Author’s response to reviews

Title: Estimated 8-year cumulative incidence of diabetes mellitus among Sami and non-Sami inhabitants of Northern Norway - The SAMINOR Study

Authors:
Ali Naseribafrouei (ali.naseribafrouei@uit.no)
Bent Martin Eliassen (bent-martin.eliassen@nord.no)
Marita Melhus (marita.melhus@uit.no)
Johan Svartberg (johan.svartberg@unn.no)
Ann Ragnhild Broderstad (ann.ragnhild.broderstad@uit.no)

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Dear editor and reviewers,

Thank you very much for reviewing the manuscript and for your valuable comments and suggestions. We have responded to the questions posed by the reviewers and made amendments in the manuscript in accordance with your remarks.

Reviewer reports:
Marit Eika Jorgensen (Reviewer 1): The revised paper is much improved, and most comments have been adequately addressed. I have though still a few comments:
1. Background: The information on diabetes prevalence in SAMINOR 1 & 2 as an argument for the incidence study at hand is still somehow misleading due to the differences in sampling and diagnostic methods. I suggest that you simply add a sentence at p. 4 something like: …define diabetes cases (10). "However, due to the different population samples and diagnostic methods applied, it is not possible to disentangle whether the higher diabetes prevalence in SAMINOR 2 among Sami participants reflects a higher incidence of diabetes over the last decade". A study from the SAMINOR 1.…
Answer: Your suggested sentence has been added to the designated part.

2. Table 3: I still recommend that this broad age-categorization is not employed. It is well established that T2D incidence almost doubles per 10 y, and an age span from 53-71 y can easily reflect a difference in T2D prevalence from 5 - 20 % from the youngest to the oldest persons, and any observed ethnic difference may simply reflect age-differences. According to STROBE criteria for
epidemiological research, categorization of continuous information should be avoided. As such, table 3 adds little information, and I suggest that you give the information in the text instead.

Answer: Table 3 is deleted and the following explanation has been added in the text:

“The 8-year cumulative incidence of diabetes among Sami and non-Sami men was 7.1% (95% confidence interval: 5.1–9.5) and 6.5% (95% confidence interval: 4.9–8.3) respectively. Corresponding values for Sami and non-Sami women were 5.3% (95% confidence interval: 3.8–7.2) and 5.8% (95% confidence interval: 4.5–7.3) respectively.”

3. Sex stratification: I agree that relevant information should (almost) always be presented for men and women separately, but when you stratify all subsequent analyses you should be aware that you assume a sex-interaction not only with ethnicity on diabetes risk but with all included information. I doubt that your data support such an interaction.

Answer: Men and women groups are merged together and the analyses are performed adjusting for sex. See Table 3.

4. The steps preceding the multiple regression analysis is still not clear. A typical approach would be to base the confounder analysis on a biological likely association or on findings from univariate (or semi-univariate) analyses, or a combination of these approaches. Therefore it is not clear why WHtR and education (besides age and ethnicity) are included. Alcohol intake, marital status, income and physical activity measures associate with ethnicity in this study (and many other epidemiological studies) and could be included as well. Furthermore, the principles underlying the stepwise model should be described in the 'statistical analysis' section, not only the specific variables.

Answer: We now have used first a univariable analysis to assess the effect of each variable. The variables which have significant ORs are then put in the multivariate analysis, with the following exceptions: BMI, WC and WHtR have considerable correlation. Therefore, only WHtR is put in the multivariate analysis. Family history of DM has a significant OR, but it was not put in the multivariate analysis to avoid over-adjustment. The approach is explained in the “Statistical analysis” section:

“At first, the effect of each potential risk factor was assessed using univariable logistic regression analyses. Then the variables with significant ORs in the univariable analyses were included in a multivariable logistic regression analysis. Of BMI, WC and WHtR only WHtR was put into the multivariable analysis as the three variables have a large correlation with each other. Family history of DM was not put in the multivariable analysis to avoid over-adjustment (Table 3).”

Sufian Noor (Reviewer 2):
Thank you for your response to my comments. It adds a lot to the manuscript. I am satisfied with your responses. No further comments.

Ulrike Rothe (Reviewer 3):
No comments.