

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) 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

TITLE (PROVISIONAL)	Women's responses to information about overdiagnosis in the UK breast cancer screening programme: a qualitative study
AUTHORS	Waller, Jo; Douglas, Elaine; Whitaker, Katriina; Wardle, Jane

VERSION 1 - REVIEW

REVIEWER	Dr Paul Hewitson Senior Research Officer Department of Public Health University of Oxford UK I have no competing interests.
REVIEW RETURNED	13-Feb-2013

GENERAL COMMENTS	<p>Minor point, but further information (refs) for why focus group methodology rather than interviewing for this type of research topic may be useful.</p> <p>Please note: unless I'm reading the last question wrong, a 'no' is good, and a 'yes' would be bad - there is no requirement for supplemental documents for this paper.</p> <p>Abstract No comments</p> <p>Introduction Clear and concise introduction to the difficulties of presenting population derived information for personal decision-making. Also current controversy regarding overdiagnosis and current concerns about women's knowledge/awareness of overdiagnosis is well presented.</p> <p>Difficulties associated with the apparent paradox between women's expressed desire for more precise information regarding the risks of screening against their concerns that the information will affect participation are well structured; as are the overarching aim of the study.</p> <p>The paper identifies that there is a much needed area of research - apologies but had difficulty with the final paragraph; potentially alter the final para to better identify the main aim of the study (e.g. women's reactions to overdiagnosis), rather than the lead in that the study used similar methodology to the Australian study (would it not be suffice to say the aim of the study was to determine UK women's reactions to overdiagnosis and the effect on decision-making using</p>
-------------------------	---

qualitative methods?). I also think the final para could be strengthened by changing the second sentence to reflect the fact it is both media attention (as you already know, few possible academic references, although a quick search of Nexis UK would yield several recent national newspaper articles) and continued publications which are highly critical of the UK information leaflets abundance of recent papers in UK-based journals).

Methods

Potentially include more information regarding the utility of FG methodology for this field of research (in comparison with face-to-face interviewing for example) if word limit allows.

The recruitment method employed is effective for this topic area. (The discussion could also address the difficulty of generalisability using this recruitment method in slightly more detail). The conduct of the study and information provided is reasonably discussed in detail - there would be expected to be criticisms regarding the use of "slow growing cancer" as opposed to overdiagnosis (the word is currently used in the mass media). This should also be addressed in the discussion section (the difficulties encountered by ref 16 could potentially be included in the methodology to reinforce the problematic use of this term).

Results

The results are presented in accordance with current guidance on qualitative methods. The authors have strived to add informative details concerning the two main themes in a novel and well constructed manner (actually an extremely useful way to present such a complex interpretation of the information of overdiagnosis by women).

Discussion

Whilst it is difficult to include all the points raised by the women in the FGs in the discussion, but potentially could include in the first para a more concise statement regarding the emotional impact and subsequent rationalisation (e.g. cynicism about statistics, therefore further difficulties when presenting population information; doctors treating an uncertain cancer 'to be on the safe side', etc).

The limitation of the recruitment method is slightly glossed over; this may cause difficulties for some readers. Potentially include a more straight-forward statement, as I would think your mitigating factor is justified to demonstrate the recruitment methods were justified and did not overtly impact on the quality of the results.

The authors have tied-in previous (almost non-existent) research in this field and applied the previous results to the current findings in a well structured and understandable way - my only concern is that this is the first time 'Fuzzy Trace Theory' has been introduced into the paper, and may benefit from this also being briefly included in the Introduction (just seems slightly out-of-place' to put such a vital piece of theoretical framework into the paper). The authors have highlighted the primary implications for their work and how this research would most definitely advance our understanding of information provision and decision-making for women invited to breast screening.

REVIEWER	Marit Solbjør, Senior researcher (PhD), Trøndelag R&D institute, Norway I declare that I have no competing interests.
REVIEW RETURNED	20-Feb-2013

GENERAL COMMENTS	<p>The context of the study and participants should be better described. Were all interviews conducted in London?</p> <p>The focus group methodology should be better described, both in general terms and why this method was considered more suitable than for instance individual interviews.</p> <p>References are mostly up to date, but more references should be added, particularly references discussing how lay people interpret statistics, as this is a main point in the article.</p> <p>First part of the results section appears somewhat immature and needs to be rewritten.</p> <p>Results should be discussed more in light of previous evidence.</p> <p>Thank you for the chance to review this interesting article. The article raises very important questions about how women understand information about overdiagnosis in mammography screening, and how such information might influence their decision making on the subject. These questions are most pertinent and this study is warranted. The article is generally well written but the authors need to address some issues that are described below.</p> <p>Abstract: Clarify setting of study/data collection/ participants.</p> <p>Introduction:</p> <p>The introduction is well written but could include more references to previous research, for instance - Barker KK, Galardi TR. Dead by 50: lay expertise and breast cancer screening. Soc Sci Med. 2011 Apr;72(8):1351-8. doi: 10.1016/j.socscimed.2011.02.024 (see lines 28-32 in the present manuscript).</p> <p>- Gummersbach, E. et al (2010) Are women getting relevant information about mammography screening... European Journal of Public Health, 20 (4):409-414</p> <p>- Jørgensen, K.J. and Götzsche, P.C. (2006) Content of invitations for publicly funded screening mammography. BMJ 332: 538-541</p> <p>Rewrite line 36 on page 1, since use of >10.000 is difficult for readers to interpret. Last four lines of second paragraph need to be rephrased. In the third paragraph the authors must make it clearer whether they refer to mammography screening or to other screenings, and make it clear if there are any differences between them.</p> <p>Page 2, lines 29-33: Argument about media coverage of overdiagnosis needs to be addressed throughout the article.</p> <p>Methods:</p> <p>The methodological approach needs to be extended. Why were focus groups the best method, why not for instance individual interviews? This paragraph needs more references and a short description of what a focus group entails.</p> <p>Participants: did all participants live in London? Were all data collection done in London? If so, include in discussion whether Londoners might represent all UK women (or not).</p> <p>P.5, line 10: "suitable community venue" - was this in London?</p> <p>Footnote 1 is confusing since having the same layout as references.</p>
-------------------------	---

Omit or move to a box?

Line 24: explain how information was provided (oral, written?).

Line 28: Sentence about recording and transcription seems out of place. Move to end of "data collection"?

P. 6: either ref to NVivo AND SPSS, or exclude ref 21.

How were demographic data collected? Add one sentence about this.

Results:

The findings are very important to publish! They do, however, in their present state appear somewhat immature with too many repetitions of subjects throughout the subthemes. I would like the authors to look into their classifications and see whether some of the themes could be joined together, and whether these are the main themes. As presented now, each subject is more of a "teaser" than a final analysis, and I am curious to know more about each theme. It is particularly the first part of the results ("making sense...") which needs more attention. For me the subheadings overlap, and I do not understand the issue of "cynicism". Also, I do not understand that worries about NHS costs could be classified as emotional. I would urge the authors to rewrite this analysis and let us know more about the contents of the pertinent issue of how women make sense of the concept of overdiagnosis. It is of particular interest to see how these women have difficulties separating statistics and models from treatment of individual women.

Could one main category be about statistics for instance? Also, trust might perhaps be a main theme? For discussions on mammography screening and trust, see Solbjør (2008) in Brownlie, Greene and Howson (eds) *Researching Trust and Health*, Routledge, and Griffiths F, Bendelow G, Green E, Palmer J. *Screening for breast cancer: medicalization, visualization and the embodied experience*. *Health (London)*. 2010 Nov;14(6):653-68.

Could you clarify throughout the article whether it is question 6 from the interview guide that is the context for these answers, or the whole discussion within the focus groups? *

P.6, lines 37-41: is this necessary here? (as mentioned above*)

Why did the range of minutes for each focus group have such large variance?

p.7, line 28-29: please rephrase sentences as "known-about" and "off-putting" seems too colloquial (though I am not a native English speaker, authors should look into these phrasings).

Table 1: Are data available on whether some of the women had mammography more frequent than every 3rd year? As the recommended frequency in Norway is every second year, and some women tend to have mammograms even more frequent, it could be interesting to know what is hidden behind the wide category of "3 years or less".

Discussion:

Discussion should be rewritten in light of new results chapter. More discussion of previous research should be included. P.13,line 32: discuss focus groups vs individual interviews rather than survey methodology.

Line 42-46: unclear what is referred to, findings in this article or other findings? Rewrite.

Line 47: "common in qualitative research" needs references.

P.14, line 5: "Fuzzy trace theory" must be described more if used.

Overall comments:

There should be more discussion of the context of the study and of the subject. How did these women relate to media debates and medical debates mentioned in introduction? Relate article to debate

	<p>on informed decision making in screening? Interpretation of statistics could be discussed with reference to the following articles or other relevant research:</p> <p>Adelswärd V, Sachs L. The meaning of 6.8: numeracy and normality in health information talks. Soc Sci Med. 1996 Oct;43(8):1179-87.</p> <p>Skolbekken JA, Østerlie W, Forsmo S. Brittle bones, pain and fractures--lay constructions of osteoporosis among Norwegian women attending the Nord-Trøndelag Health Study (HUNT). Soc Sci Med. 2008 Jun;66(12):2562-72. doi: 10.1016/j.socscimed.2008.02.022. Epub 2008 Apr 1.</p>
--	---

REVIEWER	<p>Vikki Entwistle Professor of Health Services Research and Ethics University of Aberdeen Scotland</p> <p>I have no competing interests of which I am aware. I have recently had the pleasure to meet some of the authors at a workshop exploring what health psychology can contribute to (communication about) cancer screening programmes.</p>
REVIEW RETURNED	23-Feb-2013

GENERAL COMMENTS	<p>In my opinion, this manuscript reports on a well-conducted, small-but-useful study that used focus groups to explore women's responses to information about the 'overdiagnosis' that can occur with breast cancer screening. The manuscript is generally well structured and the writing is clear.</p> <p>I had no major concerns, but a few observations and suggestions that the authors might consider when refining their manuscript.</p> <p>Abstract: two points could perhaps be made more specific: "Few felt that they would make a different screening decision" and "It may not influence their attitudes towards screening".</p> <p>P3: Would it be helpful to explain / reference the point that it's possible that more considered responses would be different?</p> <p>P3: "In a recent UK study.... although qualitative research has shown" and p4: "The one study to date... The present study used similar qualitative methods". I think the introduction would benefit from a minor edit to make clear what kinds of methods were used in the various studies that are reported. I'm particularly keen to get a sense of how 'open' response options were and what respondents were told that might have shaped their responses.</p> <p>P4: 'sceptical' or 'suspicious'?</p> <p>P5 and associated material: Could you (a) explain what alternatives you considered and rejected before deciding to explain overdiagnosis in terms of 'slow growing' cancers; and (b) provide a bit of critical reflection on the possible implications of the particular description you gave? (I was struck by the thought that the wording would encourage me to engage in the kinds of thinking that the women reported: the finding of a slow growing cancer is still the finding of a cancer, so the issue seems to be one of needing to tailor the treatment to the slowness, not one of any treatment being inappropriate)</p>
-------------------------	---

	<p>P7-8 The quotation about 1 to 3 in 8 didn't leave me thinking the speaker had assumed that it would be better if 3/8 than 1/8 cancers found would never have caused a problem. Would extending the quotation clarify the way she's using 'great'?</p> <p>P13 The theme of viewing others as more risk averse (etc) than oneself is perhaps not just observed in qualitative research? A reference might be helpful here.</p>
--	---

VERSION 1 – AUTHOR RESPONSE

Reviewer: Paul Hewitson

Minor point, but further information (refs) for why focus group methodology rather than interviewing for this type of research topic may be useful.

Another reviewer made a similar comment and we have now added more information about our choice of methodology. The section (on p5) now reads as follows: It is acknowledged that focus groups are well suited to exploring 'public' topics, such as public health interventions²⁸ and are a good way to identify 'group norms and cultural values'.²⁷ We used focus groups rather than individual interviews for this study to try to gauge the public response to information about overdiagnosis in the context of a national screening programme, and to provide participants with the opportunity to question each other and to reflect and respond to one another's comments.

Introduction

Clear and concise introduction to the difficulties of presenting population derived information for personal decision-making. Also current controversy regarding overdiagnosis and current concerns about women's knowledge/awareness of overdiagnosis is well presented.

We're glad the reviewer found the Intro clear and concise.

Difficulties associated with the apparent paradox between women's expressed desire for more precise information regarding the risks of screening against their concerns that the information will affect participation are well structured; as are the overarching aim of the study.

Again, thank you for this positive comment.

The paper identifies that there is a much needed area of research - apologies but had difficulty with the final paragraph; potentially alter the final para to better identify the main aim of the study (e.g. women's reactions to overdiagnosis), rather than the lead in that the study used similar methodology to the Australian study (would it not suffice to say the aim of the study was to determine UK women's reactions to overdiagnosis and the effect on decision-making using qualitative methods?). I also think the final para could be strengthened by changing the second sentence to reflect the fact it is both media attention (as you already know, few possible academic references, although a quick search of Nexis UK would yield several recent national newspaper articles) and continued publications which are highly critical of the UK information leaflets abundance of recent papers in UK-based journals).

Thank you for this comment. As suggested, we have revised the final paragraph of the Introduction and added references to some additional media coverage. The paragraph now reads as follows: The

present study aimed to use qualitative methods to elicit British women's reactions to the notion of overdiagnosis and examine the effect they felt it might have on their decision-making about mammography participation. The UK context is important firstly because of the media attention there had already been to the overdiagnosis issue at the time of this study,^{1;21-23} and secondly because of the on-going and high-profile criticism of the information provided to women in the UK about the breast screening programme.²⁴⁻²⁶ We focused on the impact of relatively brief information on overdiagnosis, to reflect the kind that might be provided in a screening information leaflet.

Methods

Potentially include more information regarding the utility of FG methodology for this field of research (in comparison with face-to-face interviewing for example) if word limit allows.

We have amended to Methodology paragraph to include more detail about the advantages of focus groups over individual interviews (see above).

The recruitment method employed is effective for this topic area. (The discussion could also address the difficulty of generalisability using this recruitment method in slightly more detail).

We have added a line to the Discussion (on p14) to acknowledge the limited generalizability of our sample.

The conduct of the study and information provided is reasonably discussed in detail - there would be expected to be criticisms regarding the use of "slow growing cancer" as opposed to overdiagnosis (the word is currently used in the mass media). This should also be addressed in the discussion section (the difficulties encountered by ref 16 could potentially be included in the methodology to reinforce the problematic use of this term).

We agree that our use of the term 'slow growing cancer' could be problematic, and Vikki Entwistle has made a similar point. Both Ref 16 and the citizen's jury carried out as part of the review of NHS screening materials have identified problems with the term overdiagnosis. We have now addressed this in greater detail in the Discussion section (pp14-15), and have added more information about our decision to use to term 'slow-growing' in the Methods section (p6).

Results

The results are presented in accordance with current guidance on qualitative methods. The authors have strived to add informative details concerning the two main themes in a novel and well-constructed manner (actually an extremely useful way to present such a complex interpretation of the information of overdiagnosis by women).

Thank you for these positive comments on the analysis and presentation of Results.

Discussion

Whilst it is difficult to include all the points raised by the women in the FGs in the discussion, but potentially could include in the first para a more concise statement regarding the emotional impact and subsequent rationalisation (e.g. cynicism about statistics, therefore further difficulties when presenting population information; doctors treating an uncertain cancer 'to be on the safe side', etc).

We have expanded the first paragraph of the Discussion (pp13-14) slightly to give a more comprehensive summary of the results while trying not to go too far over the word limit.

The limitation of the recruitment method is slightly glossed over; this may cause difficulties for some readers. Potentially include a more straight-forward statement, as I would think your mitigating factor

is justified to demonstrate the recruitment methods were justified and did not overtly impact on the quality of the results.

We have added a straightforward statement about the limitations of our sample (p14): In common with most qualitative research, we used non-random sampling, recruiting women using a range of methods. This, and the fact that women were recruited in and around London, may also limit the generalizability of our findings.

The authors have tied-in previous (almost non-existent) research in this field and applied the previous results to the current findings in a well-structured and understandable way - my only concern is that this is the first time 'Fuzzy Trace Theory' has been introduced into the paper, and may benefit from this also being briefly included in the Introduction (just seems slightly out-of-place' to put such a vital piece of theoretical framework into the paper). The authors have highlighted the primary implications for their work and how this research would most definitely advance our understanding of information provision and decision-making for women invited to breast screening.

On reflection, and in response to the comments made by Marit Solbjør, we have decided to remove this reference to Fuzzy Trace Theory. We did not use the theory to guide the development of the study (hence not mentioning it in the Intro) but we agree that the very brief mention in the Discussion is out of place, and a considerable amount of explanation would be needed to explain more clearly how our findings might fit into the model. Given the space constraints, we feel that it is better to remove this point.

Reviewer: Marit Solbjør

We had difficulty responding to some of these comments as we were unable to generate a version of the manuscript with line numbers matching those used by the reviewer. We have tried our best to understand the points being made but were sometimes unsure which sections of text she was referring to.

The context of the study and participants should be better described. Were all interviews conducted in London?

The reviewer is right in thinking that all the discussion groups took place in London. We have now clarified this in the Methods section (p5) as well as the Abstract (p2).

The focus group methodology should be better described, both in general terms and why this method was considered more suitable than for instance individual interviews.

Paul Hewiston made a similar comment and we have expanded the Methodology paragraph to make this clearer (see above).

References are mostly up to date, but more references should be added, particularly references discussing how lay people interpret statistics, as this is a main point in the article.

Thank you for this comment. Please see our response to specific suggestions about references below.

First part of the results section appear somewhat immature and need to be rewritten

Please see response to specific suggestions on the Results section below.

Results should be discussed more in light of previous evidence.

Please see response to specific suggestions about the Discussion section below.

Thank you for the chance to review this interesting article. The article raises very important questions about how women understand information about overdiagnosis in mammography screening, and how such information might influence their decision making on the subject. These questions are most pertinent and this study is warranted. The article is generally well written but the authors need to address some issues that are described below.

Thank you for these positive comments.

Abstract: Clarify setting of study/data collection/ participants.

I'm afraid we were not quite sure how to further clarify these points in the Abstract but we have added some clarification of the sampling methods. If the editors feel that aspects of the Abstract need further information, we would of course be happy to add this.

Introduction:

The introduction is well written but could include more references to previous research, for instance – Barker KK, Galardi TR. Dead by 50: lay expertise and breast cancer screening. *Soc Sci Med.* 2011 Apr;72(8):1351-8. doi: 10.1016/j.socscimed.2011.02.024 (see lines 28-32 in the present manuscript).
- Gummersbach, E. et al (2010) Are women getting relevant information about mammography screening... *European Journal of Public Health*, 20 (4):409-414
- Jørgensen, K.J. and Götzsche, P.C. (2006) Content of invitations for publicly funded screening mammography. *BMJ* 332: 538-541

Thank you for these suggestions. We have added references to the Gummersbach and Jørgensen papers. We read the Barker & Galardi paper with interest but as the focus was online discussion forums of women with breast cancer, we did not feel that it fitted with our focus on public communication.

Rewrite line 36 on page 1, since use of >10.000 is difficult for readers to interpret.

We have rephrased this and hope it is now clearer: a third believed that it would be acceptable for 10,000 women or more to have false positive results in order to save one life (p3)

Last four lines of second paragraph need to be rephrased.

We have re-written this sentence so it now reads: In order to take forward new approaches to the provision of breast screening information, it is crucial to gain an understanding of women's perspective on the idea of 'overdiagnosis'. Information must be provided in a manner that is understandable and not likely to undermine equality of access. (p4)

In the third paragraph the authors must make it clearer whether they refer to mammography screening or to other screenings, and make it clear if there are any differences between them.

Thank you for pointing out this omission – we have clarified that some of these studies focus on colorectal rather than breast screening.

Page 2, lines 29-33: Argument about media coverage of overdiagnosis needs to be addressed throughout the article.

We have added some extra references to newspaper articles as suggested by Paul Hewitson.

Methods:

The methodological approach needs to be extended. Why were focus groups the best method, why not for instance individual interviews? This paragraph needs more references and a short description of what a focus group entails.

We have amended the Methodology paragraph to include more information (p5).

Participants: did all participants live in London? Were all data collection done in London? If so, include in discussion whether Londoners might represent all UK women (or not).

Women were recruited in and around London, and all the groups took place in London. We have clarified this point (p5) and have acknowledged the possible impact on generalizability in the Discussion (p14).

P.5, line 10: "suitable community venue" - was this in London?

Yes, we have added this information.

Footnote 1 is confusing since having the same lay out as references. Omit or move to a box?

Thank you for noting this confusion. We have removed the footnote and added the bullet point from the leaflet into the main text, in brackets.

Line 24: explain how information was provided (oral, written?).

The information in Box 1 was read to women – we have now clarified this point in the text as well as in the title of the box (p6).

Line 28: Sentence about recording and transcription seems out of place. Move to end of "data collection"?

Thank you – we have moved it to the end of the section as suggested.

P. 6: either ref to NVivo AND SPSS, or exclude ref 21.

Thanks for pointing out this inconsistency. We have removed reference 21.

How were demographic data collected? Add one sentence about this.

Women completed a short demographic questionnaire. We have added a sentence to the 'Data collection' section (p6).

Results:

The findings are very important to publish! They do, however, in their present state appear somewhat immature with too many repetitions of subjects throughout the subthemes. I would like the authors to look into their classifications and see whether some of the themes could be joined together, and whether these are the main themes. As presented now, each subject is more of a "teaser" than a final analysis, and I am curious to know more about each theme. It is particularly the first part of the results

("making sense..."), which needs more attention. For me the subheadings overlap, and I do not understand the issue of "cynicism". Also, I do not understand that worries about NHS costs could be classified as emotional. I would urge the authors to rewrite this analysis and let us know more about the contents of the pertinent issue of how women make sense of the concept of overdiagnosis. It is of particular interest to see how these women have difficulties separating statistics and models from treatment of individual women.

We have given serious consideration to these thoughtful comments and have looked again at our analysis. The themes were developed between the four authors with input from another researcher who moderated some of the focus groups. In addition, a member of our team who had no involvement in the data collection has read all the transcripts and the analysis to provide independent validation. As neither of the other reviewers raised any significant issues with our analysis or interpretation, we contacted the journal editor for advice. Given that the editor requested 'minor revisions' within a fortnight, and suggested the reanalysis was at our discretion, we are inclined to stay with our initial themes.

Could one main category be about statistics for instance? Also, trust might perhaps be a main theme? For discussions on mammography screening and trust, see Solbjør (2008) in Brownlie, Greene and Howson (eds) *Researching Trust and Health*, Routledge, and Griffiths F, Bendelow G, Green E, Palmer J. *Screening for breast cancer: medicalization, visualization and the embodied experience*. *Health* (London). 2010 Nov;14(6):653-68.

There are extremely interesting references, but we feel that to focus on the issue of trust would detract from our main aim, which was to understand responses specifically to the issue of overdiagnosis.

Could you clarify throughout the article whether it is question 6 from the interview guide that is the context for these answers, or the whole discussion within the focus groups?

We have tried to make it clearer that the analysis focuses on responses to the overdiagnosis information in Box 1, which is Question 6 from the discussion guide. We have added a sentence in the Results section (p.7) to further clarify this.

* P.6, lines 37-41: is this necessary here? (as mentioned above*)

I'm afraid we couldn't quite work out what this comment referred to.

Why did the range of minutes for each focus group have such large variance?

We have added some text to explain why the length of the discussions varied (simply because some groups had more to say on the issues being discussed than others) (p7).

p.7, line 28-29: please rephrase sentences as "known-about" and "off-putting" seems too colloquial (though I am not a native English speaker, authors should look into these phrasings).

We have re-phrased these wordings (p8).

Table 1: Are data available on whether some of the women had mammography more frequent than every 3rd year? As the recommended frequency in Norway is every second year, and some women tend to have mammograms even more frequent, it could be interesting to know what is hidden behind the wide category of "3 years or less".

We collected information about the date of participants' last mammogram and used this to calculate time since last screen. We do not know whether women were screened more frequently than recommended, but given the 3 yearly call-recall system used in the UK, it is unlikely. We don't feel that it would be helpful to break down the '3 years of less' category as we have no way of knowing how soon women were planning to go for their next mammogram, so it would probably only tell us how far they were through their 3 year cycle.

Discussion:

Discussion should be rewritten in light of new results chapter.

As we have chosen to leave our analysis as it was, we have not undertaken a major re-write of the Discussion.

More discussion of previous research should be included.

Thank you for your helpful suggestions for additional references, some of which we have included as noted. We have also added other additional references to the Discussion section in light of other reviewer comments, as summarised in this document. We hope that these changes sufficiently address this point, within the constraints of the word limit

P.13,line 32: discuss focus groups vs. individual interviews rather than survey methodology.

We have now amended this paragraph to discuss differences between focus groups and individual interviews.

Line 42-46: unclear what is referred to, findings in this article or other findings? Rewrite.

I'm afraid we weren't sure which sentence this comment referred to but we hope our editing of the Discussion has addressed the concern.

Line 47: "common in qualitative research" needs references.

We have amended this section as suggested here, and by Vikki Entwistle (p15).

P.14, line 5: "Fuzzy trace theory" must be described more if used.

We agree, and have now removed our reference to Fuzzy Trace Theory (see earlier response to Paul Hewiston).

Overall comments:

There should be more discussion of the context of the study and of the subject. How did these women relate to media debates and medical debates mentioned in introduction? Relate article to debate on informed decision making in screening? Interpretation of statistics could be discussed with reference to the following articles or other relevant research:

Adelswärd V, Sachs L. The meaning of 6.8: numeracy and normality in health information talks. *Soc Sci Med.* 1996 Oct;43(8):1179-87.

Skolbekken JA, Østerlie W, Forsmo S. Brittle bones, pain and fractures--lay constructions of osteoporosis among Norwegian women attending the Nord-Trøndelag Health Study (HUNT). *Soc Sci Med.* 2008 Jun;66(12):2562-72. doi: 10.1016/j.socscimed.2008.02.022. Epub 2008 Apr 1.

We have added a line to the final paragraph to acknowledge the shift to informed decision-making in screening and the importance of communication about overdiagnosis in this context. We have also

included a brief discussion of numeracy and have referred to the very interesting paper by Adelswärd and Sachs as suggested.

Reviewer: Vikki Entwistle

In my opinion, this manuscript reports on a well-conducted, small-but-useful study that used focus groups to explore women's responses to information about the 'overdiagnosis' that can occur with breast cancer screening. The manuscript is generally well structured and the writing is clear. I had no major concerns, but a few observations and suggestions that the authors might consider when refining their manuscript.

Thank you for these positive comments.

Abstract: two points could perhaps be made more specific: "Few felt that they would make a different screening decision" and "It may not influence their attitudes towards screening".

We have changed the first sentence as follows to make it clearer: After discussing overdiagnosis, few women felt that they would make different decisions about breast screening in the future, and the second sentence to: understanding overdiagnosis may not always influence women's attitudes towards participation in breast screening. We hope that the abstract is now clearer.

P3: Would it be helpful to explain / reference the point that it's possible that more considered responses would be different?

Yes, we have expanded this point and little and added a reference.

P3: "In a recent UK study.... although qualitative research has shown" and p4: "The one study to date... The present study used similar qualitative methods". I think the introduction would benefit from a minor edit to make clear what kinds of methods were used in the various studies that are reported. I'm particularly keen to get a sense of how 'open' response options were and what respondents were told that might have shaped their responses.

We have added more detail about the methodologies of these studies and we hope that we have shown more clearly the different responses that come from open vs. closed questioning in surveys and qualitative studies.

P4: 'sceptical' or 'suspicious'?

Hersch and colleagues use the word sceptical, but we agree that suspicious is probably more appropriate and have changed it.

P5 and associated material: Could you (a) explain what alternatives you considered and rejected before deciding to explain overdiagnosis in terms of 'slow growing' cancers

We have added more detail about the decision to use the term 'slow growing' in the Methods section.

(b) provide a bit of critical reflection on the possible implications of the particular description you gave? (I was struck by the thought that the wording would encourage me to engage in the kinds of thinking that the women reported: the finding of a slow growing cancer is still the finding of a cancer, so the issue seems to be one of needing to tailor the treatment to the slowness, not one of any treatment being inappropriate)

This is a very good point. We have added a paragraph to the Discussion to explore the issue of how best to communicate the concept of overdiagnosis, and the implications of our choice to use the term 'slow growing'. Of course once a cancer is diagnosed, there is currently no way of knowing whether it needs treatment or not, so the risk of overdiagnosis has to feed into screening decisions, not treatment decisions.

P7-8 The quotation about 1 to 3 in 8 didn't leave me thinking the speaker had assumed that it would be better if 3/8 than 1/8 cancers found would never have caused a problem. Would extending the quotation clarify the way she's using 'great'?

Thank you for this perceptive comment. Looking back at the transcript, we realise we may have misinterpreted the quote. We assumed 'great' meant 'good', but on reflection, it may have been a comment on the magnitude of the number. We have replaced the quote with one that illustrates someone explaining overdiagnosis to another participant who was confused.

P13 The theme of viewing others as more risk averse (etc.) than oneself is perhaps not just observed in qualitative research? A reference might be helpful here.

We agree, and have added a reference and expanded to point.