Comparative effect sizes in randomised trials from less developed and more developed countries: a meta-epidemiological assessment

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Abstract

Background Many trials are done in developing countries without a longstanding tradition in research. We compared treatment effects from randomised trials conducted in developed versus developing countries.

Methods We used data from the Cochrane Database of Systematic Reviews to identify meta-analyses about mortality with at least one trial from a developing country and one from a developed country (WHO and International Monetary Fund classifications). Effect estimates of developed and developing countrieswere compared by calculating the relative relative risks (RRR) for each topic and the summary RRRs across all topics. Similar analyses were done for the respective primary outcomes.

Findings 139 mortality meta-analyses were eligible. 128 (92%) meta-analyses reported no significant differences between developed and developing countries. Differences were beyond chance in 11 (8%) cases showing more favourable effects in trials from developing countries. The summary RRR was 1·12 (95% CI 1·06–1·18, p<0·0001, I2=0%), suggesting significantly increased favourable effects in trials from developing countries. Results were similar for meta-analyses with significant effects for mortality (RRR 1·15, 95% CI 1·08–1·23, p<0·0001), meta-analyses with recent trials (1·14, 1·08–1·21, p<0·0001); and when excluding trials from developing countries that became developed (1·12, 1·06–1.18, p<0·0001). For the primary outcomes (n=127), 20 topics had significant differences in effects (more favourable in developing countries in 15 cases).

Interpretation Trials from developing countries sometimes show significantly more favourable effects than trials in developed countries. On average, effects are more favourable in developing countries than in developed countries. These discrepancies show biases in reporting or study design and genuine differences in baseline risk or treatment implementation and should be considered when generalising evidence.

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Contributors
JPAI conceived the original idea. OAP, DGC-I, and JPAI designed the study. OAP and DGC-I identified the eligible reviews and performed the data extraction. OAP and JPAI performed the statistical analyses. OAP, DGC-I, and JPAI interpreted the data and wrote the manuscript. All authors have critically commented on and approved the final version of the manuscript.

Declaration of interests
We declare that we have no competing interests.