Reviewer's report

Title: Improving Bone Mineral Density Reporting to Patients with an Illustration of Personal Fracture Risk

Version: 1 Date: 19 September 2013

Reviewer: Chiung-ju Liu

Reviewer's report:

This study used a mixed-method to determine patients' preference and understanding of four different fracture risk illustrations in two clinics. Patients participated in the study were different in educational attainment, race, and numeracy scores by clinics. The four illustrations were “Faces array,” “Arrow,” “Bar,” and “Spotlight.” Patients preferred the “Bar” illustration the most and were able to identify the correct level of risk on the “Bar” illustration. Overall, this study demonstrates how to design and select an appropriate illustration to communicate the level of risk to a target patient population. There are several places in the manuscript needed to be clarified before the consideration of publication. My comments are below:

Minor Essential Revisions

• In the last paragraph on page 6, what is the size of the convenience sample?
• On page 14, “However, the use of graduated colors...to be confusing by respondents.” There is no related report in the result section.
• In the introduction, the authors reviewed that numeracy skills is basic to understanding risk information. Could the authors provide more information on the numeracy skills in the result section? What are the numeracy levels of the patients in the study? Are their numeracy skills considered high, adequate, or limited? Are their preference, perceived ease of understanding and risk varied by the numeracy skills? There is some information in the 3rd paragraph on page 14, but no related report in the result section. Additionally, the discussion in the 3rd paragraph on page 13 is somewhat confusion as it seems that the authors equate educational attainment to numeracy skills.
• On page 14, “Similarly, we tested four depictions that are very different from one another...” This is a subjective statement. The “Arrow” “Bar,” and “Spotlight” are more similar to each other than to “Faces array.”
• Page 15. Could the authors be clear about who are the target audience of the study? Patients in the two clinics or patients with limited numeracy skills? Additionally, which study do the authors refer to? This one or the PAADRN?

Discretionary Revisions

• Since comprehension was tested in a subjective way, another term, such as perceived ease of understanding, may be much clearer to the reader.
• Although a convenience sample was recruited for the study, do the authors
have any demographic data from the clinics to give readers an idea how representative the sample is compared to the study target population in both clinics?

• Since there is no “one size fits all,” the end of discussion may focus on providing readers suggestions or steps on how to develop and select an ideal illustration to communicate risk to a target population based on lessons learned from this study.

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.