Author's response to reviews

**Title:** Association of smoking, physical activity, and dietary habits with socioeconomic variables: a cross-sectional study in adults on both sides of the Hungarian-Romanian border

**Authors:**

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Edit Paulik (paulik.edit@med.u-szeged.hu)

**Version:** 3  **Date:** 16 October 2011

**Author's response to reviews:** see over
Dear Dr. Chaix,

Hereby I am sending the revised manuscript entitled “Health-damaging behaviours on both sides of the Hungarian-Romanian border: a cross-sectional study” to BMC Public Health. We would like to thank you and the reviewers for your helpful comments, which have helped us to improve our manuscript. The revision has been done in response to comments from Associate Editor and from four reviewers. Changes have been made in accordance with your suggestions. We think that the resulting manuscript is much more focusing on the socioeconomic aspects of health-related behaviours, than the original one.

We are enclosing the revised version of the manuscript. Following the reviewers comments most part of the paper has been rewritten. First of all the title of the paper has been changed: “Association of smoking, physical activity, and dietary habits with socioeconomic variables: a cross-sectional study in adults on both sides of the Hungarian-Romanian border”. To avoid confusion, the controversial parts were removed and replaced by new sections. New parts are signed by red colour. Please find also attached our response to reviewers’ comments point-by-point (see below).

We hope that we have addressed the reviewers’ comments adequately for our manuscript to be considered for publication in BMC Public Health.

Thank you very much for your consideration.

Yours sincerely,

Edit Paulik MD, PhD
Associate Professor

paulik.edit@med.u-szeged.hu
### Responses to suggestions from Associate Editor

The authors thank Associate Editor for comments and suggestions. They were helpful and have been taken into consideration throughout the revision of the manuscript.

| 1. | Please remove every reference to the notion of “statistical significance”, “significant”, etc. This is an old-fashioned term. Instead, you can always write: “There was a relationship between??,” “X was not associated with??,” etc. Please see the following for information: [http://journals.lww.com/epidem/Fulltext/2001/05000/The_Value_of_P.2.aspx](http://journals.lww.com/epidem/Fulltext/2001/05000/The_Value_of_P.2.aspx)  
The terms have been omitted and replaced. |
|---|---|
| 2. | It is OK to provide p-values in Table 2, but please remove p-values from Table 3 and provide instead 95% CIs.  
Table 1 and Table 3 were removed according to the suggestion of Reviewer 3. |
| 3. | References are missing in the introduction.  
New references were added to this section. |
| 4. | Please make the introduction more convincing. The first 3 paragraphs are not convincing because they seem to be a list of disconnected sentences. Introduction starts to be much better on the second page (page 5). Please shorten and rewrite the first page to make things more interesting for the readers.  
The Introduction/Background has been rewritten focusing on inequalities and previous state of research on health-related behaviours and socioeconomic factors (see also Reviewers’ 3 and 4 suggestions). |
| 5. | Please add the usual subsections in the Methods section: Population, Measures, Statistical analysis. And add all the information required by the reviewers.  
The subsections have been added, and all the required information has been included in the Methods section. |
| 6. | Finally and very importantly, I do not understand why BMI is included as a predictor in the models. What is the point to estimate the effect of BMI on smoking?? And the effect of BMI on nutrition? This is very unusual and it may bias the estimates of the other effects. I suggest that you remove BMI from all models and estimate separate models with BMI as the outcome.  
The authors chose to include the BMI in the models because the relationship between BMI and physical activity, smoking/smoking cessation or healthy diet has been observed in several cross-sectional studies. Although it is questionable whether high BMI is a determinant or a consequence of physical inactivity, however this analysis may be a goal of a longitudinal study. Taking into consideration your suggestion and the cross-sectional way of our study, BMI was removed from all models, and we did separate analyses with BMI (“obesity” and “no obesity” as a dichotome dependent variable) and socioeconomic, as well as health-related factors. |
Responses to suggestions from Reviewer 1: Rik Crutzen

The authors thank Reviewer 1 for his suggestions. His comments were helpful and have been taken into consideration throughout the revision of the manuscript.

7. It is not clear what this study adds to the current literature. The authors need to make a much stronger case of the added value of this study. The manuscript as it stands replicates known associations only. The relevance of this study could become clearer if the authors stress in the Introduction section (1) why the focus was on Hungaria and Romania (e.g., Are insights lacking from these countries? Are relations expected to be different) and (2) why the border region is of importance (e.g., How distinctive this is from the rest of Hungaria and Romania?; if not – why not; if so – what are differences and why this region).

The Introduction/Background has been rewritten focusing on inequalities and previous state of research on health-related behaviours and socio-economic factors.

The aim and the relevance of this study has been clarified at the end of the Background session: “There are similarities in the geographic conditions and historic events in neighbouring areas of Romania and Hungary on the two sides of the border. The health state of the population of Hungary and Romania shows similar trends in mortality, but there are no data on the similarities and differences in health influencing factors and their relationship with certain demographic and socioeconomic characteristics of the populations in question. The aim of our research was thus to study the socioeconomic differences in health-related behaviours and in nutritional status of Hungarian and Romanian citizens living on both sides of the border.”

8. Why are analyses conducted separately for the Romanian and Hungarian sample? Given the purpose of the study, it would be more logical to include country of origin as a predictor.

In this study we wanted to compare inhabitants with Hungarian and Romanian citizenship from the point of their health-related behaviour and its influencing factors, and to identify the differences (or similarities) between the two populations living close to each other geographically. Our aim was to characterize the population at risk of chronic diseases in Hungarians and Romanians living on both sides of the border.

9. Please provide more details about the measures (e.g., lifestyle factors); give examples of questions. Were these measures used in previous studies? Were they validated previously?

A more detailed description about the questions has been added. Some questions were previously used in the National Health Survey of Hungary (e.g., dietary habits), other questions were self-developed. The understandability of the questionnaire was pre-tested by 20 adult persons; the results of the pilot study were taken into consideration in developing the final version of the questionnaire. (see Methods – Measures)

10. It seems as if single item measures were used primarily. This is a limitation of the study that needs to be addressed in the Discussion section.

A section about the limitations of the study (its cross-sectional form, self-reported data, etc.) has been added to the Discussion.

11. Please provide directions when presenting results. For example, physical inactivity
was associated with a HIGHER BMI.

*The Results section has been rewritten according to the Reviewers’ suggestions. In the new version we have paid more attention on the direction of the results.*

12. **Please classify effect sizes instead of only stating that associations are significant.** How strong/weak were these associations?

*The expressions such as 'associations are significant' have been removed from the text according to the Editor’s suggestions (Please see comment 1 to Associate Editor). The power of the associations has been supported by the values of 95%CI.*

13. **A Limitations section is missing in the Discussion section.**

*Please see comment 10.*

14. **Please elaborate on the fact that this is a cross-sectional study, which only gives insight into associations.**

*Please see comment 10.*

15. **Page 4: “Belgic” should be “Belgian”**.

*This sentence has been removed.*

16. **Page 5: “the differences became even larger”; it is not clear what differences are meant.**

*The Background has been changed, and this sentence has been removed.*

17. **It is uncommon to have “new” information in the Conclusions section.**

*It has been rewritten.*
Responses to suggestions from Reviewer 2: Peter Prof. Balazs

The authors thank Reviewer 2 for his suggestions. His comments were helpful and have been taken into consideration throughout the revision of the manuscript.

18. Methods para 2. Regarding the random sampling method, authors have to explain how they corrected the different settlement structure on both sides of the border. On the Hungarian side there is a relatively great town with more than 32,000 inhabitants without a counterpart on the other side (the greatest village has 12,687 inhabitants).

A two-stage sampling was used. In the first stage of the sampling the settlements on both sides of the Hungarian-Romanian border were selected. In Hungary, a small area of the county Békés, including six settlements (towns and villages), was chosen. Another six settlements in the county Arad, with similar characteristics in geographical location and population size, were chosen in Romania. In the second stage, a sample stratified by age and sex was selected randomly from the Hungarian and Romanian citizens aged 18 and over, making use of the local registrations. The number of persons picked was in proportion to the population size of the settlements involved in the study.

19. Methods para 2. There are different names used for the target population, such as people, nations, Hungarians, Romanians. It is unmistakeable by the sampling method that the authors targeted inhabitants with Hungarian or Romanian citizenship of both regions. It must be emphasized at the first occurrence of definitions and later on the persons have to be referred as Hungarians and Romanians.

Thank you for your suggestion. Hungarian and Romanian citizens were the target population of the study; it has been stated in connection with the aim of the study and in the Methods section, and later they are referred as Hungarians and Romanians.

20. Results para 1. It is a fact that "the rate of those who have primary education...was significantly higher among the Romanians than the Hungarians". Otherwise, in Discussion para 1 "educational level was more favourable in Hungarians". It is possible that higher education was more frequently among Hungarians, but the sentence must be corrected this way to avoid confusion.

The Results and Discussion sections have been rewritten; the sentences in question have been corrected as follows: “Regarding education and financial conditions, however, there were differences: the rate of those with low education was higher among Romanians, while good financial conditions were more prevalent among Romanians than in Hungarians.”

21. Background para 5. Mentioning Roma is rather confusing, because this study did not targeted Roma communities. It is the best solution if the authors delete this sentence.

The Background has been rewritten, and this sentence was deleted.

22. Background para 5. In the sentence "The life expectancy at birth..." must be clearly indicated that here are Hungary, Romania and Bulgaria referred.

The Background has been rewritten, and this sentence was deleted.

23. Background para 6. It is not true that "health improvement requires solid factual information...". Instead of this health promotion programs require information.

The sentence has been changed: “…health promotion programs require
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<td>24.</td>
<td>Methods para 8. Authors did not use definitely the Pearson coefficient, instead of this they used the Spearman coefficient which is correctly referred in the Table 3. The authors thank Reviewer 2 for detecting this error. Table 3 showed the Spearman coefficient. We have corrected the text (Methods), but at the end Table 3 was deleted from the final version according to the Reviewer 3’ suggestion.</td>
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Responses to suggestions from Reviewer 3: Donata Woitas-Slubowska

The authors thank Reviewer 3 for her suggestions. Her comments were most helpful and have been taken into consideration throughout the revision of the manuscript.

25. **Methods (25-33.)**
   In my opinion, presentations of materials and methods are inadequate. It is necessary to extend information about the research procedure, groups, and research tools used in the study.
   
   The authors agree that the Methods section is incomplete. The section has been revised and completed according to Reviewer 3’s suggestions. (See also comment 9)

26. Since health-related behaviours (physical activity, dietary habits) exhibit significant relationships with seasons of the year, please add information about the seasons when the study was carried out among the groups of Hungarians and Romanians.
   
   The missed information has been added. The study was delivered in February to June (mainly in spring) in 2007.
   Please also provide the data on response rates with consideration of the country and gender of subjects.
   
   The missed information has been added.

27. Please specify the maximal age of women and men included in the study in the group of Hungarian and the group of Romanians.
   
   The age has been specified in the text. The population aged 18 years and over was studied, without upper limit; the maximal age was 94 years in Hungarians, and 90 years Romanians.

28. What were the criteria for inclusion of subjects in individual categories of financial conditions?
   Discussion, line 3 to 4, contains the phrase ‘subjective judgement of the financial conditions’ (which should be moved to Methods). Use of this measure of financial conditions raises doubts because the subjects who answered the questionnaire were able to compare their current financial conditions with those of previous years, neighbour/family conditions or conditions expected in the future etc. This causes that any two respondents who live in actually similar financial conditions may assess them in a completely different manner.
   
   It has been clarified in the Methods: “Self-perception of financial conditions was based on the following question: “How do you evaluate your financial situation?” A five-point Likert scale – (1) very poor, (2) poor, (3) acceptable, (4) good and (5) very good – was used for the evaluation of self-perceived financial conditions.”

29. Please add information about: 1/ Which question was used in order to assess the behaviours concerning smoking? Which categories of answers were used? 2/ How are exsmokers defined? (e.g. is a person who gave up smoking two days ago defined as non-smoker or smoker?)
   
   It has been clarified in the Methods: Smoking status was assessed by the question: “Do you smoke?” with the answer options ‘No, I have never smoked regularly’, ‘No, I have stopped smoking’, ‘Yes, occasionally’, and ‘Yes, daily’. Smoking status of the respondents was described as never smokers, ex-smokers or current smokers (smoking daily or occasionally) at the time of interview. For the purpose of analysis smoking status was dichotomized as ‘smokers’ including current smokers, and as ‘non-smokers’
including ex-smokers and never smokers.

30. Nutrition
   1/ replace ‘nutritional habits’ with ‘dietary habits’.
      ‘Nutritional habits’ has been replaced with ‘dietary habits’.

   2/ provide information about questions the respondents answered and optional answers, 3/ with respect to the frequency of consumption of fruit and vegetables: a/ explain which products were included in vegetables (potatoes, leguminous plants?), b/ define the categories of ‘daily, occasionally, never’.

Health recommendations suggest consumption of 5 portions of vegetables and fruit a day. The study adopted entirely different criteria, which makes it impossible to compare the obtained results to these recommendations.

   The required information has been added to the Methods:
      Dietary habits were evaluated on the basis of three questions about the frequency of fresh fruit consumption, fresh vegetable consumption and the kind of the fat (vegetable or animal origin) used for cooking. E.g. respondents were asked how often they ate fresh fruit during the past month with the following alternatives in the answer: ‘daily, several times’, ‘at least once a day’, ‘2 to 3 times a week’, ‘once a week’, ‘less than once a week’ or ‘never’. These questions were also used as indicators of healthy diet in the Hungarian “National Health Interview Survey” in 2000 [26]. On processing the data, these responses were converted into dichotomous variables, the consumption being recorded as “daily” if the answer was ‘daily, several times’ or ‘at least once a day’, while all other answers were classified as “occasionally or never” consumption. In the final analysis “healthy diet” was stated when “daily” consumption of fruits, “daily” consumption of vegetables plus the use of vegetable oil for cooking were recorded, and all the others were categorized as “unhealthy diet”.

31. Physical activity (PA)
   It also seems necessary to:
      1/ define which type of PA was considered in the study (leisure time PA, PA at work, locomotive PA or total PA)
      Leisure time physical activity was considered in the study.
      2/ specify which forms were included in the definition of PA? (the only listed forms were competitive sports and some kind of sports: jogging, cycling, gardening, etc. What about going for a walk, dancing?) The study concerned PA in the year prior to the survey. It seems doubtful whether respondents remembered their activity, especially if it occurred irregularly.

      The subjects were asked to report on their physical activities. Regular participation in competitive sports and leisure-time physical activity were measured. Primarily, athletes were regarded as physically active persons. People who didn’t pursue any sport were asked about the regularity of their physical activity: “How often did you do the following forms of activity (running, swimming, gymnastics, using fitness machines, at least 20 minutes walking, bicycling and gardening) in the last year?” The answers were the followings: once a day, several times per week, once a week, several times per month, once a month, less than once a month and never. Those who participated in any form of exercise for less than several times per week (once a week, several times per month, etc.) were regarded as “physically inactive”.

8
Methods define the concept of ‘people physically active’ (line 9). I suggest providing the definition of physical inactivity, since this variable was subjected to statistical analysis. The definition of ‘physically active person’ adopted by the authors (which does not take into account the health recommendations concerning PA in adults) causes that the obtained results cannot be compared to the goals of public health and compared with the results of work of other authors.

The definition of “physical activity” has been replaced with the definition of “physical inactivity”.

32. The authors do not provide any information about validity and reliability of the measures.

The authors recognize that some necessity information was missing from the previous version of the manuscript. Health-related behaviours were measured by simple questions; one part of these measures were used primarily, while the other part was based on previous studies. Our questionnaire was evaluated in pilot study involving 20 persons, and the necessity changes were performed.

The authors hope that the Methods section has been improved by the adding a more detailed description about the measures (Please see also comments 9 and 10).

33. Statistical analysis

A number of previous studies have demonstrated that one of the main factors which differentiate between health-related behaviours is gender of respondents. Gender does not differentiate only between behaviours but also between the conditions and relationships between the behaviours. The authors collected the data from 1,099 Hungarians and 852 Romanians. Therefore, the number of subjects is sufficient for statistical analysis in the four subgroups: female Hungarians, male Hungarians, female Romanians and male Romanians (which I suggest doing).

The authors thank Reviewer 3 for her suggestion. Gender as an independent variable was involved in the logistic regression models to clarify the gender-related differences. The main aim of our study was to describe the similarities and differences from the point of socioeconomic factors by countries. We think that by increasing the groups for comparison the accuracy of the logistic regression analysis has been reduced.

For intergroup comparison of socio-demographic (more specifically socioeconomic) characteristics the authors used \( \chi^2 \) test. Please specify which \( \chi^2 \) test was used.

Pearson’s chi-square test was used for comparisons.

Which test was used for analysis of significance of differences between mean age in the subjects in both groups? (Table 2 provides erratic information about \( \chi^2 \) test).

One-way ANOVA was used to compare the mean age of the subjects, but from the revised version this comparison has been removed and replaced with the distribution of the sample by age-groups in Table 1.

34. Results (34-48.)

1/ Remove Tables 1 and 3 (In my opinion they are not necessary for achievement of the research aim).

Tables 1 and 3 have been removed.

35. 2/ Use the same names of variables and the same categories of variables in Methods and Results (text and tables) and further, in Discussion. The used
variables are e.g.: regular physical activity (Table 2) and physical inactivity (table 4 and 5), financial conditions: good (table 2) and better (text), educational level: low (table 2) and primary (text), etc.

The authors agree that names and categories of the variables have to be unified during the whole paper; we have made efforts to unify the names of the variables.

36. 3/ The description of the results of the investigations contains errors. It is impossible to draw conclusions that the groups included in the study are similar in terms of age (line 3) based on mean age only (arithmetic mean of age in these groups). It is worthwhile to verify if the number of subjects in individual age categories does not differ significantly.

The authors agree that there is an incongruity. In the revised version the mean age has been replaced with the age-group distribution of the sample in Table 1 supporting the above mentioned statement.

37. Lines 4-14: it is impossible to find based on chi² test which of the analysed categories of attendance of subjects differ significantly. It is only possible to determine, depending on the test: independence of the variables (independence chi squared test) or concordance (concordance chi square test).

The text has been revised in concordance with this comment and with the Associate Editor’s suggestions. (Please see comment 1)

38. Line 7: Please change ‘nutritional status’ to ‘BMI’.

It has been changed.

39. Lines 11, 23, and further: please change: ‘lifestyle, lifestyle factors’ to ‘health-related behaviours’.

The expressions have been exchanged.

40. Lines 17 to 18: please move ‘Nutrition was......for cooking’ to Methods. Please replace ‘nutrition’ with ‘diet’.

‘Nutrition’ has been replaced with ‘diet’ through the whole paper.

41. Lines 18 to 21: category ‘either fruit or vegetables’ is absent from Methods. This category does not exist in Table 3, similarly to % values given in the text. The composition of this sentence was inadequate. The components of unhealthy diet were no daily fruit consumption, no daily vegetable consumption and using animal fat for cooking. This description has been removed into Methods section, as follows: “healthy diet” was stated when “daily” consumption of fruits, “daily” consumption of vegetables plus the use of vegetable oil for cooking were recorded, and all the others were categorized as “unhealthy diet”.

42. Lines 25 and 37: lower BMI: does not exist in Table 4. The composition of this sentence was inadequate. In the revised version BMI has been analysed separately according to the Associate Editor’s suggestion (Please see comment 6).

43. Lines 28 to 34: please specify the directions of relationships found between the variables.

This paragraph has been revised.

44. Lines 39 to 40: please move “…all the variables.....in the multivariate model” – from Results to Methods (statistical analysis).

This sentence has been removed. Statistical analysis is involved into Methods section.

45. Lines 42 and 45: ‘lower age’: I would rather use ‘younger age’.

It has been changed.
46. Line 44: ‘strong associations with smoking’: strength of associations was not analysed: the analysed variable was the value of risk of smoking.
   *It has been changed.*

47. Lines 47 to 49. My suggestion is e.g.: ‘In the Hungarian group, the increase in risk of unhealthy diet was associated with male gender...’
   *Thank you for your suggestion. The Results section has been changed.*

48. Lines 54 to 56: please correct the language.
   *This paragraph has been deleted because of the separated analysis of BMI (Please see comment 6).*

49. **Discussion and Conclusions (49-52.)**
   Regarding Discussion the usual structure is starting with very brief summary of the major findings, continuing with a discussion of these findings with other studies results and ending with description of study limitations. I think that the part of Discussion should be substantially supplied. I suggest that the discussion should be based only on those studies by other authors which concern:
   1/ prevalence of smoking, unhealthy diet and physical inactivity in leisure time, and also associations between health-related behaviours and: socioeconomic variables and BMI,
   2/ men and women at the age similar to the age of studied Hungarian and Romanian,
   3/ countries of the Middle-East Europe and the South Europe.
   It is necessary to add information about groups studied by other authors (representative, randomly selected), subjects’ age, number and the definitions of individual health-related behaviours and socioeconomic variables.
   The discussion contains content-related errors, e.g.:
   - lines 32 to 34: the effect of unhealthy diet on the elder Romanians was not studied. The study concerned the relationships between unhealthy diet and age.
   - lines 36 to 38: It was relationships rather than the independence which was studied.
   *Discussion and Conclusion have been rewritten according to the Reviewers’ 3 and 4 suggestions.*

50. It is necessary to specify Limitations.
   *The section about the limitations of the study (its cross-sectional form, self-reported data, etc.) has been added to the Discussion.*

51. The Discussion and Conclusions are not well balanced and adequately supported by the data.
   *Discussion and Conclusion have been rewritten according to the Reviewers’ 3 and 4 suggestions.*

52. Small details:
   - please replace ‘the chance’ with ‘the risk’.
   - line 36: please replace ‘The occurrence of physical inactivity was...’ with ‘Physical inactivity was...’
   - line 50: ‘Participation in a healthy lifestyle’: an awkward phrase
   - line 56: I suggest: ‘...effect on health-related behaviours both Hungarian and Romanian people living by the border...’
   *The whole paragraph has been changed according to your suggestions.*

53. Title of the study does not match the contents of the manuscript. In respect to that I would change the title of the paper to something like: Associations of smoking, leisure time physical activity and dietary habits with socio-economic variables and BMI: a cross-sectional study of adults on both sides of the Hungarian-Romanian...
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<td><strong>54.</strong></td>
<td>Abstract is broad and it inaccurately conveys the findings (e.g. smoking was not associated with educational level in both subgroups).  &lt;br&gt; <em>The abstract has been rewritten in accordance with the revised paper.</em></td>
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<td><strong>55.</strong></td>
<td>Line 22: were health-related behaviours and lifestyle studied or only behaviours?  &lt;br&gt; <em>Health-related behaviours were studied.</em></td>
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<td><strong>56.</strong></td>
<td>The aim of the study: Please replace ‘health-damaging lifestyle’ with ‘health-related behaviours’.  &lt;br&gt; <em>‘Health-damaging lifestyle’ is replaced with ‘health-related behaviours in the whole paper.</em></td>
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<td><strong>57.</strong></td>
<td>Research hypotheses: not specified  &lt;br&gt; <em>The aim and the relevance of this study has been defined in the Background.</em></td>
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<td><strong>58.</strong></td>
<td>Background is not a good introduction to the subject of the study: it contains a great deal of information not related to the subject and treats necessary information only marginally, e.g.:  &lt;br&gt; a/ previous state of research on the relationships between health-related behaviours and socioeconomic factors and BMI  &lt;br&gt; b/ it does not take into account the gaps in current knowledge about the relationships between health-related behaviours and socioeconomic factors and BMI.  &lt;br&gt; <em>The Background has been rewritten according to the Reviewers’ and Associate Editor’s comments.</em></td>
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<td><strong>59.</strong></td>
<td>References  &lt;br&gt; Roughly one fifth of the references are in Hungarian, which substantially limits the access of readers to those studies. I strongly suggest that the authors refer to the studies published in English or at least those with abstracts in English.  &lt;br&gt; <em>The authors are sorry that some data about Hungary was available only in Hungarian. Altogether 5 references from 31 were in Hungarian; during the revision of the paper this request was taken into consideration, and the number of Hungarian references was minimized.</em></td>
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**Responses to suggestions from Reviewer 4: David Doku**

The authors thank Reviewer 4 for his suggestions. His comments were helpful and have been taken into consideration throughout the revision of the manuscript.

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| 60. | Abstract: If space would allow add some figures of the main (e.g. odd ratios) results in the abstract.  
*Some selected odds ratios have been added.* |
| 61. | Introduction: The introduction lacks a snap shot of previous Hungarian and Romanian studies on inequalities in health behaviours. The only specific background presented on these two countries is their life expectancies.  
*The Background has been rewritten according to the Reviewers’ and Associate Editor’s comments.* |
| 62. | Page 4, paragraphs 2 and 3. Disease and life expectancy is featured prominently here as if it is the main aim of the study while a concise review of previous studies on socioeconomic differences in health behaviours, and a building up of the rationale for the study is lacking.  
*The paragraphs about life expectancy have been delated, while a more detailed review about the inequalities has been added. (Please see also comment 3, 4, 7).* |
| 63. | Page 5, paragraph 3 “In Romania, a large proportion of the population remains either below the poverty level or vulnerable to becoming so. Some groups (e.g. the Roma populations) are especially disadvantaged.” Give precise figure of the poverty level (if available)…and what is the poverty level in Hungary?  
*This paragraph has been changed according to the Reviewer 2’s comments.* |
| 64. | Page 5 last paragraph “The data of this survey are intended to serve as a basis for recommendations of public health authorities in Hungary and Romania – especially in the region nearby the border – in formulating area-specific preventive measures.”  
I think the use of “,” is better than “–“. You could check the language fluency too.  
*Thank you for your suggestion. The whole paper has been checked from the point of the language.* |
| 65. | In general, the introduction lacks a solid argument for the rationale of the study.  
*Please see comment 7.* |
| 66. | Methods: Page 6, paragraph 2. “When choosing our sample, the population of six settlements was involved from one small administrational region on both sides of the border (Table 1).” This is not clear. How were the six settlement sampled? How was the sampling done to arrive at the representativeness in terms of age and gender as stated?  
*A two-stage sampling was used. In the first stage of the sampling the settlements on both sides of the Hungarian-Romanian border were selected. In Hungary, a small area of the county Békés, including six settlements (towns and villages), was chosen. Another six settlements in the county Arad, with similar characteristics in geographical location and population size, were chosen in Romania. In the second stage, a sample stratified by age and sex was selected randomly from the Hungarian and Romanian citizens aged 18 and over, making use of the local registrations. The number of persons picked was in proportion to the population size of the settlements involved in the study. (Please see comment 18.)* |
| 67. | Readers would be interested in knowing how health behaviours and the socio-demographic indicators were assessed. In information provided in the methods is |
more of how the variables were categorised rather than how they were assessed. E.g., who were classified as never smokers, ex-smokers or current smokers? What does it mean by “pursue sports competitively”, etc?

*Please see comments 5, 9, 29-31.*

| 68. | Move the first paragraph on page 8 “The study protocol was approved by…” to the end of the first sentence of paragraph 3, which begins with “The survey was based in interviewer-administrated…” on page 6. **This paragraph has been moved.** |
| 69. | Results: Page 8, first paragraph of the results. “…the rate of those who have primary education and are in better financial conditions was significantly higher among the Romanians than the Hungarians.” This sentence is confusing. Clarify. *The Results has been changed. (Please see comment 20).* |
| 70. | Last sentence of paragraph two. “The condition of the Romanians was also worse in terms of smoking habits and the origin of fat used for cooking.” Reconsider this sentence. Consider using phrases like “the prevalence of …was higher among …than…” Or “…were more likely to than….” **The sentence has been changed.** |
| 71. | Last sentence on page 8. “…75.2% of the Romanians ate in an unhealthy way”. They did not eat in an “unhealthy way”. They ate unhealthy diet. The authors must check the wording of the sentences throughout the manuscript, especially in the results. **The whole paper has been checked from the point of the language.** |
| 72. | Page 10, first paragraph. “In the Romanians, unhealthy nutrition was strongly influenced by age (OR=1.02)…” I wouldn’t call an odds ratio of 1.02 “strongly influence…”, no matter how strong the p-value. An odds ratio of 1 simply means no difference. **The word ‘strongly’ has been removed. The age was involved as a continuous variable into the logistic regression, so the odds ratio of 1.02 meant that there was an increasing risk with age.** |
| 73. | Discussion: First sentence. “The results of our study show that the Hungarian and the Romanian groups had similar age and gender composition, but were different both in terms of socioeconomic conditions and health behaviours.” This conflicts with the conclusion in the abstract, “The results pointed out to the fact that the socioeconomic condition of a person has been associated with health behaviour and lifestyle both among Hungarian and Romanian people living by the border.” Page 10, last sentence of first paragraph under discussion. “…certain behaviours…”. The name the behaviours specifically. The last paragraph of the discussion, page 12. Again disease and mortality is prominent here as if it is the main theme. In the discussion, a reflection of the present findings in the light of previous Romanian or Hungarians studies is lacking. A number of inequalities in health behaviours studies have been conducted in these populations. **The authors thank for the suggestions. Taking into consideration the comments from all Reviewers most part of the Discussion has been rewritten.** |
| 74. | The authors should discuss the self-report and cross-sectional nature of the study as well as other weaknesses that may affect the interpretation of the results. **The limitations of the study were added: The data were obtained in cross-sectional surveys where socioeconomic characteristics were asked** |
simultaneously with health-related behaviours. Strict causal judgements should therefore be avoided. Data from self-reports tend to be inaccurate in some instances; e.g. self-reported weight and height may underestimate the prevalence of obesity. Health-related behaviours were measured by simple questions (one part of these measures were used primarily), so on the one hand, it seems to be too general, but on the other hand, it may make the involvement of people with various age, educational level, etc. feasible.

Table 3. What is the purpose of the correlation analysis in this table? This table shows the correlation between the studied dietary factors (e.g. the correlation between unhealthy characteristics), this table has been deleted from the revised version according to the suggestion of Reviewer 3.