This cross-sectional study clearly suggests the relationship between HTP usage and occupational gradients in Japan.

1. Page 6 of 35, L50 and Page 18 of 35, L29
Please separately explain the effect of "occupational class" and the "industry characteristic" on smoking behaviour. Authors point out higher tobacco product usage among high-class service industry male workers because of the higher psychological stress than other industries. However, the description is confusing because this study's primary interest might be an occupational class rather than a characteristic of the industry.
I agree with higher psychological stress is one of the possible explanations for tobacco product usage. However, adding other possible reasons for tobacco product using in Japan is more informative. e.g., cost, accessibility, tobacco industry marketing, job environment, social norm, peer effect, or other factors promoting smoking behaviour.

2. Table 3. and Table 4.
The study result clearly suggests the interesting difference between Japanese male and female workers. Please add some discussion on the gender difference of HTPs usage in Japanese workers, especially in the aspect of occupational and employment gradient.

3. Page 17 of 35, L43
"However, in our study, the results suggested that higher occupational class workers might be unintentionally attracted to HTPs because of insufficient health knowledge."
Since the health knowledge about combustible cigarette seems to positively associate with HTP using in Table 3, please reconsider this sentence. Nobody might have sufficient knowledge about HTP’s health impact.

3. Page 10 of 35, L46
"We hypothesized that ...."
I think this sentence can be removable for the Method part. The study hypothesis is already clear in the last part of the introduction.

4. Page 12 of 35, L50
"In a priori analysis, .... However, "
I think this explanation is too detail for the Method part and not necessary.

5. P20 L29
"In this group, challenges include unfavourable health outcomes."
I do not understand what does the sentence mean. Please paraphrase the sentence.

6. P20 L55
I do not understand who are the “both” populations. Please reconsider the sentence.

REVIEWER
Barnoya, Joaquin
Unidad de Cirugia Cardiovascular, Departamento de Investigacion

REVIEW RETURNED
01-Mar-2021

GENERAL COMMENTS
I reviewed the paper “Positive occupational gradient in use of heated tobacco products: Analysis of retail workers in Japan” by Myagmar-Ochir et. al. that aims to assess the prevalence of HTP among workers of the retail industry in Japan. The paper explores an important issue, particularly as HTPs spread worldwide data on use and associated factors is urgently needed to inform healthcare advocates and policy makers. According to their findings, HTP use is still low and there’s a difference by occupational class. In general, the manuscript reads well but it requires a thorough English review. In addition, they need to tone down their conclusions as they do not really have a “gradient” on occupation (just 2 categories). I also suggest they focus on the prevalence data and do not overstress the data on health consequences knowledge and potential association with HTP use. In addition, they need to clarify that this is a cross-sectional study (not cohort, unless they are presenting baseline data in which case they need to justify why not wait for follow up data). One additional general comment is about the use of electronic cigarettes; did they assess any? It would be a good contribution if they did.

Abstract
I suggest editing to make clear that there are two work categories and avoid using the word “gradients”. I suggest to make it more specific when they talk about smoking and they are referring to conventional cigarettes or HTP. Please clarify if the results yield that more knowledge is more HTP use?

Strengths and limitations
I suggest highlighting that we know very little about HTP use and so far prevalence is low yet we don’t know exactly why, how, and when use is happening.

Introduction.
In general, I think it is too long and I suggest the keep to 1 or 1.5 pages and focus on HTPs. Page 5, line 9, would be good to read more about Glo, Ploom Tech. When were they introduced? Do you have any data on market share? I suggest they highlight the lack of data on HTP use (there’s recent data on adolescent consumption in Guatemala). If possible, it
would also be good to read some data on HTP advertising and how they are being marketed (there’s data on HTP marketing at the POS also in Guatemala, is that the same case in Japan?). Can they provide any data on HTP costs compared to other tobacco products?

Page 6, line 22, I suggest they move the part about higher-risk behaviors to the Discussion or delete (from lines 23 to 38 could be deleted).

Page 7, line 28, what about smoking status? Quit attempts?

Methods.
Page 8, line 10, “typical working population”. I suggest the authors add a citation to back this up. This could imply that their sample is generalizable to other workers in Japan. Line 36, do they have any data on the non-respondents? Line 37, how was data “mutually linked”? Line 43, what data was available on the “dataset”? Line 59 has already been mentioned before, could be deleted. I think that the female sample size is a strength of the study that could further highlighted in the Discussion.

Page 9, line 19, please specify if this is current, daily or ever users as primary outcome. Line 34, please clarify to what product they are referring to.

Page 10, line 22, the limitations of the dataset should be moved to the Discussion section. In addition, this is a major limitation of the study.

Page 11, first 10 lines are hard to follow, I suggest editing. Lines 13 to 16 the classification is not clear.

Page 12, line 31 is a bit confusing on when they are referring to conventional cigarettes or HTPs. Line 58, the OR could be moved to the Results section.

Page 13, did they required an informed consent?

Results
In general I suggest avoiding repeating results that are already in the Table and just refer to the Table (except for those that are the most relevant findings).

Page 14, line 19, what about other products? And the lowest?

Page 15, in general, I am uncertain about how much conclusions they can draw given that they have many confounders not accounted for (e.g., co-morbidities, medications, quit attempts, family history, other HTP users at home). In addition, they refer to “gradient” when they actually have only two work categories. One would expect to read more categories. Given the limitations on how health knowledge was assessed, I suggest the analysis focus on current and dual use. Regarding the analysis is this sensitivity or stratified?

Discussion.
I suggest they avoid referring to the sample as cohort and maybe just refer to an association with work type as opposed to gradient.

Page 17, line 28, that paragraph is not that relevant to the study and could be deleted. Line 43, I suggest they tone down the discussion on the health knowledge given the limitations on how this was assessed. It would be good to read how their data compares to the limited data available on HTP use, awareness or susceptibility. I suggest they focus the discussion around this. On page 19, line 37, the issue on passive smoking I would not include as I don’t thinks
this as a major limitation. It appears from that paragraph that they will have follow up data, is that correct? If so it would be good to get more information and justification on why this cross-sectional data is worth publishing now. Page 20, I suggest they edit the first sentence of the second paragraph and HTP use was not really high.

Table 1 could be deleted, as most of that information is already included in Table 2. In addition, I am uncertain of how much an analysis by gender adds much (maybe just include in the model. Table 2 title could be edited to be more explanatory.

| REVIEWER            | Tate, Robert                      |
|---------------------|-----------------------------------|
| University of Manitoba, Community Health Sciences |                           |
| REVIEW RETURNED     | 30-Mar-2021                       |

**GENERAL COMMENTS**

The statistical methodology, i.e. logistic regression, applied for this analysis is appropriate. My one comment pertains to the authors’ description of occupational category, a binary event in their modeling, as a gradient. A “gradient” by definition must extend beyond two categories.

**VERSION 1 – AUTHOR RESPONSE**

Response to Review 1’s comments

This cross-sectional study clearly suggests the relationship between HTP usage and occupational gradients in Japan.

We thank the reviewer for this comment. Our point-by-point responses to each of the comments are as follows:

#1 Page 6 of 35, L50 and Page 18 of 35, L29

Please separately explain the effect of “occupational class” and the "industry characteristic" on smoking behaviour. Authors point out higher tobacco product usage among high-class service industry male workers because of the higher psychological stress than other industries. However, the description is confusing because this study’s primary interest might be an occupational class rather than a characteristic of the industry.

I agree with higher psychological stress is one of the possible explanations for tobacco product usage. However, adding other possible reasons for tobacco product using in Japan is more informative. e.g., cost, accessibility, tobacco industry marketing, job environment, social norm, peer effect, or other factors promoting smoking behaviour.

We thank the reviewer for these comments. We agree that our introduction should primarily focus on occupational class. Also, the introduction of industrial characteristics is rather confusing. Therefore, we deleted this whole paragraph (Page 6 of 35, L50) addressing the retail industry from the introduction section.

We acknowledge that the suggested behavioral drives for HTPs smoking (e.g., marketing and accessibility) may exist in Japan. For instance, an increase of tobacco ads has been observed in Japan (Ichikawa et al. 2021) and tobacco industry widely promotes HTPs (e.g., online stores and convenience stores) (Hori et al. 2020). We have added these points in the discussion section as follows:
In addition to HTP product advertisements promoting a clean image of reduced harmfulness (Hair et al. 2018), other behavioral drives for HTPs smoking may exist in Japan. For instance, an increase of tobacco ads has been observed in Japan (Ichikawa et al. 2021) and tobacco industry widely promotes HTPs (e.g., online stores and convenience stores) (Hori et al. 2020). Economic dimensions of HTPs may also support the positive occupational difference we observed.

Citations:
1. Ichikawa M, Inada H, Hori A, Tabuchi T. Tobacco advertising during the COVID-19 pandemic in Japan. J Epidemiol. 2021 Apr 10. doi: 10.2188/jea.JE20210151.
2. Hori A, Tabuchi T, Kunugita N. Rapid increase in heated tobacco product (HTP) use from 2015 to 2019: from the Japan 'Society and New Tobacco' Internet Survey (JASTIS). Tob Control. 2020 Jun 5;tobaccocontrol-2020-055652. doi: 10.1136/tobaccocontrol-2020-055652.
3. Hair EC, Bennett M, Sheen E, et al. Examining perceptions about IQOS heated tobacco product: consumer studies in Japan and Switzerland. Tob Control 2018;27(Suppl 1):s70-s73.

#2. Table 3 and Table 4- The study result clearly suggests the interesting difference between Japanese male and female workers. Please add some discussion on the gender difference of HTPs usage in Japanese workers, especially in the aspect of occupational and employment gradient.

We thank the reviewer for this suggestion. We have added these points and have revised the main text as follows:

Previous studies reported a potential occupational difference in smoking HTPs among men but not among women (Kinjo et al. 2019; Igarashi et al. 2021), which are in line with our result.

Citations:
1. Kinjo A, Kuwabara Y, Fuji M, et al. Heated tobacco product smokers in Japan identified by a population-based survey. J Epidemiol 2020;30(12):547-555.
2. Igarashi A, Aida J, Kusama T, et al. Heated Tobacco Products Have Reached Younger or More Affluent People in Japan. J Epidemiol 2021;31(3):187-193.

#3. Page 17 of 35, L43
"However, in our study, the results suggested that higher occupational class workers might be unintentionally attracted to HTPs because of insufficient health knowledge."

Since the health knowledge about combustible cigarette seems to positively associate with HTP using in Table 3, please reconsider this sentence. Nobody might have sufficient knowledge about HTP’s health impact.

We thank the reviewer for this comment. Based on this comment and those of Reviewer 2, we have deleted this part to tone-down our results/discussions regarding health knowledge.

#4. Page 10 of 35, L46
"We hypothesized that ...."  
I think this sentence can be removable for the Method part. The study hypothesis is already clear in
We thank the reviewer for this comment. We have deleted this part.

#5. Page 12 of 35, L50
“In a priori analysis, …. However, ”
I think this explanation is too detail for the Method part and not necessary.

We thank the reviewer for this comment. We have deleted this part.

#6. P20 L29
“In this group, challenges include unfavourable health outcomes.”
I do not understand what does the sentence mean. Please paraphrase the sentence.

We thank the reviewer for this comment. We clarified this part as follows:

P17, Line 13:
(Revised parts are in red): “In this higher-SES group, unfavorable health outcomes have been highlighted, and higher occupational class workers in Japan do not always enjoy favorable health benefits. For instance, higher occupational workers are reported to have higher overall mortality and cardiovascular risk [Tanaka et al. 2019; Zaitsu et al. 2019].”

Citations:
1. Tanaka H, Nusselder WJ, Bopp M, et al. Mortality inequalities by occupational class among men in Japan, South Korea and eight European countries: a national register-based study, 1990-2015. J Epidemiol Community Health 2019;73(8):750-758.
2. Zaitsu M, Kato S, Kim Y, et al. Occupational Class and Risk of Cardiovascular Disease Incidence in Japan: Nationwide, Multicenter, Hospital-Based Case-Control Study. J Am Heart Assoc 2019;8(6):e011350.

#7. P20 L55
I do not understand who are the “both” populations. Please reconsider the sentence.

We thank the reviewer for this comment. We meant that both approaches including population approaches and high-risk approaches are required for combustible cigarette and HTPs smoking. We clarified the main text as follows:

P17, Line 28:
(Revised parts are in red): “Therefore, further public education on tobacco control, including population approaches and high-risk approaches, should remain a high priority for combustible cigarette and HTPs smoking.”

Response to Review #2

I reviewed the paper “Positive occupational gradient in use of heated tobacco products: Analysis of retail workers in Japan” by Myagmar-Ochir et. al. that aims to assess the prevalence of HTP among workers of the retail industry in Japan. The paper explores an important issue, particularly as HTPs spread worldwide data on use and associated factors is urgently needed to inform healthcare advocates and policy makers. According to their findings, HTP use is still low and there’s a difference by occupational class. In general, the manuscript reads well but it requires a thorough English review. In addition, they need to tone down their conclusions as they do not really have a “gradient” on
occupation (just 2 categories). I also suggest they focus on the prevalence data and do not overstress the data on health consequences knowledge and potential association with HTP use. In addition, they need to clarify that this is a cross-sectional study (not cohort, unless they are presenting baseline data in which case they need to justify why not wait for follow up data). One additional general comment is about the use of electronic cigarettes; did they assess any? It would be a good contribution if they did.

We thank the reviewer for these comments. We agree with the points raised and considered them in the revised version. We have toned-down our discussions/conclusions and focused on HTPs smoking prevalences. We acknowledge that our study is a cross-sectional study but not a cohort study, we replaced “cohort” to “population” in the main text. Also, we have decided not to overstress our findings regarding health knowledge. Finally, we have replaced “gradient” to “difference” throughout the manuscript to clarify our two occupational categories. For the e-cigarette, we have no data unfortunately. In Japan, e-cigarette is not officially allowed to sell. Therefore, it is quite natural that data about e-cigarette consumption in Japan is very limited. Accordingly, our point-by-point responses to each of the comments are as follows:

Abstract
#1. I suggest editing to make clear that there are two work categories and avoid using the word “gradients”. I suggest to make it more specific when they talk about smoking and they are referring to conventional cigarettes or HTP. Please clarify if the results yield that more knowledge is more HTP use?

We thank the reviewer for this suggestion. We changed “gradient” to “difference”. Also, we specified the smoking type. As mentioned above, we have decided not to overstress the result related to health knowledge. Therefore, we deleted this part. The revised abstract are as follows:

P3, Line 49:
(Original): “The odds of higher occupational class workers remained elevated even after controlling for smoking-related health knowledge (OR 1.97, 95% CI 1.40 to 2.77), while health knowledge was generally insufficient.”

(Revised, revised parts are in red): “Compared with other workers, the adjusted odds of higher occupational class workers for smoking HTPs remained elevated (OR 1.97, 95% CI 1.40 to 2.77).”

Strengths and limitations
#2. I suggest highlighting that we know very little about HTP use and so far prevalence is low yet we don’t know exactly why, how, and when use is happening.

We thank the reviewer for this suggestion. We have added “Little is known about heated tobacco products (HTPs) usage among working population” in this section.

Introduction
#3. In general, I think it is too long and I suggest the keep to 1 or 1.5 pages and focus on HTPs.

We thank the reviewer for this valuable suggestion. We have deleted the introduction regarding industrial characteristics substantially. Now, the introduction is kept within 1.5 pages. Please check the revised version.

#4. Page 5, line 9, would be good to read more about Glo, Ploom Tech. When were they introduced? Do you have any data on market share? I suggest they highlight the lack of data on HTP use (there’s recent data on adolescent consumption in Guatemala). If possible, it would also be good to read some data on HTP advertising and how they are being marketed (there’s data on HTP marketing at
the POS also in Guatemala, is that the same case in Japan?). Can they provide any data on HTP costs compared to other tobacco products?

We thank the reviewer for this suggestion. We highlighted the lack of prevalence data and added more introductions about HTPs types, HTPs prevalence and advertising. The HTP costs have been described in the discussion section. Our responses to these comments are as follows:

P5, Line 19:
(Revised parts are in red): “In Japan, HTP brands IQOS and Ploom Tech (launched in March 2016) and Glo (launched in December 2016) are currently available (Tabuchi et al. 2018), and the market share was accounted for 21% in total tobacco sales in 2018 (Lorraine et al. 2020).”

P5, Line 28:
(Revised parts are in red): “Although limited studies on HTPs usage are available, the prevalence has begun to increase worldwide (approximately 1.4% in Italy in 2017 and 2.9% in Guatemala adolescents in 2020) (Liu et al. 2019; Gottschlich et al. 2020).”

Citations:
1. Tabuchi T, Gallus S, Shinozaki T, et al. Heat-not-burn tobacco product use in Japan: its prevalence, predictors and perceived symptoms from exposure to secondhand heat-not-burn tobacco aerosol. Tob Control 2018;27(e1):e25-e33.
2. Lorraine V. C, Itsuro Y, Geoffrey T.F, et al. Awareness of Marketing of Heated Tobacco Products and Cigarettes and Support for Tobacco Marketing Restrictions in Japan: Findings from the 2018 International Tobacco Control (ITC) Japan Survey. Int J Environ Res Public Health 2020;17(22):8418.
3. Liu X, Lugo A, Spizzichino L, et al. Heat-not-burn tobacco products: concerns from the Italian experience. Tob Control 2019;28(1):113-114.
4. Gottschlich A, Mus S, Monzon JC, et al. Cross-sectional study on the awareness, susceptibility and use of heated tobacco products among adolescents in Guatemala City, Guatemala. BMJ open, 10(12): e039792.

#5. Page 6, line 22, I suggest they move the part about higher-risk behaviors to the Discussion or delete (from lines 23 to 38 could be deleted). Page 7, line 28, what about smoking status? Quit attempts?

We deleted these parts to make the introduction concise.

Methods
#6. Page 8, line 10, “typical working population”. I suggest the authors add a citation to back this up. This could imply that their sample is generalizable to other workers in Japan.

Thank you for your suggestion. We deleted this phrase.

#7. Line 36, do they have any data on the non-respondents?

No, we don’t.

#8. Line 37, how was data “mutually linked”?

The Department Store Health Insurance Association mutually linked the data from each participant. We have clarified this as follows:

P7, Line 25:
(Revised parts are in red): “For each participant, the Department Store Health Insurance Association mutually linked collected data to individual basic demographics (age and sex) and current job information, including occupational class (e.g., managerial and clerical workers) and employment type (full-time or part-time workers).”

#9. Line 43, what data was available on the “dataset”?

For the dataset, basic demographics information (sex and age) and job information were available.

#10. Line 59 has already been mentioned before, could be deleted. I think that the female sample size is a strength of the study that could further highlighted in the Discussion.

Thank you for your suggestion. We deleted this part. Also, we have added the strength of female sample size in the discussion section as below:

P16, Line 49:
(Revised parts are in red): “Despite these limitations, the strengths of the current study included a large sample size for overall and female participants”

#11. Page 9, line 19, please specify if this is current, daily or ever users as primary outcome.

We clarified in the main text that this is for current HTP users.

#12. Line 34, please clarify to what product they are referring to.

We did not ask any products by this question. At the next question, we asked “Which type(s) of tobacco do you smoke? Please choose all options that apply from the following: combustible cigarettes, IQOS, Glo, or Ploom Tech.”

#13. Page 10, line 22, the limitations of the dataset should be moved to the Discussion section. In addition, this is a major limitation of the study.

Thank you for your suggestion. We moved this limitation to the discussion section (P15, Line 271).

#14. Page 11, first 10 lines are hard to follow, I suggest editing. Lines 13 to 16 the classification is not clear.

Thank you for your suggestion. We have elaborated and clarified the job classification in the main text as follows:

P9, Line 49:
(Revised parts are in red): “we defined two groups of occupational classes: a higher occupational class group (managerial and professional workers, 5.2% [n=399] and clerical workers, 9.4% [n=723]) and other workers (service workers, 78.4% [n=6,047] and manual workers, 7.1% [n=545]). In the Erikson–Goldthorpe–Portocarero scheme, clerical workers (classified as lower non-manual workers) are considered as a lower job class group compared with managerial and professional workers (classified as upper non-manual workers). However, because clerical workers tended to have more favorable health outcomes compared with managerial and professional workers in Japan (Tanaka et al. 2019), we classified clerical workers into the higher occupational class group.”

Citations:
1. Tanaka H, Nusselder WJ, Bopp M, et al. Mortality inequalities by occupational class among men in
Japan, South Korea and eight European countries: a national register-based study, 1990-2015. J Epidemiol Community Health 2019;73(8):750-758.

#15. Page 12, line 31 is a bit confusing on when they are referring to conventional cigarettes or HTPs.

We thank the reviewer for this comment. We clarified this part as follows:

P11, Line 22:
(Revised parts are in red): “Next, compared with the other workers, we estimated odds ratios (ORs) and 95% confidence intervals (CIs) of higher occupational class workers for HTP usage using logistic regression.”

#16. Line 58, the OR could be moved to the Results section.

Thank you for your suggestion. Due to the comment of Reviewer 1, we deleted this part.

#17. Page 13, did they require an informed consent?

Yes, we obtained informed consents from all participants as described in the method section.

Results
#18. In general I suggest avoiding repeating results that are already in the Table and just refer to the Table (except for those that are the most relevant findings).

We thank the reviewer for these comments. We made the result section concise and deleted repeating results from the main text. Please check the revised manuscript.

#19. Page 14, line 19, what about other products? And the lowest?

We focus on HTP smoking; therefore, we revised this part as follows:

P12, Line 24:
(Revised parts are in red): “The prevalence of HTPs smokers was greater in a younger population aged in their 30s and 40s than an older population aged in their 60s and above.”

#20. Paragraph that started on Line 34, I suggest to focus on current and dual HTP users. That paragraph is a bit too wordy considering the limited data they have.

We thank the reviewer for these comments. We have focused on current and HTP smokers. We also deleted results of other types of smoking.

#21. Page 15, in general, I am uncertain about how much conclusions they can draw given that they have many confounders not accounted for (e.g., co-morbidities, medications, quit attempts, family history, other HTP users at home). In addition, they refer to “gradient” when they actually have only two work categories. One would expect to read more categories. Given the limitations on how health knowledge was assessed, I suggest the analysis focus on current and dual use. Regarding the analysis is this sensitivity or stratified?

We thank the reviewer for this comment. We acknowledge that we cannot draw a firm conclusion regarding causal mechanisms, behavioral changes, and assessment for health knowledge. Therefore, we deleted the explanations of potential behavioral changes as well as cigarette smoking-related health knowledge substantially. Please check the revised manuscript. For the multinomial logistic
regression, this is a sensitivity analysis as stated in the main text.

Discussion
#22. I suggest they avoid referring to the sample as cohort and maybe just refer to an association with work type as opposed to gradient.

We thank the reviewer for this comment. We have replaced “gradient” to “difference”, and “cohort” to “population” accordingly.

#23. Page 17, line 28, that paragraph is not that relevant to the study and could be deleted.

We have removed this part.

#24. Line 43, I suggest they tone down the discussion on the health knowledge given the limitations on how this was assessed. It would be good to read how their data compares to the limited data available on HTP use, awareness or susceptibility. I suggest they focus the discussion around this.

We thank the reviewer for this comment. Based on this comment and those of Reviewer 1, we have deleted this part to tone-down our results/discussions regarding health knowledge.

In addition, we have deleted the discussion for health knowledge (P16, L292) and revised the main text to read as follows:

P17, Line 22:
(Original): “However, for the five smoking-related diseases listed on the government website in Japan, we found unfavorable results regarding health knowledge, except for lung cancer. Among HTP smokers, the dominant reason for smoking HTPs was reduced odor or reduced smoke, rather than taking care of others or considering health-related factors. Therefore, further public education on tobacco control, including population approaches and high-risk approaches, should remain a high priority.”

(Revised parts are in red): “In addition, the long-term safety of HTPs has not been proven, and there is accumulating evidence for HTP-related adverse effects on health [Simonavicius et al. 2019; Chung et al. 2020]. Therefore, further public education on tobacco control, including population approaches and high-risk approaches, should remain a high priority for combustible cigarette and HTPs smoking.”

Citations:
1. Simonavicius E, McNeill A, Shahab L, et al. Heat-not-burn tobacco products: a systematic literature review. Tob Control 2019;28(5):582-594.
2. Chung SJ, Kim BK, Oh JH, et al. Novel tobacco products including electronic cigarette and heated tobacco products increase risk of allergic rhinitis and asthma in adolescents: Analysis of Korean youth survey. Allergy 2020;75(7):1640-1648.

#25. On page 19, line 37, the issue on passive smoking I would not include as I don’t thinks this as a major limitation. It appears from that paragraph that they will have follow up data, is that correct? If so it would be good to get more information and justification on why this cross-sectional data is worth publishing now.

We thank the reviewer for this comment. We have deleted the issue of passive smoking from the limitation. To clarify our study is a cross-sectional study and is not a baseline survey of a potential future cohort study, we also deleted this confusing part. Please check the revised manuscript.
#26. Page 20, I suggest they edit the first sentence of the second paragraph and HTP use was not really high.

We have edited “highly prevalent” to “getting prevalent”.

#27. Table 1 could be deleted, as most of that information is already included in Table 2. In addition, I am uncertain of how much an analysis by gender adds much (maybe just include in the model. Table 2 title could be edited to be more explanatory.

We thank the reviewer for this comment. Because we deleted many results/values from the main text upon the reviewer’s comments earlier, we would like to keep Table 1. The edited title of Table 2 is as below:

(Revised parts are in red): “Table 2. Occupational differences in smoking status and cigarette smoking-related heath knowledge stratified by sex”

Response to Review #3

The statistical methodology, i.e. logistic regression, applied for this analysis is appropriate. My one comment pertains to the authors’ description of occupational category, a binary event in their modeling, as a gradient. A “gradient” by definition must extend beyond two categories.

We thank the reviewer for this comment. We have changed “gradient” to “difference” throughout the manuscript.

VERSION 2 – REVIEW

| REVIEWER                  | Hori, Ai recommended |
|---------------------------|----------------------|
|                          | University of Tsukuba, Department of Global Public Health |
| REVIEW RETURNED           | 02-Jun-2021          |

| GENERAL COMMENTS          |
|---------------------------|
| I confirmed the revised manuscript, but I think further consideration about the exposure variable is needed. |
|                                                                                           |
| “Higher occupational class” in the method (P9 L58), all the tables, and the supplementary tables. |
|                                                                                           |
| Classifying clerical workers into the higher occupational class group seems to be unnatural. Whether clerical workers have more favourable health outcomes or not, their job class would not be high. Furthermore, the description of “occupational class and favourable health outcomes” may confuse the revised parts below. |
| P17 L13                    |
| “In this higher-SES group, unfavourable health outcomes have been highlighted, and higher occupational class workers in Japan do not always enjoy favourable health benefits. …” |
|                                                                                           |
| As occupational classification is an essential part of this manuscript, authors need to add some more precise explanation about the definition or reconsider the classification. |
Response to Review 1’s comments

I confirmed the revised manuscript, but I think further consideration about the exposure variable is needed.

We thank the reviewer for their comments. Our point-by-point responses to each comment are shown below:

#1 “Higher occupational class” in the method (P9 L58), all the tables, and the supplementary tables.

Classifying clerical workers into the higher occupational class group seems to be unnatural. Whether clerical workers have more favourable health outcomes or not, their job class would not be high.

Furthermore, the description of “occupational class and favourable health outcomes” may confuse the revised parts below.

P17 L13

"In this higher-SES group, unfavourable health outcomes have been highlighted, and higher occupational class workers in Japan do not always enjoy favourable health benefits. …”

As occupational classification is an essential part of this manuscript, authors need to add some more precise explanation about the definition or reconsider the classification.

We thank the reviewer for their helpful comments. We grouped managers/professionals (i.e., upper non-manual workers) and clerical workers (lower non-manual workers) together into one occupational class group, based on recent evidence from Japan suggesting that clerical workers tend to exhibit favourable outcomes in mortality and cancer survival (Tanaka et al. 2019; Zaitsu et al 2019). However, we agree with the reviewer that the group name “high occupational class workers” implies the highest occupational class, and may be confusing for readers. Therefore, to avoid any potential confusion and to clarify our modified version of the Erikson–Goldthorpe–Portocarero scheme, we changed the group name to “office worker” throughout the manuscript.

In addition, to further elucidate occupational differences in use of heated tobacco products (HTPs), we performed sensitivity analyses using two different occupational categories, as described below. These two supplementary analyses showed the same pattern as our main results:

Sensitivity analysis #1:
We excluded clerical workers from the analytic samples, then compared the use of HTPs between upper non-manual workers (i.e., managers/professionals) versus other workers (service/manual workers). In Model 2, compared with other workers, we observed higher odds ratio (OR) and 95% confidence interval (CI) values among upper non-manual workers (adjusted OR 3.54, 95% CI 2.16 to 5.80).

Sensitivity analysis #2:
We transferred clerical workers into other workers, then compared the use of HTPs between upper non-manual workers (i.e., managers/professionals) versus other workers (clerical/service/manual workers). This is the classical analytic model of the Erikson–Goldthorpe–Portocarero scheme. In Model 2, compared with other workers, we observed higher OR and 95% CI values among upper non-manual workers (adjusted OR 3.04, 95% CI 1.88 to 4.89).
In addition, we have added more detailed explanations regarding the definition of occupational class, and have updated the reference numbers. We also deleted potentially confusing text (*In this higher-SES group, unfavorable health outcomes ... health benefits*; P17, lines 13–19 in the previous version of the manuscript) from the discussion. The revised main text now reads as follows:

**Methods, P9, Line 40:**
(Original): we defined two groups of occupational classes: a higher occupational class group (managerial and professional workers, 5.2% [n=399] and clerical workers, 9.4% [n=723]) and other workers (service workers, 78.4% [n=6,047] and manual workers, 7.1% [n=545]). In the Erikson–Goldthorpe–Portocarero scheme, clerical workers (classified as lower non-manual workers) are considered as a lower job class group compared with managerial and professional workers (classified as upper non-manual workers). However, because clerical workers tended to have more favorable health outcomes compared with managerial and professional workers in Japan [Tanaka et al. 2019], we classified clerical workers into the higher occupational class group.

(Revised parts are in red): we defined two groups of occupational classes: office workers (managerial and professional workers, 5.2% [n=399] and clerical workers, 9.4% [n=723]) and other workers (service workers, 78.4% [n=6,047] and manual workers, 7.1% [n=545]). In the Erikson–Goldthorpe–Portocarero scheme, clerical workers (classified as lower non-manual workers) are considered as a lower job class group compared with managerial and professional workers (classified as upper non-manual workers). In a prior analysis of this study sample, we preliminarily observed occupational differences in smoking HTPs using different reference groups, as follows: (a) compared with service and manual workers, the adjusted odds ratio (OR) of upper non-manual workers for smoking HTPs was 3.54 (95% confidence interval [CI] 2.16 to 5.80); and (b) compared with clerical, service, and manual workers combined, the OR of upper non-manual workers for smoking HTPs was 3.04 (95% CI 1.88 to 4.89). However, because clerical workers have been reported to have more favorable health outcomes in terms of mortality and cancer survival compared with managerial and professional workers in Japan [Tanaka et al. 2019, Zaitsu et al. 2020], we classified clerical workers into the office worker group.

Citations:
1. Tanaka H, Nusselder WJ, Bopp M, et al. Mortality inequalities by occupational class among men in Japan, South Korea and eight European countries: a national register-based study, 1990-2015. J Epidemiol Community Health 2019;73(8):750-758.
2. Zaitsu M, Lee HE, Lee S, et al. Occupational disparities in bladder cancer survival: A population-based cancer registry study in Japan. Cancer Med. 2020 Feb;9(3):894-901.