COMMENTS AND RESPONSES

Comment on: Kan et al. A Systematic Review and Meta-analysis of the Association Between Depression and Insulin Resistance. Diabetes Care 2013;36:480–489

Kan et al. (1) conducted a meta-analysis on the relationship between depression and insulin resistance (IR), targeting 25 datasets from 18 studies. They calculated the pooled odds ratio using random-effects models and observed a small but significant association between depression and IR.

Before their results can be accepted, I would like to express two concerns in relation to their meta-analysis. First, Kan et al. included articles adopting different definitions for depression. In this connection, they mentioned that the magnitude of the association increased with the selection of studies using the diagnostic interview (DI) for the diagnosis of depression. Although the number of datasets adopting DI included in their meta-analysis was limited, I recommend that they select a standard definition of depression based on the DI for depression.

Second, they mentioned that the magnitude of the association increased when studies using insulin sensitivity as a measure of IR were selected. I would like to contest this statement. In the studies included in their meta-analysis, IR has mainly been measured by the homeostasis model assessment-insulin resistance (HOMA-IR) and insulin sensitivity by the quantitative insulin sensitivity check index (QUICKI). By definition, QUICKI is calculated from the HOMA-IR as 1/(common logarithms [405 × HOMA-IR]). Namely, QUICKI is a monotone-decreasing function of HOMA-IR, and HOMA-IR and QUICKI are mathematically the same indicators, except for the difference of their distribution (2). From this viewpoint, there is no reason why the magnitude of the association should change when either indicator is used, except that there was a lack of logarithmic transformation of the HOMA-IR values before the analysis in some of the studies.

A meta-analysis by compiling datasets is a useful strategy to provide future directions for further studies, but the quality of each dataset cannot be improved by this statistical procedure. Pan et al. (3) also conducted a meta-analysis on the relationship between depression and metabolic syndrome, and I speculate that these two meta-analyses are linked to each other, although there was no overlapping of the datasets used. Anyway, each study included in a meta-analysis should be carefully selected to ensure maintenance of the quality of the meta-analysis.

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DOI: 10.2337/dc13-0403

Acknowledgments—No potential conflicts of interest relevant to this article were reported.

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