

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Premature retirement due to ill health and poverty: a cross-sectional study of older workers
<b>AUTHORS</b>	Callander, Emily; Schofield, Deborah; Shrestha, Rupendra; Percival, Richard; Kelly, Simon; Passey, Megan

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Professor Gopalakrishnan Netuveli Imperial College London
<b>REVIEW RETURNED</b>	04-Mar-2013

<b>THE STUDY</b>	The authors have barely scratched the surface of the literature on unemployment poverty and health. A starting point will be Bartley M 1993 ( J Epidemiol Community Health 1994;48:333-37).
<b>RESULTS &amp; CONCLUSIONS</b>	The results are presented with the group of interest people who are out of labour force due to ill health as the reference. It is more intuitivt to use full time employed as the reference population.
<b>GENERAL COMMENTS</b>	The literature review has to be more general than the limited publications mentioned. With that there is a need to discuss the in the light of that review. It is important to stress the fact that this is based on micro-simulation and discuss how the results should be understood vis a vis a cohort study or similar which is usually used to answer these research questions. Authors should also discuss the advantage of their methods.

<b>REVIEWER</b>	Burdorf, Alex Erasmus MC, Department of Public Health  No competing interests
<b>REVIEW RETURNED</b>	06-Mar-2013

<b>THE STUDY</b>	<ol style="list-style-type: none"><li>1. Abstract: please do not use terms as "more likely to avoid" for cross-sectional associations</li><li>2. Introduction: it is not very clear what this specific paper adds to the scientific body of knowledge.</li></ol> <p>Methods:</p> <ol style="list-style-type: none"><li>3. Information about illness and disability is taken from the 2003 Disability, Ageing and Carers Survey (SDAC). Economic information is taken from STINMOD and both datasources are linked by a microsimulation method. More information should be given on the actual content of STINMOD since income seems to be defined by parameters from SDAC and, as such, the input determines the output. Also, what are limitations of this synthetic matching</li></ol>
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	<p>compared to the more traditional way of individual matching?</p> <p>4. Why “up-rated to represent the 2009 population, accounting for the changes in demographics that had taken place.” ? It is possible that health status (presence of illness and disability) also changed between 2003 and 2009? If so, how could this have biased the results?</p> <p>5. Did you have specific information on disability pension, or did you assume that persons receiving a government pension or support and having an illness or disability were “not in the labour force due to ill health”. This assumption may not be correct, as there are also persons who receive a government pension and have a poor health. Please clarify based on what specific information is determined whether a person was “not in the labour force due to ill health”.</p>
<p><b>RESULTS &amp; CONCLUSIONS</b></p>	<p>Results</p> <p>1. The presentation of the percentage of persons in poverty in table 2 is somewhat confusing. First, I assumed based on the results shown in table 2, that among “married persons with dependents”(first column) who were “not in the labour force due to ill health”(first row), 16% of the persons were in poverty. However, this appeared not to be a correct interpretation. Secondly, I found out that the correct interpretation is that among married persons with children, 16% of the persons in poverty are not in the labour force due to ill health.</p> <p>2. An interesting finding, which may need more attention in this paper, is that among married persons with children, 40% of the persons in poverty are not in the labour force due to other reasons. The same is true for all other family types. The majority of persons how are in poverty, are “not in the labour force due to other reasons than ill health” (40-56%).</p> <p>3. Please explain how the results of table 2 show that “The majority of those who were in income poverty and employed full-time or part-time were married”</p> <p>4. The following statement may not be correct. Page 9, second paragraph: “Those who were unemployed and were in single person or single parent with dependent children income unit types did not have significantly different odds of being in income poverty as those who were out of the labour force due to ill health and in the same income unit type” . Table 2 shows that single, unemployed persons are LESS likely of not being in poverty (OR=0.0 (0.0-0.2))</p> <p>5. Please be aware that statements on higher OR (1.9), but no statistically significant should be expressed carefully: “Those who were not in the labour force for other reasons and were married with children had higher odds of not being in poverty than those in the corresponding income unit type and who were out of the labour force due to ill health”</p> <p>6. The percentages of persons in poverty as described in the text seem not equal to the percentage of persons in poverty as presented in table 3</p> <p>7. Table 3: calculation of the % of persons in poverty based on the numbers of individuals “in poverty” and “not in poverty” does not result in the % of persons in poverty that are presented in table 3. Can you clarify this difference?</p> <p>Discussion</p> <p>8. Page 11, second paragraph “The difference in the likelihood of being in poverty between those who are not in the labour force due to ill health and those who are so for other reasons suggesstes that it is being out of the labour force due to illness and not just being out of the labour force in general</p>

	<p>that increases the individual's change of being in poverty" It is important to stress that this association depends on family situation: 9. Table 2 shows that only among married persons without children the likelihood of being NOT in poverty is higher among persons who are out of the labour force due to other reasons compare to persons who are out of the labour force due to ill health (OR=2.1 (1.4-3.0))</p> <p>10. Page 12, second paragraph: "The majority of individuals who are not in the labour force due to ill health and who are in poverty are single"</p> <p>I find it difficult to draw this conclusion based on the findings presented in table 2. I would conclude that the majority of individuals who are not in the labour force due to ill who are in poverty are married without children (weighted population = 199202).</p>
<b>REPORTING &amp; ETHICS</b>	there is no statement on consent or ethical approval

### VERSION 1 – AUTHOR RESPONSE

Reviewer: Professor Gopalakrishnan Netuveli Imperial College London

The authors have barely scratched the surface of the literature on unemployment poverty and health. A starting point will be Bartley M 1993 ( J Epidemiol Community Health 1994;48:333-37).

RESPONSE: The authors have added a paragraph discussing the impact of unemployment and poverty on ill health to the introduction, see page 3 and distinguished this from the topic of our paper, which is on the inverse effect of health on poverty status.

The results are presented with the group of interest people who are out of labour force due to ill health as the reference. It is more intuitivt to use full time employed as the reference population.

RESPONSE: This reference group was our main group of interest – we were wanting to look at the poverty rates of those not in the labour force due to ill health relative to other groups. It was important to have 'people not in the labour force due to ill health' as the reference group so that the odds ratio of being in poverty for all other labour force categories could be compared with this group – this is now noted on page 8. The reviewer's suggestion would have compared those employed full time with all other categories of labour force participation, which was not the purpose of our paper.

The literature review has to be more general than the limited publications mentioned. With that there is a need to discuss the in the light of that review. It is important to stress the fact that this is based on micro-simulation and discuss how the results should be understood vis a vis a cohort study or similar which is usually used to answer these research questions. Authors should also discuss the advantage of their methods.

RESPONSE: Further literature has been added to the introduction, see page 3. The need for a microsimulation model is now discussed on page 4.

Reviewer: Alex Burdorf  
I have no conflicting interests  
Erasmus MC, Department of Public Health

1. Abstract: please do not use terms as "more likely to avoid" for cross-sectional associations

RESPONSE: The wording of the abstract has been modified to reflect the cross-sectional data.

2. Introduction: it is not very clear what this specific paper adds to the scientific body of knowledge.

RESPONSE: The aims of this paper, and its contribution to research is now more explicitly stated on pages 3 to 4.

Methods:

3. Information about illness and disability is taken from the 2003 Disability, Ageing and Carers Survey (SDAC). Economic information is taken from STINMOD and both data sources are linked by a microsimulation method. More information should be given on the actual content of STINMOD since income seems to be defined by parameters from SDAC and, as such, the input determines the output. Also, what are limitations of this synthetic matching compared to the more traditional way of individual matching?

RESPONSE: Additional information about STINMOD has been added to the methods section on pages 5 - 6. Individual matching is not possible in Australia, as is now explained in footnote 1 on page 6.

4. Why “up-rated to represent the 2009 population, accounting for the changes in demographics that had taken place.” ? It is possible that health status (presence of illness and disability) also changed between 2003 and 2009? If so, how could this have biased the results?

RESPONSE: This point has now been addressed on page 5.

5. Did you have specific information on disability pension, or did you assume that persons receiving a government pension or support and having an illness or disability were “not in the labour force due to ill health”. This assumption may not be correct, as there are also persons who receive a government pension and have a poor health. Please clarify based on what specific information is determined whether a person was “not in the labour force due to ill health”.

RESPONSE: This is now clarified in footnote 4 on page 8.

Results

1. The presentation of the percentage of persons in poverty in table 2 is somewhat confusing. First, I assumed based on the results shown in table 2, that among “married persons with dependents”(first column) who were “not in the labour force due to ill health”(first row), 16% of the persons were in poverty. However, this appeared not to be a correct interpretation. Secondly, I found out that the correct interpretation is that among married persons with children, 16% of the persons in poverty are not in the labour force due to ill health.

RESPONSE: The authors have restructured table 2 in light of the reviewers comment and to more clearly portray the message about the family type mostly likely to be in poverty amongst those not in the labour force due to ill health.

2. An interesting finding, which may need more attention in this paper, is that among married persons with children, 40% of the persons in poverty are not in the labour force due to other reasons. The same is true for all other family types. The majority of persons how are in poverty, are “not in the labour force due to other reasons than ill health” (40-56%).

3. Please explain how the results of table 2 show that “The majority of those who were in income poverty and employed full-time or part-time were married”

4. The following statement may not be correct.

Page 9, second paragraph: “Those who were unemployed and were in single person or single parent

with dependent children income unit types did not have significantly different odds of being in income poverty as those who were out of the labour force due to ill health and in the same income unit type” . Table 2 shows that single, unemployed persons are LESS likely of not being in poverty (OR=0.0 (0.0-0.2))

5. Please be aware that statements on higher OR (1.9), but no statistically significant should be expressed carefully: “Those who were not in the labour force for other reasons and were married with children had higher odds of not being in poverty than those in the corresponding income unit type and who were out of the labour force due to ill health”

RESPONSE to points 2 to 5: In restructuring table 2, these findings have been removed as they distract the reader from the main focus of the article, this text has also been removed from the paper.

6. The percentages of persons in poverty as described in the text seem not equal to the percentage of persons in poverty as presented in table 3

7. Table 3: calculation of the % of persons in poverty based on the numbers of individuals “in poverty” and “not in poverty” does not result in the % of persons in poverty that are presented in table 3. Can you clarify this difference?

RESPONSE to points 6 and 7: Table 3 has now been removed. We had detailed income information on people aged 45 to 64 years, but less detailed information in any of their family members who were outside this age range. Table 3 appeared to cause some confusion for readers, so for clarity Table 3 has been removed but the main results of the additional family members in poverty were retained in the text on page 10.

#### Discussion

8. Page 11, second paragraph

“The difference in the likelihood of being in poverty between those who are not in the labour force due to ill health and those who are so for other reasons suggests that it is being out of the labour force due to illness and not just being out of the labour force in general that increases the individual’s change of being in poverty” It is important to stress that this association depends on family situation:

RESPONSE: This paragraph on the importance of family type has been added to page 11.

9. Table 2 shows that only among married persons without children the likelihood of being NOT in poverty is higher among persons who are out of the labour force due to other reasons compare to persons who are out of the labour force due to ill health (OR=2.1 (1.4-3.0))

RESPONSE: In restructuring table 2, these findings have been removed as they distract the reader from the main focus of the article about single people having the highest odds of being in poverty.

10. Page 12, second paragraph: “The majority of individuals who are not in the labour force due to ill health and who are in poverty are single”

I find it difficult to draw this conclusion based on the findings presented in table 2. I would conclude that the majority of individuals who are not in the labour force due to ill who are in poverty are married without children (weighted population = 199202).

RESPONSE: This statement has been clarified on page 10 and the table modified to make it easier to see the total number in poverty for each family type.

there is no statement on consent or ethical approval

RESPONSE: Approval for use of this data came from the Australian Bureau of Statistics, this has now been noted on page 1.

### VERSION 2 – REVIEW

<b>REVIEWER</b>	Burdorf, Alex Erasmus MC, Department of Public Health  No conflict of interests
<b>REVIEW RETURNED</b>	01-Apr-2013

<b>THE STUDY</b>	<p>1. Introduction The statement that ill health affect labour participation seems almost completely derived from one research group. A more balanced referencing is required here! There are several very nice illustrative studies, e.g. using SHARE or ECHP as framework. The second step, being out of paid employment leading to poverty, should be clearly distinguished from the first step, since this is another mechanism</p> <p>2. Introduction: the last sentences should be shifted before the aims. Also, this is a cross-sectional study so one cannot by definition address some of the time order aspects assumed.</p> <p>3. Methods: Please do NOT use footnotes, as BMJ Open requires this information to be included in the methods</p> <p>4. Methods: table 2 is based on selection of individuals out of paid employment due to ill health, why? Are the results similar when using the study population from table 1. If not, please mention this. If yes, please include some information.</p> <p>5. References: These are not in the style of the journal, please ensure correct presentation.</p>
<b>RESULTS &amp; CONCLUSIONS</b>	<p>1. Discussion: the findings from table 2 point out structural differences in social benefits for different categories of citizens in Australia. Please provide some facts on the benefits system.</p> <p>2. Please ensure that causality claims cannot be made...</p> <p>3. The difference between out due to ill health, out due to other reasons, and out due to unemployment must be framed better. The first and last route are most likely involuntary, whereas the second route may be a voluntary decision, largely based on income of relatives. In many studies on ill health and displacement from the labour market, ill health has no effect whatsoever on those who leave to take care of household. Thus, additional information is required here what the other reasons actually entail</p>
<b>REPORTING &amp; ETHICS</b>	but...rather sloppy manuscript without much attention for the instructions to authors

### VERSION 2 – AUTHOR RESPONSE

Reviewer: Alex Burdorf  
Erasmus MC, Department of Public Health

no conflict of interest

#### 1. Introduction

The statement that ill health affect labour participation seems almost completely derived from one research group. A more balanced referencing is required here! There are several very nice illustrative studies, e.g. using SHARE or ECHP as framework.

RESPONSE: Additional references have been added to this point in the introduction, see page 3.

The second step, being out of paid employment leading to poverty, should be clearly distinguished from the first step, since this is another mechanism.

RESPONSE: The first and second paragraphs of the introduction have been edited to make this additional step (between labour force participation and poverty status) separate from the discussion of the relationship between health and labour force participation.

2. Introduction: the last sentences should be shifted before the aims. Also, this is a cross-sectional study so one cannot by definition address some of the time order aspects assumed.

RESPONSE: The last paragraph of the introduction has been restructured as the reviewer suggests.

3. Methods: Please do NOT use footnotes, as BMJ Open requires this information to be included in the methods

RESPONSE: All footnotes have been removed and the text incorporated into the main body of the manuscript.

4. Methods: table 2 is based on selection of individuals out of paid employment due to ill health, why? Are the results similar when using the study population from table 1. If not, please mention this. If yes, please include some information.

RESPONSE: This paper had the additional aim of assessing the influence of family type on the income poverty status of those who were out of the labour force due to ill health – this is now stated in the introduction, see page 4.

5. References: These are not in the style of the journal, please ensure correct presentation.

RESPONSE: The reference style has been updated.

6. Discussion: the findings from table 2 point out structural differences in social benefits for different categories of citizens in Australia. Please provide some facts on the benefits system.

RESPONSE: Information regarding the Australian Social Security System has been added to page 12.

2. Please ensure that causality claims cannot be made...

RESPONSE: Page 12 of the discussion has been edited to remove causality claims.

3. The difference between out due to ill health, out due to other reasons, and out due to unemployment must be framed better. The first and last route are most likely involuntary, whereas the second route may be a voluntary decision, largely based on income of relatives. In many studies on ill health and displacement from the labour market, ill health has no effect whatsoever on those who leave to take care of household.

Thus, additional information is required here what the other reasons actually entail

RESPONSE: This has now been addressed on page 8, and the implications of choice to leave the labour force as suggested by the reviewer is discussed on page 12 to 13.