

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Association of occasional smoking with total mortality in the population-based Tromsø Study, 2001-2015
<b>AUTHORS</b>	Løchen, Maja-Lisa; Gram, Inger T.; Mannsverk, Jan; Mathiesen, Ellisiv; Njolstad, Inger; Schirmer, Henrik; Wilsgaard, Tom; Jacobsen, Bjarne

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Narine Movsisyan International Clinical Research Center, St Anne's University Hospital Brno, Czech Republic
<b>REVIEW RETURNED</b>	26-Aug-2017

<b>GENERAL COMMENTS</b>	<p>The paper presents an analysis of relationship of occasional smoking with total mortality based on data from the well-established Tromsø study, a large prospective cohort study with high participation rates and long follow up.</p> <p>It is a well-written paper that makes an important contribution to the emerging issue of occasional smoking.</p> <p>However, the study design limitations could have been discussed in more detail. Whereas the authors recognize that the occasional smokers constitute a rather unstable group, no assessment of the smoking status was done at follow up. The smoking behavior could have changed in the period of 14 years after the baseline. Could the authors provide more detail on the proportion of consistent occasional smokers at baseline? How the smoking prevalence in the study population changed from baseline to follow up (2001-2015)? Such information could support the assumptions made on page 14 lines 30-40.</p> <p>The main analyses were adjusted for sociodemographic and metabolic risk factors, such as body mass index, serum cholesterol and triglycerides, along with age, gender and education. Did the authors considered the presence of clinical conditions? Whether these analyses were conducted in participants free of chronic disease could be particularly important because of older age of the study population.</p> <p>The authors report that about 3% of the study population ever used snus and that this was not associated with increased mortality (page 13, lines 29-31). This needs to be clarified, by presenting data on the prevalence of snus use by cigarette smoking status and distinguishing ever and regular use of snus.</p>
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<b>REVIEWER</b>	Neal Freedman Division of Cancer Epidemiology and Genetics, National Cancer Institute, USA
<b>REVIEW RETURNED</b>	27-Sep-2017

<b>GENERAL COMMENTS</b>	As described by the authors, a growing proportion of smokers in many countries some only occasionally. However, the health risks of
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	<p>this level of smoking remain to be fully described. Only a few studies have investigated the associations of occasional smoking with health.</p> <p>The current analysis is set in a high quality Norwegian cohort and provides an important contribution to the literature. I had just a few comments.</p> <p>1) It would be useful for the authors to clarify how the participants who indicated that they “smoked sometimes” on the second questionnaire answered the first questionnaire. Did some of these occasionally smoking participants indicate that they were daily smokers on the first questionnaire? Did some indicate that they smoked daily previously? Did others indicate that they never smoked daily?</p> <p>2) I think that they authors should also include the limitation that they lacked information about days per month and cigarettes per occasion and other usage patterns among occasional smokers in their study.</p> <p>3) And that their study had relatively few occasional smokers and deaths in this group.</p>
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### VERSION 1 – AUTHOR RESPONSE

#### Reviewer 1

The reviewer writes:

However, the study design limitations could have been discussed in more detail. Whereas the authors recognize that the occasional smokers constitute a rather unstable group, no assessment of the smoking status was done at follow up. The smoking behavior could have changed in the period of 14 years after the baseline. Could the authors provide more detail on the proportion of consistent occasional smokers at baseline? How the smoking prevalence in the study population changed from baseline to follow up (2001-2015)? Such information could support the assumptions made on page 14 lines 30-40.

Our response is:

As indicated in the manuscript, occasional smokers is an unstable group. Our baseline data are based on Tromsø 5 conducted in 2001. In the next survey of the Tromsø Study (Tromsø 6, conducted in 2007-2008) subjects who attended were asked about whether they smoked sometimes and information about occasional smoking was therefore available from both surveys for 3729 subjects. We found that 39 % of those who at baseline (in 2001) were classified as occasional smokers reported the same in 2007-2008 (Tromsø 6). Furthermore, when comparing with their self-reported classification as current, ex- and never smokers in 2007-2008, 13 % of occasional smokers in 2001 reported to be current daily smokers in 2007-2008 and 65 % reported to be previous daily smokers. The prevalence of current smoking in the Tromsø population has declined significantly. In Tromsø 5 (2001), it was 28 %, 20 % in Tromsø 6 (2007-2008) and 14 % in Tromsø 7 (2015-2016). Seven percent of the total Tromsø 7 population reported to be occasional smokers, 19 % had previously been.

We have included some sentences in the discussion concerning these limitations of our study (page 14 last paragraph and page 15).

The reviewer writes:

The main analyses were adjusted for sociodemographic and metabolic risk factors, such as body mass index, serum cholesterol and triglycerides, along with age, gender and education. Did the authors considered the presence of clinical conditions? Whether these analyses were conducted in

participants free of chronic disease could be particularly important because of older age of the study population.

Our response is:

We acknowledge that restricting the analytical population to participants free of chronic disease could have been interesting. But, although a number of clinical conditions are self-reported in the Tromsø Study, we will not be able to know that the subjects are free of diseases. Furthermore, to exclude subjects with diseases will reduce the number of subjects included in the analyses and the number of deaths even more, relatively speaking. We also find it of interest to present the results from an unselected, population-based study.

Including only subjects who state that they are free of ischemic heart disease (reporting no myocardial infarction or angina pectoris), reduces the number of subjects included from 7053 to 6121 (with 15%) and the number of deaths from 1648 to 1232 (with 25 %). This exclusion had minimal impact on the point estimate for the relationship between occasional smoking and total mortality (HR=1.27 (0.97, 1.67) compared to HR=1.32 (1.05, 1.66) in the analyses including the total population. We have included this result in the manuscript (page 10).

The reviewer writes:

The authors report that about 3% of the study population ever used snus and that this was not associated with increased mortality (page 13, lines 29-31). This needs to be clarified, by presenting data on the prevalence of snus use by cigarette smoking status and distinguishing ever and regular use of snus.

Our response is:

Snuff (snus) is a product legally sold only in Norway and Sweden, and even in our population, only 3 % had ever used it (1.8 % reported current use, 1.5 % previous). Very few (< 1 %) of women had ever used snuff. However, we have included in Table 1 the relationships between ever use of snuff and smoking status. The use of snuff was most common in occasional smokers and we have noted this in the Results and the Discussion paragraphs (page 8 and page 14).

## **Reviewer 2**

The reviewer writes:

1) It would be useful for the authors to clarify how the participants who indicated that they “smoked sometimes” on the second questionnaire answered the first questionnaire. Did some of these occasionally smoking participants indicate that they were daily smokers on the first questionnaire? Did some indicate that they smoked daily previously? Did others indicate that they never smoked daily?

Our response is:

In the originally submitted manuscript, we stated that there were several inconsistencies between the responses on the first and second questionnaire included in the baseline survey in 2001. There were also inconsistencies on the first questionnaire, for example not answering the question about current, ex- or never smoking, but giving other smoking related information, like the number of cigarettes per day. Among the subjects who stated to be occasional smokers on the second questionnaire, 28 %, 60 % and 13 %, respectively, reported to be current, ex- and never daily smokers on the first questionnaire. This information is now included in the discussion paragraph (page 15).

The reviewer writes:

2) I think that they authors should also include the limitation that they lacked information about days per month and cigarettes per occasion and other usage patterns among occasional smokers in their study.

3) And that their study had relatively few occasional smokers and deaths in this group.

Our response is:

We have included two sentences about these limitations in the Discussion paragraph (page 15 and page 16).

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	Narine Movsisyan International Clinical Research Center at St. Anne's University Hospital Brno, Czech Republic
<b>REVIEW RETURNED</b>	07-Nov-2017

<b>GENERAL COMMENTS</b>	The comments and suggestions were appropriately addressed.
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<b>REVIEWER</b>	Neal Freedman NCI, USA
<b>REVIEW RETURNED</b>	20-Oct-2017

<b>GENERAL COMMENTS</b>	I think the authors have done a terrific job responding the reviews. The paper makes a very nice and important contribution to the literature.
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