

# Correspondence

## High-Quality Meta-Analyses Are Required for Development of Evidence in Medicine

TO THE EDITOR—We read with great interest the recently published article by Hagan et al [1]. Hepatitis C virus (HCV) infection is the most common chronic bloodborne infection in the world [2]. Intravenous drug use is now the main risk factor of HCV infection, and the prevalence of hepatitis C infection among intravenous drug users remains very high [3].

Meta-analysis, the combination of results from different studies to produce a pooled estimation of an effect or an association, continues to attract controversy. Some scientists have rejected it because of many biases affecting the data. In contrast, others believe that meta-analysis may provide fresh evidence of advantages, effectiveness, and adverse effects of treatments [4]. Meta-analysis allows us to better evaluate prevalence rates and determine which interventions have the best evidence of effectiveness.

Several points should be considered when conducting and interpreting meta-analysis studies. First of all, quality assessment is a fundamental component of all systematic reviews and meta-analyses, but most published meta-analyses do not include quality assessments. Second, if such assessments are performed, the method should be mentioned [5]. If the authors of the present study have done any quality assessments, it would be interesting to know which method they used for critical analysis. The authors used a  $Q$  test to quantify heterogeneity, and the  $I^2$  statistic was also used to determine the degree of inconsistency in the studies' results. Because of the low number

of studies included in this meta-analysis, especially in some subgroups, it would have been better to use the  $\tau^2$  test for heterogeneity. The  $\tau^2$  statistic is not dependent on the number of studies [6], so it is more useful when few studies are included.

The test of heterogeneity should not be the only determinant of choice of approach in meta-analysis. Patient selection and different baseline diseases should also be considered in determining the sources of heterogeneity [7].

It would be interesting to know why the authors used a random-effects approach when  $I^2$  was 0 and  $Q$  was  $<1$ , whereas  $I^2 >50\%$  was considered to be significant heterogeneity. As a rule,  $\geq 3$  studies are required for calculating a weighted average in meta-analysis [8], but the authors reported some results, such as those for behavioral interventions, with only 2 studies. Funnel plots can be drawn for detecting language bias as we check the existence of publication bias in a meta-analysis. It would have been good to investigate language bias in this study, because all included studies were in English. All studies included in this meta-analysis were also from high-income countries, pointing to a knowledge gap in developing countries. Including developing countries in such analyses could help makers of health policy in these countries in their efforts to prevent HCV infections.

### Notes

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**Potential conflicts of interest.** All authors: No reported conflicts.

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Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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