Response

Reply # 3. We have changed the name of the paragraph from “Univariate analysis” to “Descriptive Analysis.” We have also reported the highest vaccine hesitancy rates with the corresponding p values.

Comment# 4. Some variables listed in Page 22-23, Table 2 are very similar. For example, “Perceived likelihood of getting infected in the next 1 year” and “Level of concern about getting infected in the next 1 year”. I would suggest the authors to explain why including these variables at the same time, and they should perform a test for multicollinearity of the independent variables used in multiple logistic regression.

Response

Reply # 4. Thank you for asking for clarification. In our society, some people do not believe in the existence of COVID-19. Conversely, some are not concerned about getting infected. From the first question, “Perceived likelihood of getting infected in the next year,” we identified the participants who think they might be infected by the coronavirus. In contrast, from the question, “Level of concern about getting infected in the next year,” we measured the concern about getting infected. Furthermore, each questionnaire had different answers. Finally, these questionnaires had been previously used and validated. We have included a reference regarding hesitancy and perceived COVID-19 risk questionnaire. Please find the reference in the questionnaire subsection of the methods section.

A multicollinearity test has been done including the independent variables used in multiple logistic regression. Tolerance, Variance Inflation Factor (VIF), and Condition Index values suggested that no multicollinearity was found in the model. We added these results in Supplementary file 2.

Comment# 5. In Page 22-23, Table 2, the authors need to explain why they use “Which developers’ vaccine would you prefer” as independent variable of multiple logistic regression and what implications can be found in its result, as it is natural that those who report preference for any vaccine developer (compared with “no idea”) are more willing to accept the COVID-19.

Response

Reply # 5. There are 15 COVID-19 vaccines from different countries or companies that have been approved or authorized for use in different countries worldwide. Evidence (https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html) suggests that the efficacy differs across vaccines; for example, vaccines from the American companies Moderna and Pfizer and the Russian company Gamaleya have the highest efficacy (i.e., >90%). A British vaccine, theOxford-AstraZeneca, has moderate efficacy (76%). Another vaccine from the Chinese company Sinovac has

shown lower efficacy (51%). Moreover, some vaccines (e.g., Oxford-AstraZeneca) produce severe adverse effects, such as rare blood clots. Consequently, some countries, such as Denmark, have stopped using the Oxford-AstraZeneca vaccine. This news is thriving in traditional and social media.

In Bangladesh, authorities started the vaccination program with the Oxford-AstraZeneca vaccine. However, recently, other Chinese and American vaccines are being made available in a limited number. Considering the efficacy and adverse effects of the vaccines, we hypothesized that vaccine choice may be associated with vaccine hesitancy among the Bangladeshi cohort. Furthermore, our findings might be helpful for Bangladesh policymakers when choosing to import vaccines from foreign developers. For example, we found higher vaccne hesitancy (36%) among those who prefer American vaccines; therefore, if the government can provide the American vaccine to this subgroup, they may lower vaccine hesitancy.

Those who report a preference for any vaccine developer are more willing to accept COVID-19 than those who answered “no idea” in the survey. However, we assumed that human behavior may differ in these unprecedented times of the COVID-19 pandemic, thereby possibly confounding vaccine hesitancy.

We have added a paragraph describing the implication of our findings in the Discussion section.

Reviewer: 2

General comments:

Please see the attached file of suggested edits. I believe this paper needs clarification regarding methods: sampling, data collection activities, data collectors, how long the data collection process was. This paper would be so much stronger by eliminating repeated text of your results- over and over for the reader after methods and in the discussion sections. Findings could be reduced to much less text if you summarized key points for the reader by referring to your tables. Reading the same text over and over in findings and discussion sections really negatively impacts this fine project with important findings and implications going forward. Succinct text would make this a great paper going forward. I hope my edits in the attached PDF help you.

Response

General reply:

Dear reviewer, thank you very much for your kind observations. We have added two paragraphs entitled “Recruitment and training of data collectors” and “Data collection” in the methods section to describe data collectors and collection. Data were collected for 14 days, from January 18 to 31, 2021. We have also edited the discussion section according to the given direction. Please find the reply to the specific comments below.

Comment #1. This highlighted text does not fit in this section of the paper. Consider placing this at the end of the paper under recommendations going forward.

Response

Reply #1. This text has been accommodated in the Conclusion section.

Comment #2. You write that a strength of this paper is the representative sample. This text does not support your statement. Please describe how you obtained your sample. Reference 21 and attached text is not appropriate without further explanation.

Response

Reply #2. Dear reviewer, we have revised the Strength and limitation section.

A margin of error of 5%, a confidence level of 95%, and a response distribution of 50% were used to calculate the sample size to target a 138 million population and secure a minimum sample size of 1,067. Similar to other studies, we found 1,134 participants suitable for this study. We have added another reference in support of our text.

Comment #3. Delete patient and use participant. Should place text here how you protected human subjects/consent. Refer to the document you included for this review as an appendix?

How many persons interviewed subjects?

How were responses recorded?

Response

Reply #3. We have replaced the word “patient” with “participant.” This study’s aim and objective were explained, and assurance of anonymity was given before receiving informed consent from all the participants. Individual face-to-face interviews were span style="font-family:'Times New Roman'">conducted to ensure privacy. Eighteen health science students were assigned to collect data using a paper-based questionnaire. We edited the Methods section to include this information.

Comment #4. There is too much repetition of findings. You could significantly shorten this section referring to your Tables. To the reader, each paragraph seems to mirror the previous paragraph.

Response

Reply #4. Dear reviewer, thank you for your comment. We have revised the Discussion and made changes to the Results to reduce repetition.

Comment #5. This section repeats much of the text from the previous pages. Focus on the implications of your findings and recommendations for further research. No need to restate all your findings again.

Response

Reply #5. Dear reviewer, we have edited the section in accordance with your comment.

Comment #6. On the next page you write that "Nonetheless, an early study suggested that Bangladeshi women’s better knowledge, attitude, and practice toward COVID-19 could be the reasons for their lower

vaccine hesitancy [24]." So this is still the first study in Bangladesh? Please clarify. Your text infers that this paper is not a first but adds to previous knowledge.

Comment #7. Again, this paper is not the first?

Response.

Reply # 6 & 7. Dear reviewer, the mentioned study was about the knowledge, attitude, and practice toward COVID-19. However, our study measured COVID-19 vaccine hesitancy. The current study is the first of its kind to investigate COVID-19 vaccine hesitancy by using a previously used and validated COVID-19 vaccine hesitancy questionnaire in the context of Bangladesh.

Comment #7. Again, brevity of text for the reader. No need to restate results for the third time. Succinct, brief, actionable conclusions are appreciated by the reader.

Response

Reply #5. Thank you very much for your comment. We have restated the text.

Reviewer: 3

General comments:

Summary
This was a study that conducted a nationally representative cross-sectional survey to assess COVID-19 vaccine intentions and predictors of vaccine hesitancy among 1,134 adults 18 and over in Bangladesh. Main findings were that 32.5% of respondents showed vaccine hesitancy (defined as being not likely or definitely not going to get the COVID-19 vaccine). Hesitancy was higher among men, those over age 60, those who were unemployed, from low-income families, living in central Bangladesh, living in rented homes, smokers, those without a chronic condition, and those who were politically affiliated with the opposition party. Hesitancy was also higher in those who doubted the vaccine's efficacy. Multivariate analyses revealed that there were higher odds of hesitancy if respondents were transgender, married, healthy (no chronic condition), affiliated with the opposition party, doubted vaccine efficacy, and had low COVID-19 risk perceptions (i.e., themselves or family members getting infected). The authors concluded that communication efforts in Bangladesh should target those with these profiles to increase vaccine acceptance.

Strengths
1. This was a timely study in the context of the COVID-19 pandemic and the importance of optimizing vaccine acceptance around the globe to reduce pandemic morbidity and mortality.
2. This appears to the first study to assess vaccine intentions/hesitancy in a Bangladeshi population, where relatively little is known about vaccine intentions on account of it being an LMIC.
3. The survey assessed a range of sociodemographic variables as well as some important psychological variables (e.g., risk perception).
4. Statistical analyses were generally appropriate and well conducted.

Response

General Reply: Dear reviewer, thank you very much for your in-depth observations and compliments.

Specific comments:

Weaknesses

Despite several strengths, this study could be strengthened by addressing the following questions:

Comment #1. Could the authors discuss the qualifications and training of the interviewers, and discuss how face-to-face interviews may have biased some responses relative to anonymous surveys.

Response

Reply #1. Dear reviewer, thank you very much for expressing your concern regarding this issue. Two sections titled “Recruitment and training of data collectors” and “Data collection” have been added to discuss the qualifications and training of the interviewers. Please find these in the Methods section.

The face-to-face interview is probably the most popular and oldest form of survey data collection. It has continued to be the best form of data collection when one wants to minimize nonresponse and maximize the quality of the data collected. However, we have acknowledged that the face-to-face interview method may lead to social desirability bias when discussing the limitations of this study.

Comment # 2. In the introduction (page 5), the authors justified the focus on respondents from Bangladesh, and put forth a set of hypotheses that we would have expected to be tested during the study. For example, they stated that since Bangladesh did not participate in any COVID-19 trials, there was a lack of awareness of the impact of vaccines in this population, which may increase hesitancy to get the COVID-19 vaccine relative to others. However, they did not seem to assess awareness of the impact of vaccines or the comparative hesitancy rates between COVID vaccines and others. The study objectives listed on page 5 seem totally disconnected from these points, please clarify.

Response

Reply #2. Dear reviewer, thank you once again for your in-depth observation.

Previous studies denoted that vaccinations are largely accepted in LMICs, such as Bangladesh. A study conducted in 2018 among 140,000 individuals in 140 countries suggested that 94% of participants in South Asia described vaccination as effective, and 95% of them perceived vaccines as safe. However, another study conducted in Bangladesh, China, Ethiopia, Guatemala, and India revealed that over 50% of respondents agreed or were neutral toward the question “new vaccines carry more risks than older vaccines.” Bangladesh did not participate in any COVID-19 vaccine clinical trials. Nevertheless, we hypothesized that, due to the novelty of the COVID-19 vaccines, Bangladeshis lacked awareness of their impact.

To support our hypothesis, we have added a paragraph in the Introduction with the appropriate references.

Comment #3. Vaccine attitudes are often influenced by both the epidemiology of the virus and the availability of vaccines at the time; this study was conducted at the end of January 2021, but the authors did not discuss the context of the pandemic or vaccine campaign at the time. This will be crucial to

interpret vaccine attitudes and so the authors are encouraged to present this information and discuss their findings in this context.

Response

Reply #3. By mid-February 2021, in Bangladesh, approximately 0.55 million COVID-19 cases had been confirmed, and about 10,000 had died from this novel disease. The COVID-19 vaccine rollout in Bangladesh was inaugurated on January 27, 2021, aiming to immunize 138 million people. We started our data collection before the vaccination had started, on January 18, 2021, and ended after, on January 31, 2021. The vaccine was available for mass immunization at the time we collected the data.

This information was given in the Introduction and Methods sections.

Comment #4. One important problem with the question on vaccine intentions is that is asks about willingness to get a vaccine that 'would prevent coronavirus infection' – however, the data available at the time would suggest that COVID-19 vaccines did not prevent infection, just severe disease. So one of my main concerns with the assessment of hesitancy is that it is asking about attitudes towards a vaccine that prevents infection (like most traditional vaccines) when in this case, COVID vaccines did not. The authors are encouraged to address this potential problem in their discussion.

Response

Reply #4. Dear reviewer, you are correct. Though a validated and previously used COVID-19 vaccine hesitancy survey was used for this study, few problems may arise. However, the American Center for Disease Control and Prevention suggested that, in addition to preventing severe infection, most of the COVID-19 vaccines have the ability to prevent infection altogether (https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/fully-vaccinated-people.html). Furthermore, we added an appropriate reference in support of this claim with the questionnaire used.

Comment #5. On page 8, it is easier to interpret the results if they present descriptives as present (tobacco smokers) rather than non-users or not having a chronic condition.

Response

Reply #5. Of the total, 29.8% participants were tobacco users, and only 24.3% had a chronic disease (morbidity). We added this line in the result section.

Comment #6. One of the most interesting findings were those related to low risk perception as being related to increase hesitancy, yet the authors did not discuss this at all in their discussion. This is seen as an important missed opportunity and limitation of the study as presented.

Reply #6. Dear reviewer, thank you very much for raising this point. Risk perception is central to many health behavior theories. A systematic review and meta-analysis concluded that vaccination behavior is significantly predicted by risk likelihood, susceptibility, and severity of the disease. In the case of COVID-19, a study suggested that higher risk perception was associated with reduced vaccine hesitancy. Another study revealed that reduced risk perception was associated with increased COVID-19 vaccine hesitancy. In contrast, one study suggested that the safety of the COVID-19 vaccine outweighed disease

risk perception when predicting vaccine hesitancy. In our study, we found that perceived COVID-19 threat was strongly associated with vaccine hesitancy.

A paragraph with the appropriate references has been added in the Discussion section.

Comment #7. There were several limitations that were not acknowledged, including the failure to provide any details about the interviewers (qualifications, training), interview fidelity, and the fact that the sample was likely not representative if it was nearly 60% male.

Response

Reply #7. Dear reviewer, we have added two sub-sections titled “Recruitment and training of data collectors” and “Data collection” in the Methods section describing the interviewers (qualifications, training) and interview fidelity. We also acknowledge the limitation of the male-to-female ratio in the limitation section.

Comment #8. Please add details about the interview/survey: how long was it designed to be, how long did it take on average?

Response

Reply #8. We have added those details to the Methods section.

Comment #9. There were no details provided on how respondents were recruited (from where? How many were approached vs refused etc.). This should be added.

Response

Reply #9. Dear reviewer, we have provided the details required in the “Data collection” sub-section of the Methods section.

VERSION 2 – REVIEW

REVIEWER	Yeoh, EK Chinese University of Hong Kong
REVIEW RETURNED	23-Jul-2021

GENERAL COMMENTS	Appreciate the authors’ efforts in revising and improving the manuscript. Apart from these revisions, there are a few more places need to be clarified. 1. Randomly inviting participates in different locations is not equivalent to a randomized sample of the population. Could the authors provide more details on if there is any measure taken during the survey to ensure the sample representativeness? Comparative analysis of the recruited population with the general population in Bangladesh could give an indication of representativeness. Could the author also discuss if there is any potential selection bias using this sampling strategy, and how the

	bias might influence the study findings (e.g. overestimate or underestimate the level of hesitancy or strength of association, etc.)? 2. It is interesting to see the day-to-day fluctuation of vaccine hesitancy during the survey period and in particular the divergence in the first 4 days and the subsequent convergence (Figure 1). Could the authors briefly introduce the purpose to report the fluctuation of vaccine hesitancy, and discuss the potential reasons for this fluctuation (e.g. difference in interveners and respondents' characteristics on different days, any policy announced/launched, local epidemic situation change, etc.)? 3. In the discussion (Page 17, line 19-27, track change version), the authors stated that "Our study found statistically significant differences in vaccine hesitancy between the vaccine preference subgroups. This finding denoted that the freedom in vaccine choice among recipients could reduce vaccine hesitancy in Bangladesh." To reach the conclusion on "freedom in vaccine choice reducing vaccine hesitancy", there should be data showing, for example, people with preference for vaccine A have greater hesitancy of uptaking vaccine B than uptaking vaccine A, while this survey only showed people with preference for vaccine A have greater hesitancy of uptaking any vaccine than others with preference for vaccine B. So could the authors elaborate how this conclusion was drawn from the "different vaccine hesitancy between vaccine preference subgroups", or rephrase the conclusion/explanation to better reflect the study results as preliminary and to modify the statement, such as "this finding highlights the needs to further study whether freedom in vaccine choice among recipients could reduce vaccine hesitancy in Bangladesh? (People with preference for vaccine A had greater hesitancy because vaccine A was short of supply locally? or other reasons?) 4. The conclusion in the abstract should better reflect the text in the main paper L13 "the government, public health officials, and advocates must be prepared to address vaccine hesitancy to reach their target and build vaccine literacy among potential recipients" which implied a need for a targeted approach for different groups in the population. This could be accommodated by expanding in the "policy initiatives" recommended, using this as an example.

REVIEWER	O'Malley, Patricia Premier Health System Support- Nursing Research, Nursing Research
REVIEW RETURNED	17-Jul-2021

GENERAL COMMENTS	This paper is so much better. The revisions have made your important research project and findings accessible to the reader. I appreciate your perseverance with the editing process.

REVIEWER	Lavoie, Kim

	Montreal Behavioural Medicine Centre, Psychology, UQAM
REVIEW RETURNED	01-Jul-2021

GENERAL COMMENTS	The authors have been generally responsive to the reviews but some points still require clarification: 1. One remaining issue is how participants were sampled. The authors clarified they were 'randomly sampled' – but from where? How? Random digit dialing? It is not clear where the authors found these people, or by what methods, so it is impossible to determine if they were indeed randomly sampled or the degree to which they are representative. If we wanted to replicate this study, we couldn't because these details are lacking. 2. The authors clarified the training received by interviewers. However, how did you evaluate the success of training and did you only allow interviewers who 'passed' to collect data? Did you verify the fidelity of the interviews? What measures were put in place if interviewers deviated from the protocol. Please clarify. 3. Their vaccine intention question asked about willingness to get a vaccine that prevents infection, when most COVID vaccines do not. The authors are encouraged to mention this in their limitations, as they assessed attitudes/intentions to get vaccinated based on assumptions about what the COVID vaccines would achieve, when in reality, they don't achieve this (and even if they reduce the likelihood of transmission, it is not their primary endpoint – its severe disease rather than infection).

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Appreciate the authors' efforts in revising and improving the manuscript. Apart from these revisions, there are a few more places need to be clarified.

Comment# 1. Randomly inviting participates in different locations is not equivalent to a randomized sample of the population. Could the authors provide more details on if there is any measure taken during the survey to ensure the sample representativeness? Comparative analysis of the recruited population with the general population in Bangladesh could give an indication of representativeness. Could the author also discuss if there is any potential selection bias using this sampling strategy, and how the bias might influence the study findings (e.g. overestimate or underestimate the level of hesitancy or strength of association, etc.)?

Response

Reply # 1.

Thank you very much for your in-depth observation. A paragraph titled “sampling technique” has been added in the methods section to incorporate the above-mentioned points.

“Sampling technique:

We employed a two-stage cluster sampling technique to include potential participants for the study. The residential areas, marketplaces, shopping malls, and waiting rooms of large hospitals, bus and rail stations and diagnostic centers, were randomly chosen and processed as a cluster in the first stage. The list of given data collection sites were collected from the districts’ websites. In the second stage, we chose the participants in a methodical and convenient manner by selecting alternate individuals from diverse groups.”

Comment# 2. It is interesting to see the day-to-day fluctuation of vaccine hesitancy during the survey period and in particular the divergence in the first 4 days and the subsequent convergence (Figure 1). Could the authors briefly introduce the purpose to report the fluctuation of vaccine hesitancy, and discuss the potential reasons for this fluctuation (e.g. difference in interveners and respondents’ characteristics on different days, any policy announced/launched, local epidemic situation change, etc.)?

Response

Reply # 2.

Thank you for your valuable suggestion. We have added this part in the discussion section to incorporate the suggestion.

“However, our study found significantly high fluctuation rate in day-to-day vaccine hesitancy among Bangladeshi general population. Negative news on social and traditional media regarding adverse effects of vaccination during vaccine roll out in Bangladesh or neighboring countries like India and changes in the local pandemic situation might be the potential causes of this fluctuation. Further study is required to find the details to implicate the results.”

Comment# 3. In the discussion (Page 17, line 19-27, track change version), the authors stated that “Our study found statistically significant differences in vaccine hesitancy between the vaccine preference subgroups. This finding denoted that the freedom in vaccine choice among recipients could reduce vaccine hesitancy in Bangladesh.”

To reach the conclusion on “freedom in vaccine choice reducing vaccine hesitancy”, there should be data showing, for example, people with preference for vaccine A have greater hesitancy of uptaking vaccine B than uptaking vaccine A, while this survey only showed people with preference for vaccine A have greater hesitancy of uptaking any vaccine than others with preference for vaccine B.

So could the authors elaborate how this conclusion was drawn from the “different vaccine hesitancy between vaccine preference subgroups”, or rephrase the conclusion/explanation to better reflect the study results as preliminary and to modify the statement, such as “this finding highlights the needs to further study whether freedom in vaccine choice among recipients could reduce vaccine hesitancy in Bangladesh? (People with preference for vaccine A had greater hesitancy because vaccine A was short of supply locally? or other reasons?)

Response

Reply # 3.

Thank you for your excellent observation and suggestion. We have paraphrased the sentence to “this finding highlights the needs to further study whether freedom in vaccine choice among recipients could reduce vaccine hesitancy in Bangladesh.”

Comment# 4. The conclusion in the abstract should better reflect the text in the main paper L13 “the government, public health officials, and advocates must be prepared to address vaccine hesitancy to reach their target and build vaccine literacy among potential recipients” which implied a need for a targeted approach for different groups in the population. This could be accommodated by expanding in the “policy initiatives” recommended, using this as an example.

Response

Reply # 4.

Thank you for your valuable comment. To incorporate the above-mentioned suggestions, we have restated the conclusion section of the abstract.

“Given the high prevalence of COVID-19 vaccine hesitancy, in order to guarantee that COVID-19 vaccinations are widely distributed, the government and public health experts must be prepared to handle

vaccine hesitancy and increase vaccine awareness among potential recipients. To address these issues and support COVID-19 immunization programs, evidence-based educational and policy-level initiatives must be undertaken especially for the poor, older and chronically diseased individuals."

Reviewer: 2

Comment# 1.

This paper is so much better. The revisions have made your important research project and findings accessible to the reader. I appreciate your perseverance with the editing process.

Response

Reply # 1.

Thank you for your compliments and for accepting the paper.

Reviewer: 3

The authors have been generally responsive to the reviews but some points still require clarification:

Comment# 1. One remaining issue is how participants were sampled. The authors clarified they were 'randomly sampled' – but from where? How? Random digit dialing? It is not clear where the authors found these people, or by what methods, so it is impossible to determine if they were indeed randomly sampled or the degree to which they are representative. If we wanted to replicate this study, we couldn't because these details are lacking.

Response

Reply # 1.

Thank you for your comment. A paragraph titled “sampling technique” has been added in the methods section with the relevant details.

“Sampling technique:”

We employed a two-stage cluster sampling technique to include potential participants for the study. The residential areas, marketplaces, shopping malls, and waiting rooms of large hospitals, bus and rail stations and diagnostic centers, were randomly chosen and processed as a cluster in the first stage. The list of given data collection sites were collected from the districts’ websites. In the second stage, we chose the participants in a methodical and convenient manner by selecting alternate individuals from diverse groups.”

Comment# 2. The authors clarified the training received by interviewers. However, how did you evaluate the success of training and did you only allow interviewers who 'passed' to collect data? Did you verify the fidelity of the interviews? What measures were put in place if interviewers deviated from the protocol. Please clarify.

Response

Reply # 2.

Thank you for your comment. Dear reviewer, eighteen health-science students (nine of whom were women) were recruited to collect data. However, after training session and piloting, sixteen data collectors were selected finally to collect and sort the data.

To prevent the fidelity, a data collector first asked the questions and the answers were then confirmed by the second member of the respective team. Furthermore, the co-investigators reviewed the data collection sheets for completeness, accuracy, and internal consistency and confirmed them with the principal investigator.

Comment# 3. Their vaccine intention question asked about willingness to get a vaccine that prevents infection, when most COVID vaccines do not. The authors are encouraged to mention this in their limitations, as they assessed attitudes/intentions to get vaccinated based on assumptions about what the COVID vaccines would achieve, when in reality, they don't achieve this (and even if they reduce the likelihood of transmission, it is not their primary endpoint – its severe disease rather than infection).

Response

Reply # 3.

Thank you for your valuable comment. We have added the following statement in the limitation paragraph to incorporate the above-mentioned points.

"Additionally, participants were asked about their willingness to get a vaccine that prevents infection, however, for many vaccines, the shot actually lessened the severity of the disease. This might have slightly influenced the study results."

VERSION 3 – REVIEW

REVIEWER	Yeoh, EK Chinese University of Hong Kong
REVIEW RETURNED	12-Aug-2021

GENERAL COMMENTS	The authors have addressed the previous comments. I appreciate the opportunity to review the paper and the authors' efforts in the revision.