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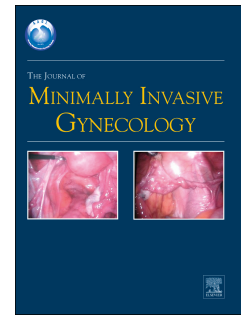
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META-ANALYSIS OF TWO STUDIES WITH RANDOM EFFECTS?**DING-GENG CHEN^{1,2}, DI FANG³, JEFFREY R. WILSON⁴,****¹UNIVERSITY OF NORTH CAROLINA-CHAPEL HILL, USA; ²UNIVERSITY OF PRETORIA, SOUTH AFRICA,****³UNIVERSITY OF ARKANSAS, USA ⁴ARIZONA STATE UNIVERSITY, USA;**

A meta-analysis (MA) combines similar studies resulting in a larger number of subjects to improve the degree of belief in the significance declared. Its major purpose is to increase the number of observations and the associated statistical power. Thereby increasing the precision for the estimates of the effect size as it relates to an association or an intervention. As commonly known, there are discrepancies between meta-analyses and the large randomized clinical trials. The conclusions drawn are subject to bias as they are affected by the small size of clinical studies. However, large randomized clinical trials are the most reliable way of obtaining reproducible results; in other words, we expect the same results if we repeated the experiment. On the other hand, large trials do not guarantee that the protocol or the conclusions were appropriate. While it is intuitive to think that a meta-analysis of similar trials is more likely to result in valid conclusions, studies show that this is not always the case. By the same argument, adding studies with diverse protocols makes a meta-analysis less reliable. As meta-analysis is a summation, its reliability depends on the combined trials. Inclusion/exclusion criteria, conclusions, reliability of the results, and applicability for the conclusions affect the bias. Hence, we cannot declare that meta-analysis represents the final and accurate viewpoint on an area of research. Several statistical methods similar to what have been used to perform analyses on individual subject data have been modified to improve the reliability of MA.

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