Reviewer's report

Title: Weight change following breast cancer: evidence from a prospective, population-based, breast cancer cohort study

Version: 2 Date: 20 September 2014

Reviewer: Jayne Hutchinson

Reviewer's report:

Thank you for asking me to review this interesting piece of research relating to weight change following breast cancer. Understanding the diagnosis, treatment or behaviour characteristics of patients whose weight status is unhealthy at diagnosis or who are most like to change weight post-diagnosis is an important focus of research that could influence interventions to improve cancer survivorship.

Major essential revisions

1) Although the abstract states that the research explores whether weight changes over time are associated with patient, diagnosis, treatment or behaviour characteristics I think the manuscript does not address this, unless I have interpreted the mixed methods results incorrectly. Table 3, which uses mixed methods, appears to relate to measured body weight rather than weight change, and although changes in weight by patient characteristic can be seen in table 2 these changes are not described in the results or mentioned in discussion or abstract. The results in terms of patient characteristics, as described in the abstract and in the main body (2nd paragraph of the results and 4th paragraph of the discussion), appear to relate to measured body weight only and do not mention weight change. This needs addressing please. It would be useful to describe changes in weight over time by patient characteristic. For instance I noted in table 2 that although patients with 10 or more lymph nodes removed were heavier at 6 months after diagnosis than women in other categories, women in this category only gained 0.5kg by 72 months whereas on average women in other categories put on weight over this period and those who had no lymph nodes removed put on 7kg by 72 months. Women with 10 or more 'positive' lymph nodes actually lost weight over this period. After describing in the results section some of the weight gains and losses between 6 - 72 months in terms of patient characteristics, please make appropriate amendments to the 4th and perhaps to the final paragraphs of the discussion. Possible reasons for different patterns in weight changes for different categories of patients could be discussed along with any supporting prior research. Descriptions of patient characteristics in relation to weight status (e.g. close to diagnosis at 6 months) and weight changes between clinical measurements should be clearly distinguished.

2) Ideally the weight of the patient at diagnosis should be added to table 2 (and
significant differences between this and weight at 72 months calculated) if the information is available. If this information is not available perhaps weight at 6 months after diagnosis may be a close enough approximation to this, but this limitation should be mentioned in the discussion, along with the fact that you mention in the introduction that previous research has found weight gains exceeding 5Kg between diagnosis and six months - this might vary by patient characteristic. The fact that weight status at or near diagnosis is likely to be associated with type of diagnosis should also be mentioned.

Minor essential revisions

1) Please alter the conclusion of the abstract so it relates more closely to the results of this study rather than back ground information.

2) In table 3, please state at which time point these weight measurements were taken and whether they were clinically measured. If more than one time point is taken into account for this, as alluded to in the methods, then some additional explanation is needed to help the reader interpret this table in this respect.

3) In the data collection section of methods, please state the definition of sufficient physical activity i.e.150 minutes of moderate activity per week.

4) In the first paragraph of the discussion it states 'At the point of breast cancer diagnosis', but I think you mean 'At 6 months after diagnosis'.

5) Please state whether weight was clinically measured or self-reported in the normative dataset, and if it was self-reported mention this as a limitation in the discussion.

6) Please mention as a limitation in the discussion that the follow-up periods between the PTS sample and the normative sample are close but somewhat miss-matched.

7) In table 4 please explain the notes to the table more clearly in relation to the age band weight gains - do these relate to the AusDiab data?

Discretionary revision

1) In the methods paragraph of the abstract it would be useful to add an explanation of '1 BMI unit' being a clinically relevant weight gain.

2) A sentence in the last paragraph of the methods could be moved into Results 'of note, clinically-assessed weight was on average....

3) Some sections of the discussion could be condensed e.g. 3rd paragraph (background information already mentioned in the introduction), and 5th paragraph.

4) It could be pointed out that although the sedentary group on average did not gain weight between 6-72 months they still had the highest weight 72 months post diagnosis and should be encourage to exercise.
5) The two women reporting extreme weight loss ought to be mentioned in the results first before referring to them in the discussion. Within this discussion paragraph on weight loss, it would be useful to point out that in relation to patient characteristics only women who had 10 or more positive lymph nodes and those who underwent mastectomy surgery lost weight between 6-72 months - though this may not be significant in the latter group.

6) Women who received chemotherapy were somewhat heavier at 6 months post diagnosis than those who did not receive chemotherapy. Those receiving chemotherapy did not, however, put on any substantial weight between 6 and 72 months, whereas women who never received chemotherapy put on about 3kg by 72 months, and were then on average a similar weight to those who had chemotherapy. This could be mentioned in the results and discussion. You mention in the introduction that the contribution of current chemotherapy regimens to weight gain is unclear, but unfortunately it is still unclear from these results because we do not know whether these women who received chemotherapy put on weight during/following chemotherapy or whether heavier women were more likely to need / be given chemotherapy.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare I have no competing interests