Reviewer's report

Title: Survival of patients with operable breast cancer (Stages I-III) at a Brazilian public hospital - a closer look into cause-specific mortality

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Reviewer: Rita Byington

Reviewer's report:

1. Is the question posed by the authors well defined?
   Yes
2. Are the methods appropriate and well described?
   Yes
3. Are the data sound?
   Yes
4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Yes
5. Are the discussion and conclusions well balanced and adequately supported by the data?
   Yes
6. Are limitations of the work clearly stated?
   Yes
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Yes
8. Do the title and abstract accurately convey what has been found?
   Yes
9. Is the writing acceptable?
   Yes. Only a few corrections should be made in order to be published

• Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
  None

• Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Background Section:
1 - “whereas the age-adjusted mortality for the world population in the country…”. The correct expression should be “whereas the age-adjusted mortality to the world population in the country…”

2 – “In Goiania, located in the Central-West Region of Brazil, the survival rate was 65.4%.” A reference is needed for this survival rate!

3 – “The Breast Pathology Laboratory of the UFMG School of Medicine is responsible for all breast pathology exams and it keeps records of diagnostic and surgical specimens from the HC-UFMG since 1989 [20].” I understand that this all refers to the exams performed in specimens from patients assisted at this hospital but the way the sentence is written it makes us think of a “more comprehensive all”. I suggest the authors to rephrase the sentence to clarify this issue.

4 – “The goal of our study is to evaluate cause-specific survival”. Although currently used by some authors I personally dislike this expression. I would rather say that the goal is to “estimate survival and cause-specific mortality.” This is because how can one say that “the cause of survival was breast cancer”?

5 – “to compare our findings to the prognosis of patients treated in other Brazilian institutions, as well as to survival in developed countries”. Here, “prognosis” and “survival” are being improperly used as synonyms. The authors should change both to “survival”.

Methods Section:

Information on life status and death causes
1 – “To identify patients from the study’s cohorts…” Should be corrected to “To identify patients from the study cohort…”

2 – “to estimate breast cancer-specific survival…” Here I make the same comment as above: one can be very specific about a cause of death but hardly about a cause of survival… But it is a matter of preference as authors are using this term. When analyzing a survival curve we look at the survival of patients with some health condition, not at the condition itself.

Data analysis
1 – “We estimated Kaplan-Meier curves to describe the cause-specific survival of patients over 5 and 10-year periods…”. I would rather say “We estimated Kaplan-Meier curves to describe the survival of this cohort over 5 and 10-year periods…”.

RESULTS
1 – “…The mean age of patients was 55.32 years (SD=13.97, range 20-97 years). Only 47 patients (5.24%) were 35 years old or younger; most patients (677, 75.47%) were between 36 and 69 years, and 173 patients (19.29%) were 70 and older.”
I’d like to know the median age of patients. As described, almost 20% of them were 70 and older. This illustrates a skewed distribution so the mean is not the best description.

2 – “…where treated in the private health system.”
The “where” ought to be corrected to “were”

3 – “…The most frequent tumor size was T2 (2 to 5 cm), with 348 cases (38.8%).”
The term “most” should be used only when more than 50% is implicated.

4 – “…Most patients where in stage III at diagnosis (359 cases, 40.02%).”
If 40.02% were in stage III at diagnosis it is not correct to say “most patients”. It does not apply. I would suggest “a great number of patients were in stage III at diagnosis (359 cases, 40.02%)”

5 – “…Five-year breast cancer-specific survival for the entire cohort was 78.5%,”
I insist that it is not correct to say “breast cancer-specific survival”. I think a better way to express the findings of survival analysis should be “Five-year survival of breast cancer patients”. Patients’ survival is not “caused” by breast cancer! The same is valid for the rest of the paper, every time “cancer-specific survival” is referred.

6 – “…Being treated by the SUS was associated with a worse survival,”
The use of the term worse is inadequate for it refers to a qualitative aspect that is not possible to infer from the data. It should be changed to “shorter”.

7 – “…In terms of therapy, being submitted to neoadjuvant systemic therapy, undergoing mastectomy and undergoing axillary node dissection were associated with worse overall survivals.”
Again, this paper is not about quality of life. The data shown do not allow to say if the survival was better or worse. It is only possible to say “longer” or “shorter”. The authors should have a closer look at this issue for it is repeated all through the paper.

DISCUSSION

1 – “Since survival analyses methods vary among studies, it is difficult to compare breast cancer survival rates among cancer facilities and mostly among countries.”
I would disagree on that. Survival analyses methods used in this study – Kaplan-Meier estimates and Cox proportional hazards model – are amongst the most widely used for such studies. Yet, the rest of the same paragraph points to the real reasons of the different findings. I would suggest the authors to suppress this affirmative.
• Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

Methods Section
Data analysis

1 – “Survival interval was calculated in months from date of surgery in patients not submitted to neoadjuvant chemo or hormone therapy and from biopsy date in patients who underwent such therapies”.

Why did you use the date of biopsy and not the beginning of neoadjuvant therapy as the starting point for this group of patients? Shouldn’t the clock begin to tick for both groups at the start of treatment, be it surgery or chemo/hormone therapy? I suppose the group submitted to surgery had also undergone a biopsy and waited for some time until surgery. Being so, why didn’t you use also the date of biopsy as the starting point? Please, clarify this point.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests'