Author’s response to reviews

Title: Youth Working in Tobacco Farming: Effects on Smoking Behavior and Association with Health Status

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Author’s response to reviews:

Response to Reviews from BMC Public Health for manuscript # 19-03729, “Youth working in tobacco farming: Effects on Smoking Behavior and Health”

Reviewer 1 (Beladenta Amalia):

1) This is a very well conducted study, and it addresses issue that is still overlooked in tobacco control.

Thank you for this comment.

2) My one major comment is concerning the 2nd regression analysis (Table 3) where it is unclear whether the model included smoking status in T1 as the confounding factor. While it is indicated in the methods section (Page 9, line 32-34), it is not mentioned in the footnote of Table 3, making the message inconsistent.

Smoking at T1 was included in the regression model shown in Tables 3.a. and 3.b. We have clarified that the variable was included in the footnote for Tables 3.a. and 3.b.

3) Other comments:

   -Methods:
   (Page 6) Any explanation why the sample was only among 8th grade students while the secondary schools range from 8th to 12th grade? and aged 13-17 years seems too broad for one specific grade.
The sampling denominator for the original study was designed to include all 8th graders at baseline with 3 yearly follow ups, before their graduation from that secondary school. Including 8th to 12th graders at baseline would have required to follow up students after their graduation and distracted from the original objective which was to evaluate transition to smoking among youth in Jujuy.

The age range of 13 to 17 years is indeed broad for accepted standards in most countries. However, this is what we found in this sample that includes a fairly important proportion of low-income youth. Secondary schools in Argentina do not always promote a student to the next grade if academic performance is poor. Unlike the U.S. experience, promotion for “social reasons” is not the norm and thus some older students are held back in 8th grade until their academic performance is acceptable or they drop out of the system altogether. About 85% of the sample was between 13 and 15 years of age with 10% being 16 years old at the time of the survey.

4)  (Page 8, paragraph 2) On definition of tobacco farming. Does it mean that they may have stopped working by the time of the survey?
I suppose different employment status in tobacco farming (never, past, current) may indicate different exposure and, thus, different outcome. Although authors have mentioned that they cannot get the exact date of the work initiation, do they know whether they were still working when the survey was conducted? if they fail to obtain such information, authors might want to explain how it is likely affect the results.

We do not have data on whether youth were still working in tobacco farming at the time of the study. Given their age, living conditions, need for income and the geographic location with extensive tobacco cultivation in one region of Jujuy, it seems likely that the exposure was ongoing. However, in response to the reviewer’s suggestion, we have added the following text on Page 14 First Paragraph: “If respondents were no longer working in tobacco farming at the time of the study, the inclusion of these youth with less exposure time to tobacco farming work would potentially reduce the effect of the exposure and bias results to the null. Therefore, we are presenting conservative results.”

5) - Results:
(Page 11, Line 1-2) It's true that the overall prevalence of smoking increased at T2 and those working in tobacco farming had a greater rate. But if we compare their smoking behaviour in T1 vs. T2 among youth having history in tobacco farming, it shows a decrease (both in current & established smoker) while the youth who never worked in tobacco farming shows an increase. It appears counterintuitive. again, it is better to point this out in the text.
(Page 11, Line 22-27) I suppose authors miss this finding in Table 3.

Thank you for pointing out this detail. We have specifically added this observation to the text and in response to Reviewer #2’s comments, we have expanded the presentation of the data to include youth working in non-tobacco farming jobs. We are not commenting on changes in prevalence of behaviors over time, but on the fact that the prevalence of each smoking variable is significantly higher for youth working in tobacco farms than for those youth not working at all or in jobs other than in tobacco farms. In Table 2, the findings show that for youth working in tobacco farming current smoking decreased from 48% to 44.9% and for those not working the rates increased slightly from 32.6% to 34%. The differences between the two groups are statistically significant within each survey year.
We added: “for the total sample” and modified the existing text to the following: “Although smoking rates decreased slightly among youth working in tobacco farming from T1 to T2, they remained significantly higher compared to those who did not work (Table 2). Smoking rates did not differ significantly between youth not working compared with youth working in any non-tobacco farming job, ever smoking (64% vs. 59%, p=0.118), current smoking (39% vs. 35%, p=0.087) or established smoking (14% vs. 12%, p=0.189) (data not shown).

6) - Discussion:
   Is there any other/ethnographic studies looking at the discrepancy found between girls and boys working in tobacco farming? why it happened?

Page 5 Paragraph 2 LINE 3

   The ethnographic study cited is the only one we have identified that added context to our findings. We assume that the physical labor nature of tobacco farm work would tend to be more likely to be done by boys given traditional gender roles. In response to another reviewer’s comments, we moved this reference to the introduction.

7) (Page 13, line 15-19) Authors might want to add argument or reference to support the claim, that the current practice is unchanged.

Page 14 First Paragraph Last 2 lines, the text was modified to: “Although the data were collected more than 10 years ago, the practice of hiring underage youth in tobacco farming is a current practice [38].”

The reference refers to a newspaper article stating that children 10 to 17 years of age were authorized to work in the 2018 tobacco harvest. In addition, the lead author has lived in Jujuy for more than two decades and works extensively with the local communities on health promotion and public health issues. This is the reality of youth in the province.

Response to Reviewer #2 (Aleksandra Herbec):

   Thank you for the opportunity to review this manuscript prepared by Dr Alderete and colleagues, which reports findings from a longitudinal study of adolescents in Argentina, among whom over 22% work at tobacco plantations.

   The study has many strengths, including a large sample size and the longitudinal design. It is also written clearly. Moreover, addresses a still under-researched and important area of occupational hazards due to tobacco farming among youth.

   Given the literature review presented by the authors in the introduction, the findings from the study are not particularly surprising. Nevertheless, it is important to report this data, and I believe this study would be of interest to many readers.

Thank you for this comment

I have some questions to the authors and suggestions for the manuscript.
1. The title should probably be rephrased. First of all, this was a correlational study, and the analysis could not control for other factors that could bring about the observed outcomes - instead of effects it should read 'associations' or similar. At the same time, it would also be helpful to add to the title that this was a longitudinal study (possibly clarifying that the follow-up has taken place after a year's time).

Thank you for your comment on the title and the suggested change. We actually modified the title on a couple of occasions in order to better reflect the design and what we consider the main findings. The study is designed as a population-based cohort study with a longitudinal design. The one-year follow-up is a limitation, but in our view, the effects of being exposed to tobacco farm work on smoking behavior are consistent across several measures. The focus on tobacco may be the most expected and clearly the main objective of our study. The data on association with adverse self-reported health status globally and specific events is correlational as it is a cross sectional analysis of non-chore questions collected at one time point. Thus, in order to reflect this dual focus, we modified the title to: “Youth Working in Tobacco Farming: Effects on Smoking Behavior and Association with Health Status.”

2. A potential limitation is that the findings may not be due to the youth engaging in tobacco growing, but being in employment in general, which would be in line with the findings that the authors cite in the introduction.

Thank you for this suggested alternative explanation as it allowed us to look at this in the data. We did collect data on youth working in general as well as specifically working in tobacco farming. We created a separate variable “Working in non-tobacco jobs” that excluded youth reporting tobacco farm work. This predictor was not associated with any of the smoking outcomes in bivariate analyses. As you can see from the following results, youth who worked in other jobs had a higher rate of tobacco use behavior in 2006 (T2) than youth who did not work at all but continue to be lower than those working in tobacco farms.

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Work in tobacco farming</td>
<td>242</td>
<td>72%</td>
<td>50%</td>
<td>23%</td>
</tr>
<tr>
<td>Other Jobs</td>
<td>371</td>
<td>64%</td>
<td>39%</td>
<td>14%</td>
</tr>
<tr>
<td>Not working at all</td>
<td>2329</td>
<td>58%</td>
<td>33%</td>
<td>11%</td>
</tr>
</tbody>
</table>

We have modified the text to mention this point on Page 9 First paragraph, last sentence: We included the following sentence: “Information about working in non-tobacco farming occupations was also requested.”

Page 9 Second Paragraph Line 10
We included: “and non-tobacco farming.”

Page 9 Last Line
We included: “Bivariate tables also examined the pairwise relationship of non-tobacco farming work and the smoking behavior variables.”
Page 11 Last Paragraph Line 7:
We included the sentence “Although smoking rates decreased slightly among youth working in tobacco farming from T1 to T2, they remained significantly higher compared to those who did not work (Table 2). Smoking rates did not differ significantly between youth not working compared with youth working in any non-tobacco farming job, for ever smoking (64% vs. 59%, p=0.118), for current smoking (39% vs. 35%, p=0.087) or for established smoking (14% vs. 12%, p=0.189) (data not shown).”

3. Under sampling, p.6, there is no reason provided to using only the data from 2005 and 2006? Why have not the author used a longer period of observation, i.e. 2004-2007? Was the data (or similar outcomes) analysed and published before for the longer period?

The tobacco farm work questions were not asked every survey year, but our study objective was to evaluate a more proximal effect of tobacco farming on smoking behavior.

PAGE 6 LAST LINE
We included the following sentence
“Questions such as those related to working in tobacco farming were not consistently included in all waves of the study.”

4. It would be most useful if the authors stated at the end of the introduction what are the different research questions (and which of these were determined a priori and which were exploratory), and to structure the results according to these research questions.

The main goal of this analysis was to evaluate whether exposure to tobacco farming was associated with tobacco use behaviors. The additional evaluation of self-reported health and specific events such as injury were an extension of this original objective.

Page 2 LINE 3
We modified the sentence in the abstract referring to the objectives of the study as follows: “We compared sociodemographic and health-related characteristics of school youth who worked and did not work in tobacco farming.”

PAGE 5 LAST PARAGRAPH
We re-stated the research questions to clarify our objectives.
The research questions leading this analysis were the following: “1. What are the sociodemographic characteristics of youth working in tobacco farming? 2. Is working tobacco farming associated with health risks indicators? 3. Is working in tobacco farming a risk factor for smoking behaviors at one year of follow-up?”

The results are now organized according to these three objectives.

5. In relation to point 3, it is not clear why the authors conducted comparisons between girls and boys? This analysis has not been set up in the introduction.

Most research on tobacco use, especially in Argentina, shows differences in behavior by gender. Although these differences are attenuated among youth, we generally include gender-based analysis in all our publications that focus on tobacco use behavior when feasible and reasonable, as a standard procedure.
6. What is the role of religion in tobacco farming (and the importance or measuring it?)

We considered important the inclusion of religion as a covariate because in previous analyses, we found a significant association of religion with smoking behavior. It is possible that more religious youth are less likely to smoke.


7. Data and information in Table 3 are not very clear, e.g. 'fair-bad/excellent-good' - it's difficult to interpret the data and understand these headings (e.g. what is the reference group for the logistic regressions?). I suggest the authors try to present this data differently. Perhaps it would be useful to have longer annotations and table titles to clarify how to read the information.

The measure in question has standard responses about self-perceived health that have been in use for decades. The responses of “poor” and “fair” are often combined and compared responses of “good” and “excellent”. We appreciate the comment about the lack of clarity in how the data are presented and have made modifications in Table 3 to make these clearer.

In TABLE 3 we now have separated the two parts as 3.a. for the cross-sectional association with health outcomes and as 3.b. for the effects on smoking behavior. We included reference groups for each outcome variable. Fair-bad/excellent-good was changed to Excellent/good vs. Fair/bad. We expect that this provides a clearer description of the standard answers to the question on Perceived Health Status.

Other issues and suggestions

8. In the abstract, results, it's not clear what the 'initiation into' happened at the age of 12.6 yrs. old (tobacco farming?).

Page 2 Abstract Results section
We added the words ‘to tobacco farming’ to clarify this point.

9. In the abstract, it is unclear what the results refer to in terms of the comparisons - presumably the percentages compare the rates of outcomes of interest among the youth that is involved vs not in tobacco farming?

Yes, you are correct that the rates are comparisons by exposure to tobacco farming. We have clarified this with edits in the Abstract.

Page 2 Abstract Results section
We rephrased to ‘Youth working in farming had higher rates of’

10. There is no need to add the (MLR) abbreviation in the abstract as it is not used elsewhere.

Page 2 Abstract Results section
We have deleted the abbreviation (MLR)

11. The p-value in line 4/5 on p. 5 is probably not needed.

Page 5 LINE
12. What is meant by 'passive content' on top of p.7?

This was a typo and refers to ‘passive consent’ from the parents. It refers to parents consenting verbally to the participation of their children in the study.

13. The sentence 'we used smoking information from T1 and T2' could be better phrased, and possibly moved to the start of the paragraph. There also needs to be some clarification as to what 'smoking information' refers to?

Thank you for this suggestion. We moved the sentence to the beginning of the second paragraph on Page 8 and revised the sentence to: “For this study, we used smoking behavior data from T1 and T2.”

14. Similarly, it would be better to start the paragraph on 'working in tobacco farming' with: "At T1 data were collected on working in tobacco farming. The youth were asked if they had ever worked in any…..".

Thank you for this suggestion. We moved the phrase “Hereby reported exposure variables correspond to measurements at T1” to the beginning of the paragraph and revised accordingly on Page 9.

15. The first paragraph of the discussion is quite long and includes references to new findings (e.g. ethnographic observations), which is quite unexpected. It would be better to split this first paragraph into a summary of the findings.

The reference to ethnographic findings were not our data and this reference has been moved to the Introduction to help define the context for the study. Thus, new findings were not part of the Discussion. We appreciate your comments on the first paragraph of the Discussion and have modified it to enhance clarity and flow.