**Reviewer's report**

**Title:** Consequences of being aware of a diagnosis: Vertebral fracture and self-perceived health in the Tromso Study

**Version:** 1  **Date:** 17 December 2012

**Reviewer:** Stephen Thielke

**Reviewer's report:**

This was an interesting article about the consequences of osteoporotic fractures among a large cohort. It found an unexpected gender difference. Fractures had a mainly predictable effect on health-related quality of life.

**Major Compulsory Revisions:**

1. My main problem with this article is that it does not focus on what the title promises: "Consequences of being aware of a diagnosis." Instead of examining the differences in HRQL among people with and without fracture and with and without osteoporosis (by densitometry), and then (almost as an afterthought) explores how self-report of osteoporosis was associated with HRQL.

   If your focus were really on the consequences of awareness, you would use this as your main grouping variable, and determine if it is the awareness of the diagnosis that results in lower HRQL. More bluntly, is awareness the mediator between fracture and HRQL, or is it just another factor, or is it not important?

   Your results suggest to me that awareness may be a factor in HRQL, but that it clearly is not responsible for the main effect. As such, the finding that "Awareness about having osteoporosis seems to influence pain experience and life quality in a negative way" is not all that interesting.

   The most important descriptive result around this would be how many people with different self-reported osteoporosis had a fracture. I searched for this, and could not find it. Maybe it’s hidden somewhere in the text or captions, but it is clearly not prominent. If you are focusing on awareness, you need to describe this in Table 1.

   The breakdown of groups by osteoporosis category was interesting:

   + reported osteoporosis + measured: 35
   + reported osteoporosis - measured: 129
   - reported osteoporosis + measured: 134
   - reported osteoporosis - measured: 2493

   This makes it look like most people with osteoporosis don't know they have it, and that a lot of people without osteoporosis think they have it. This is odd and deserves more attention.
I suggest that you take one of two approaches. Either remove the focus on awareness, and just discuss the various effects of a fracture and osteoporosis on HRQL. You basically have all these analyses done. Or focus on awareness, and use this as the main predictor in your models, including the necessary descriptives about it. The key question for me would be something like, "Does awareness of having osteoporosis mediate the association between osteoporosis and poor HRQL among those with or without fractures, and among men and women?"

2. Given the descriptives just listed about osteoporosis awareness and T-score, I am skeptical that self-reported osteoporosis is a meaningful variable in relation to fractures. It does not look like people were asked, "Do you know you have a fracture?" This would be a useful measure of the effect of awareness on health status and quality of life. Self-reporting osteoporosis is different, and may be associated with other (unmeasured) health variables, especially service utilization. You need to convince me more that the osteoporosis question merits attention and is a reliable measure of health beliefs (or, as suggested above, not focus on this.)

3. Some of the logic seems simplistic. This falls into two main categories. First, the authors sometimes assume that the connection between belief and expectation and health is straightforward, e.g. "The participants in our group 3 seem to believe they are healthy, so they feel healthy." The relationship is clearly much more complex than that. I suggest you critically examine your arguments about health beliefs, health behaviors, and health status. Second, the authors assume a causal or one-way relationship between variables that may be bidirectional. The conclusion, that "Awareness about having osteoporosis seems to influence pain experience and life quality in a negative way" makes such an assumption. You could just as easily find that people with more pain and worse quality of life are more likely to get (or remember, or admit) a diagnosis of osteoporosis. I suggest you resort to the safer language of "association" rather than the pseudo-causal language of "influence".

Minor Essential Revisions:
- The English needs to be edited carefully. For instance, you need to use complete sentences throughout -- "No such association in men." (abstract) is not a sentence.

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

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

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests.