

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Age, occupational class, and sickness absence during pregnancy: A retrospective analysis study of the Norwegian population registry
<b>AUTHORS</b>	Ariansen, Anja Maria

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Dr Caroline Gatrell Lancaster University Management School UK
<b>REVIEW RETURNED</b>	29-Dec-2013

<b>GENERAL COMMENTS</b>	<p>This is an important paper on an under-researched topic. Present studies demonstrate that pregnant women experience workplace discrimination due to employers' assumptions that pregnancy is likely to cause increased sickness absence, when the evidence to substantiate such assumptions (one way or the other) is missing. Current research also demonstrates how employers assume pregnant women's poor health to have a negative effect on workplace competence. The author may wish to underline within the literature review the negative influence on pregnant women's careers (or jobs) of unevicenced assumptions about sickness absence and competence on the part of employers.</p> <p>This paper is an important beginning in terms of developing understanding in this field so that further research may draw upon information which has been substantiated. It offers factual information about sickness absence among different groups of pregnant women and attempts a reasonable explanation as to why this may be, IN so doing, it contributes original and relevant findings to the arena which will be useful for both qualitative and quantitative studies. I am sure it will be helpful for a range research in both clinical and sociological terms.</p> <p>Relevant suggestions made for future research agendas (comparisons among and between different groups - non pregnant women and men would also be an interesting subject for future research).</p> <p>In all a well-written and insightful paper on an important topic which moves forward understanding in the area of women's health.</p>
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<b>REVIEWER</b>	Mikko Laaksonen Finnish Centre for Pensions, Finland
<b>REVIEW RETURNED</b>	12-Feb-2014

<b>GENERAL COMMENTS</b>	The main aim the study is to examine whether the association between age and sickness absence during pregnancy is confounded by social class. However, the introduction (background and
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	<p>significance) is un-focused to this research question. The introduction would require a thorough review of the mutual associations between age, sickness absence (during pregnancy) and social class, and the serial number of pregnancy, as it also seems to have a large role in the manuscript.</p> <p>The description of material and methods is extremely long. It should cover only the years included (2004-2008 and start by describing who are included in the data (now place later under the subheading methods). What is the age range of this study, for example?</p> <p>Since the findings of increased sickness absence among young pregnant women which are the starting point of this study have been published in Norwegian one would hope some more documentation of this change.</p> <p>It is highly contradictory that the authors claim that using a total population data eliminates Type I and Type II errors but their main conclusions are based on statistical significance of the associations.</p> <p>Instead of one-dimensional distributions, Table 1 should preferably be presented by occupational class. Also the distribution of sickness absence would be nice to see.</p> <p>I find it a little surprising that younger pregnant women have more sickness absence than older ones. One could assume this to be the other way around as pregnancy is more risky among older women. Age was included as a linear effect. Does this seem similar when using a categorical age variable?</p> <p>Adjusting for occupational class explained the association between age and sickness absence among women undergoing their first pregnancy. To my understanding, an accurate interpretation of this is that the association is explained by class differences in sickness absence, not class differentials in the timing of pregnancy.</p> <p>The discussion is again a bit unfocused to the main findings of the study. It rather considers why occupational class is associated with sickness absence than why it explains age differences in sickness absence among pregnant women.</p> <p>Also the finding that in all age groups those with previous pregnancies had more sickness absence remains with little attention in the discussion.</p> <p>The manuscript is not very medical and might be better suited to a more sociological journal.</p>
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### VERSION 1 – AUTHOR RESPONSE

Reviewer Name Dr Caroline Gatrell

Institution and Country Lancaster University Management School UK

Please state any competing interests or state 'None declared': None declared

This is an important paper on an under-researched topic. Present studies demonstrate that pregnant women experience workplace discrimination due to employers' assumptions that pregnancy is likely to cause increased sickness absence, when the evidence to substantiate such assumptions (one way or the other) is missing. Current research also demonstrates how employers assume pregnant women's poor health to have a negative effect on workplace competence. The author may wish to underline

within the literature review the negative influence on pregnant women's careers (or jobs) of unevicenced assumptions about sickness absence and competence on the part of employers.

The negative impact of employers' unevicenced assumptions on pregnant women's future careers is now referred to on page 5.

This paper is an important beginning in terms of developing understanding in this field so that further research may draw upon information which has been substantiated. It offers factual information about sickness absence among different groups of pregnant women and attempts a reasonable explanation as to why this may be, IN so doing, it contributes original and relevant findings to the arena which will be useful for both qualitative and quantitative studies. I am sure it will be helpful for a range research in both clinical and sociological terms.

Relevant suggestions made for future research agendas (comparisons among and between different groups - non pregnant women and men would also be an interesting subject for future research).

Suggestions for future research on pregnant women, non-pregnant women and men have been inserted on page 21.

In all a well-written and insightful paper on an important topic which moves forward understanding in the area of women's health.

I am not a statistician and cannot comment on whether the paper requires further specialist in-put

Reviewer Name Mikko Laaksonen

Institution and Country Finnish Centre for Pensions, Finland

Please state any competing interests or state 'None declared': None declared

The main aim the study is to examine whether the association between age and sickness absence during pregnancy is confounded by social class. However, the introduction (background and significance) is un-focused to this research question. The introduction would require a thorough review of the mutual associations between age, sickness absence (during pregnancy) and social class, and the serial number of pregnancy, as it also seems to have a large role in the manuscript.

The literature review has been restructured in order to obtain a stronger focus on the main topic, and a few references are inserted. However, the number of previous studies on this topic is very limited, therefore this section still draws on related literature in an attempt to shed light on the topic.

The description of material and methods is extremely long. It should cover only the years included (2004-2008 and start by describing who are included in the data (now place later under the subheading meth-ods). What is the age range of this study, for example?

The description of material and methods has been reorganized in accordance with this comment.

The section has been shortened.

Information about age range has been included.

Since the findings of increased sickness absence among young pregnant women which are the starting point of this study have been published in Norwegian one would hope some more documentation of this change.

More details are now given on page 5. In addition, the revised manuscript also refers to two additional articles which discuss this topic in English.

It is highly contradictory that the authors claim that using a total population data eliminates Type I and Type II errors but their main conclusions are based on statistical significance of the associations.

Statistical significance of regression coefficients is left out of the revised manuscript. Instead of one-dimensional distributions, Table 1 should preferably be presented by occupational class. Also the distribution of sickness absence would be nice to see.

Table 1 is now presented by occupational class.

The distribution of sickness absence is now revealed in Figure 1.

I find it a little surprising that younger pregnant women have more sickness absence than older ones. One could assume this to be the other way around as pregnancy is more risky among older women. Age was included as a linear effect. Does this seem similar when using a categorical age variable? The distribution of sickness absence across age categories is now outlined in Figure 2. Since the distribution appears to be U-shaped rather than linear, an additional variable - age squared - was added to the regression analysis and the regression plots.

Adjusting for occupational class explained the association between age and sickness absence among women undergoing their first pregnancy. To my understanding, an accurate interpretation of this is that the association is explained by class differences in sickness absence, not class differentials in the timing of pregnancy.

The phrase "timing of pregnancy" is now replaced with a more precise description.

The discussion is again a bit unfocused to the main findings of the study. It rather considers why occupational class is associated with sickness absence than why it explains age differences in sickness absence among pregnant women.

The discussion is substantially altered and restructured in order to enhance the focus on the main findings.

Also the finding that in all age groups those with previous pregnancies had more sickness absence remains with little attention in the discussion.

The discussion now comments on the difference in sickness absence between women with and without previous deliveries.

The manuscript is not very medical and might be better suited to a more sociological journal.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Professor Caroline Gatrell Lancaster University Management School
<b>REVIEW RETURNED</b>	07-Apr-2014

<b>GENERAL COMMENTS</b>	<p>This is an important and well written paper addressing an under-researched area. It is important because research shows how employers make assumptions about the health of pregnant workers based on limited (or non-existent) evidence. This paper begins to gather relevant empirical information which may be fed into policy and which may pave the way for providing better support and flexibility for this vulnerable and undervalued group of workers.</p> <p>Statistics is not my field and my comments do not include a review of statistical methods used.</p>
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