Reviewer’s report

Title: Yoga for patients with breast cancer: a systematic review and meta-analysis

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Reviewer: Stephanie Sohl

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This manuscript presents a meta-analysis and systematic review to determine whether or not yoga shows efficacy for improving health-related quality of life and psychological health in women diagnosed with breast cancer. Strengths of the manuscript include that the authors followed PRISMA and Cochrane Collaboration recommendations and explored the differential efficacy of yoga during versus after active treatment. This manuscript has many strengths in addition to those mentioned, however, there are some limitations to be considered.

Major Compulsory Revisions

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

1. Inclusion criteria state that studies examining yogic relaxation or meditation without a physical component were not included in the review. Reference [29], Kovacic & Kovacic (2011 in the References/2010 in the Figure) does not seem to include the physical component of yoga (only relaxation training) and it is combined with “physiotherapy.” It seems inappropriate to include this study and necessary to know if the results are different when it is not included. Especially since the SMDs for this study are large and may be driving the effects.

2. The conclusion that yoga can be recommended to patients who “suffer from psychological problems” is not accurate. These studies did not specifically target women with elevated levels of psychological symptoms. Instead, this review shows that yoga can be recommended as an intervention to manage or improve psychological health during breast cancer treatment.

Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

1. The terms quality of life and health-related quality of life were used interchangeably. It would be preferable to have one term used consistently throughout the manuscript.

2. Similarly, it is necessary to distinguish between cancer patients and cancer
survivors. It would be useful to define these terms and use them consistently. For example, it was unclear in the background if reference [3] is “breast cancer patients” were undergoing treatment or not and reference [12] includes survivors in the reference, but only patients are mentioned.

3. Yoga is referred to as an “alternative” treatment in the Background on p.4, which implies that it is used instead of allopathic medicine. Yoga in the studies referenced is considered “complementary”.

4. It was not clear how studies were categorized into high vs. low risk of bias for the Sensitivity Analysis. It would be helpful to clarify this in the Methods section and include a column on Table 3 that states the overall category for the study.

5. In the Data Analysis section, it says that effect sizes were calculated if two studies were available on a specific outcome. Please clarify if outcomes had to be the same measure or the same construct.

6. The list of which QOL measures were used in the text on p. 10 was confusing for the FACT-G and FACT-B because [30] was listed twice. Since the FACT-G is part of the FACT-B, this could be explained more clearly.

7. It should be highlighted in the text that only two studies are included in the analyses of effect sizes for outcomes after active treatment.

Other minor edits:

Abstract – Results, effectiveness -> “efficacy”
Types of interventions – missing “a” before physical component
Study selection – capitalize Yoga of Awareness
Results - The word “neither” is used incorrectly twice on the top of p. 9.
Setting and participant characteristics – add “and” before newspaper and for the phrase “2 studies did include” -> remove “did” and change to “included”
Conclusions – first line, yoga “is” -> “has been”

Discretionary Revisions

1. It may be of more interest to readers to know the effect size of yoga as compared to any active control either in addition or instead of yoga compared to each type of active control separately.

2. It would be useful to explain in the text why a p-value of <.10 is used for heterogeneity rather than p<.05 so the reader does not have to seek out the reference.

3. It would strengthen the section on the publication bias to include a Fail Safe N calculation.

4. More discussion of why there is no significant effect of yoga after completion of active treatment would be of interest. For example, perhaps women in these studies do not have elevated levels of the outcomes addressed to begin with and have little room for change. Studies that target one symptom and select for post-treatment cancer survivors with elevated levels of that symptom may be
more likely to demonstrate efficacy. In addition, these results are different than
that found by Moadel 2007 who reported that those not receiving chemotherapy
showed more favorable results. This may also be worthy of discussion.

5. The discussion on meta-analyses of “exercise” would be more inclusive of
yoga if called “physical activity.” It would be of interest to know if yoga
interventions were included in those reviews.

6. It may be considered a limitation to some that dissertations and unpublished
studies were not included in the analysis and could be mentioned in the
discussion.

7. The discussion of external validity is missing a comment on the socioeconomic
status and resulting access to healthcare of the participants. Other than Moadel
2007, it is important to know if the studies represent people with lower SES.

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, but I do not feel adequately qualified to assess the
statistics.

Declaration of competing interests:

I declare that I have no competing interests.