Author's response to reviews

Title: Factors influencing the surgery intentions and choices of women with early breast cancer: the predictive utility of an extended Theory of Planned Behaviour

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Author's response to reviews: see over
Dear Sirs,

Re: MS 6671990989081593
Factors influencing the surgery intentions and choices of women with early breast cancer: the predictive utility of an extended Theory of Planned Behaviour (Sivell et al)

Thank you for your comments and for the opportunity to address the reviewers’ concerns. We have modified the manuscript to address the reviewers’ comments as far as we are able. Below we outline how the manuscript has been changed. Any changes have been underlined in the manuscript.

Reviewer 1

It would be helpful to know whether there were any age differences in type of surgery chosen and/or in attitudes toward surgery. The average age of the sample is somewhat younger than that of the average age of breast cancer dx (at least in the US, which is closer to 59-60). Younger women may have different attitudes regarding the options.

We did not include age in the analytical model as there was no statistically significant age difference between those who chose mastectomy and those who chose BCS. There are also no statistically significant associations between the age of the participants and their attitudes towards surgery, or any other of the variables from the extended TPB. Therefore, we did not include age in the regression analyses. We have provided clarification in the Methods/Participants subsection that there is no difference in age between the two groups and have also included an endnote in the Methods/Analysis subsection to clarify why age (and knowledge) was not included in the analyses.

Participants
Between December 2009 and October 2010, 144 women (out of a total of 160 who were eligible) being cared for by multidisciplinary breast teams in Cardiff, Sheffield and Newcastle upon Tyne in the UK were invited to take part in the study. Seventy women consented, of whom 62 (88.6%) participated in the study before surgery, in accordance with the protocol; 48 of these women accessed the questionnaire after accessing BresDex and before their surgery (all women included in the current study accessed BresDex). The mean age of these 48 women was 53.15 years (range 29–80), with less than half (47.9%) educated to college level or higher. Seventy-five per
cent (n=36) of the women opted for BCS; there was no statistically significant difference in age between those who opted for BCS (mean = 52.92 years) compared with those who opted for mastectomy (mean = 54 years). The number of days between receiving their diagnosis at the results clinic and having surgery ranged from 2 to 56 days (median = 21 days).

1 Other variables with the potential to influence women’s surgery intentions and choices, but which were not included in the regression analyses, include age and knowledge about the surgery options. There were no statistically significant age differences between those who chose BCS compared with those who chose mastectomy, or in their attitudes towards the surgery options; therefore age is unlikely to have contributed to the predictive power of the regression models. Similarly, knowledge was not included in the regression analyses due to the high mean scores and observed both pre- (mean = 8.28, sd = 1.07) and post-BresDex (mean = 8.51, sd = 1.01), with no significant differences between those who chose BCS and those who chose mastectomy [34].

Related to the above, the manuscript doesn't mention whether breast reconstruction is considered or offered at the time of surgery with mastectomy. This option could impact some of the responses (for instance, mastectomy is less disfiguring if the breast is reconstructed following). Research has shown that women may opt for mastectomy if offered reconstruction at that time. Some comment about this issue / option would be useful in thinking about how patient attitudes toward treatment options affect their choices.

Reviewer 1 is correct to point out that the availability of breast reconstruction may have an influence on women’s surgery choices. We focused on women’s decision to have BCS or mastectomy as this is the choice they were presented with; breast reconstruction would be discussed where appropriate, but the offer of immediate breast reconstruction will of course depend on a number of factors relating specifically to the individual. Similarly, other additional therapies may also influence attitudes, for example radiotherapy treatment following BCS. While we did not specifically assess attitudes towards all related treatment options, we do present data on participants’ attitudes towards BCS or mastectomy including issues surrounding body image and perceived impact on their sex life. Further research would be needed to examine the factors which shape these perceptions more closely and we have included a comment on this in the Discussion (third paragraph):

Comparing the scores of women who opted for BCS with those who opted for mastectomy at the level of individual TPB items helps to provide an insight into the factors that shaped women’s decisions. Feeling less feminine was also judged to be more undesirable by women who chose BCS than by women who chose mastectomy. Women who chose mastectomy perceived that having a mastectomy would be less likely to have a negative effect on their sex lives than did women who chose BCS. These findings are consistent with other studies in which it has been found that attitudes to body image and sexuality influence surgery choice [20-23], with patients who opt for BCS placing greater emphasis on these factors [20], perceiving the outcome of the surgery to be less disfiguring [22], and seeing BCS as allowing them to conserve their femininity, physical appearance and sexuality [23]. Further research should look to examine the factors shaping these perceptions in greater detail, such as the availability of immediate breast reconstruction, or the need for other further treatment including radiotherapy.
Reviewer 2

It is stated that the study was not an RCT, and that the purpose of the wider study was to evaluate the use of the intervention in practice. It would be assumed then that some sort of measure of whether or not a specific participant used the intervention would be available. I would recommend if this information is available, that this variable is included in the analyses, otherwise there is always a lingering question as to whether or not the decision aid made an impact on these decisions, over and above the TPB variables. Similarly, knowledge is another factor that I would have assumed that the researchers would have included in the model. The explanations given as to why the medical characteristics were not included in the model is adequate, but at least some consideration of these other two variables should have been given (or remarked upon in the Discussion).

All participants included in the analyses in this paper used the intervention (BresDex). Therefore, it would not be possible to include whether or not participants used BresDex as a variable in the analyses. As reported in the evaluation of the use of BresDex in practice (Sivell et al., Patient Education and Counseling 2012;88(2):209-17), we did collect web-log data and were able to calculate the length of time spent on BresDex. However, there is no statistically significant difference on the length of time spent on BresDex between those who chose BCS compared with those who chose mastectomy, and therefore would serve no purpose to include this in the regression analyses. With regards to the inclusion of knowledge as variables in the regression analyses, we decided not to do so due to the high mean scores observed both pre- (mean = 8.28, sd = 1.07) and post-BresDex (mean = 8.51, sd = 1.01) reported in the Patient Education and Counseling paper. Furthermore, there were no differences in knowledge scores between those who chose BCS and those who chose mastectomy.

As shown above, we have provided clarification in the Methods/Participants section of the manuscript that all participants accessed BresDex and have included an endnote in the Methods/Analysis subsection to clarify why knowledge (and age) was not included in the analyses (see above). In addition to this, at the end of the Strengths and Limitation paragraph, we comment on the fact that this particular sample of women all accessed BresDex and that further work is needed to explore whether the use of the intervention itself influences surgery choices:

**Strengths and Limitations**

Key strengths of this study are that it is, as far as we are aware, the first to apply an extended TPB to predicting and understanding women’s actual surgery choices for early breast cancer at time the decisions were being made, and that it examined behavioural outcomes, as well as surgery intentions. Many studies applying the TPB do not measure behaviour and if they do, it is often assessed in the form of participant self-report [38]. A limitation of the present study is the low uptake rate and attrition at various points in the recruitment and data collection process, resulting in a relatively small sample size. Therefore, the participants in this study may not be a representative sample of women newly diagnosed with early breast cancer. However, these points need to be evaluated in the context of the considerable difficulties involved in recruiting a ‘real world’ sample of this nature. It is important to bear in mind that these women were asked to invest time and effort on a purely voluntary basis at a particularly difficult and stressful time [9]. They had just received a diagnosis of breast cancer and were asked to consider their surgical options and make a decision within a short period of time; the median time between
diagnosis and surgery was 21 days. Under these circumstances we were pleased to have been able to recruit enough women to permit multivariate analyses and to enable us to examine more closely the factors that influenced their surgery choices. It is also important to note that all the participants in this sample accessed BresDex, an interactive online decision aid, to support them when considering their options for surgery [34]. Further work is needed to compare women who use BresDex with those who do not and to explore whether use of the decision aid influences their surgery choices.

Along with the changes that were made to the limitations section, there should also have been mention of the low rate of uptake and high attrition - this should be specifically noted, along with the more general comment about the small sample size.

As requested by the reviewer, we have now specifically noted the low rate of uptake and high attrition in the Strengths and Limitations section of the Discussion (see above).

We hope that these revisions address the reviewers’ remaining concerns. We hope that you agree and look forward to your decision.

Yours sincerely,

Stephanie Sivell