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Correspondence

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Re: Sustained Weight Loss and Risk of Breast Cancer in Women ≥50 Years: A Pooled Analysis of Prospective Data

Katherine M. Flegal, PhD*

Stanford Prevention Research Center, Stanford University School of Medicine, Stanford, CA, USA

*Correspondence to: Stanford Prevention Research Center, Stanford University School of Medicine, Medical School Office Building, 1265 Welch Road, Mail Code 5411, Stanford, CA 94305-5411, USA (e-mail: kmflegal@stanford.edu).

Teras et al. (1) report on weight loss and risk of breast cancer using data from 10 prospective studies, eight of which used self-reported weight data. Teras et al. note a high correlation coefficient between self-reported and measured weight. However, a high correlation coefficient is not an indicator of good agreement between two methods of ascertainment. In Bland and Altman's 1986 article (2) about assessing agreement between two methods, they note that "data which seem to be in poor agreement can produce quite high correlations" and provide an example with a correlation of 0.94 and another with a correlation of 0.99. Bland and Altman raised the question "Why has a totally inappropriate method, the correlation coefficient, become almost universally used for this purpose?" Correlation is not an appropriate approach for assessing the comparability between methods (3). Teras et al. cite an article by Lawlor et al. (4) regarding comparisons of self-reported and measured weight for women 60 years and older; despite a correlation of 0.98, the Lawlor et al. article concluded that "self-report of weight should not be relied upon in prospective epidemiological studies or clinical practice when accuracy at the level of the individual is required."

Most of the data used by Teras et al. (95% of the cases of incident breast cancer) come from US studies. The Global BMI Mortality Collaboration analysis for North America (5) compared 20 studies with self-reported data against 20 studies with measured data and found highly statistically significant differences in results by method of weight and height ascertainment between self-reported and measured data. For example, the hazard ratio for overweight was 1.00 (95% confidence interval = 0.97 to 1.04) when measured data were used and 1.14 (95% confidence interval = 1.12 to 1.16) when self-reported data were used, with a *P* value of .004 for heterogeneity. The *P* values for heterogeneity for other categories were .002 for underweight, less than than .001 for Grade 1 obesity, .037 for Grade 2 obesity, and .057 for Grade 3 obesity. The study by Teras et al. may have failed to detect this difference because they had only two studies with measured data, perhaps too small a sample.

The study by Teras et al. is based on estimates of weight change calculated by subtracting weight at one time from weight at another time. The validity of weight change calculated from self-reported weights at two different times for a given individual has not been established. The direction and magnitude of reporting error are not necessarily the same over time for a given individual. In addition, even if the measurement error in weight change estimates is not associated with the future outcome, nevertheless categorizing individuals into weight-change categories can lead to differential misclassification. Even in prospective studies, categorization itself can induce differential misclassification (6,7) when the risk for the outcome varies within the categories.

Given these limitations and methodological weaknesses, the results reported by Teras et al. should be viewed cautiously. The weight loss estimates are of questionable validity. Studies with estimates of weight change based on measured weights would be useful.

Notes

The author has no conflicts of interest to disclose.

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