
 COMMENTS AND
 RESPONSES

**Response to
 Comment on: Pan
 et al. Bidirectional
 Association Between
 Depression and
 Metabolic Syndrome:
 A Systematic Review
 and Meta-analysis
 of Epidemiological
 Studies. Diabetes
 Care 2012;35:
 1171-1180**

We thank Dr. Kawada (1) for his interest in our article (2) and welcome the opportunity to respond. Dr. Kawada raised the issues that different definitions of metabolic syndrome (MetS) and depression have been used in different studies and that the participants' characteristics varied across studies. We acknowledge that those factors could contribute to the heterogeneity of the pooled estimates. Thus, we carefully assessed the heterogeneity using the I^2 statistics, and to be more conservative, we pooled the odds ratios using the random-effects models that allowed for between-study heterogeneity. As reported in the article (2), the I^2 was moderate (55.1%) in the meta-analysis of cross-sectional studies and moderate

(56.8%) in the meta-analysis of cohort studies of MetS predicting depression risk, but it was low (0%) in the meta-analysis of cohort studies of depression predicting MetS risk. To explore the heterogeneity by various factors, we conducted the stratified analysis by study characteristics and the results have been reported in Supplementary Tables 1, 4, and 5 of our original article. The results have been generally robust and consistent across different strata of most factors that we examined.

Dr. Kawada also commented on the potential publication bias in our meta-analysis. However, we would like to emphasize that we did not conclude "no publication bias" in our article, and we only stated that "no publication bias was detected" and "[we] found no indication of publication bias in all the analyses" (2). As in any meta-analysis, we have relied on certain statistical approaches to detect the publication bias, and we cannot fully exclude the possibility of publication bias. However, we tried our best to contact the authors to clarify inquiries of their articles and provide unpublished data, if necessary, to minimize the potential publication bias.

As a statistical method, a meta-analysis has its own advantages and also limitations. The general aim of a meta-analysis is to provide a more robust estimate of the true effect size by pooling estimates from multiple studies. A meta-analysis is also useful to identify the patterns among study results and sources of disagreement across studies. However, the results from a meta-analysis should be interpreted carefully in the context of its limitations. Our meta-analysis is the first of its kind to examine the bidirectionality of the depression-MetS

relationship, and the results can have significant implications for both clinical care and public health.

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