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Introduction

Diabetes Mellitus (DM) is a major contributor to the global burden of mortality and morbidity. The International Diabetes Federation (IDF) uses a transparent reproducible methodology to generate global and country level estimates of diabetes prevalence in adults (20–79 years) [1]. However, the methodology used in the 6th Edition produces point estimates and no uncertainty measurements have been reported.

Methods

To estimate the potential sources of uncertainty in the DM prevalence estimates and their magnitude, we performed two separate analyses: (1) a simulation study to assess raw data uncertainty; (2) a bootstrap analysis of the sensitivity of the global prevalence estimate to the study selection process.

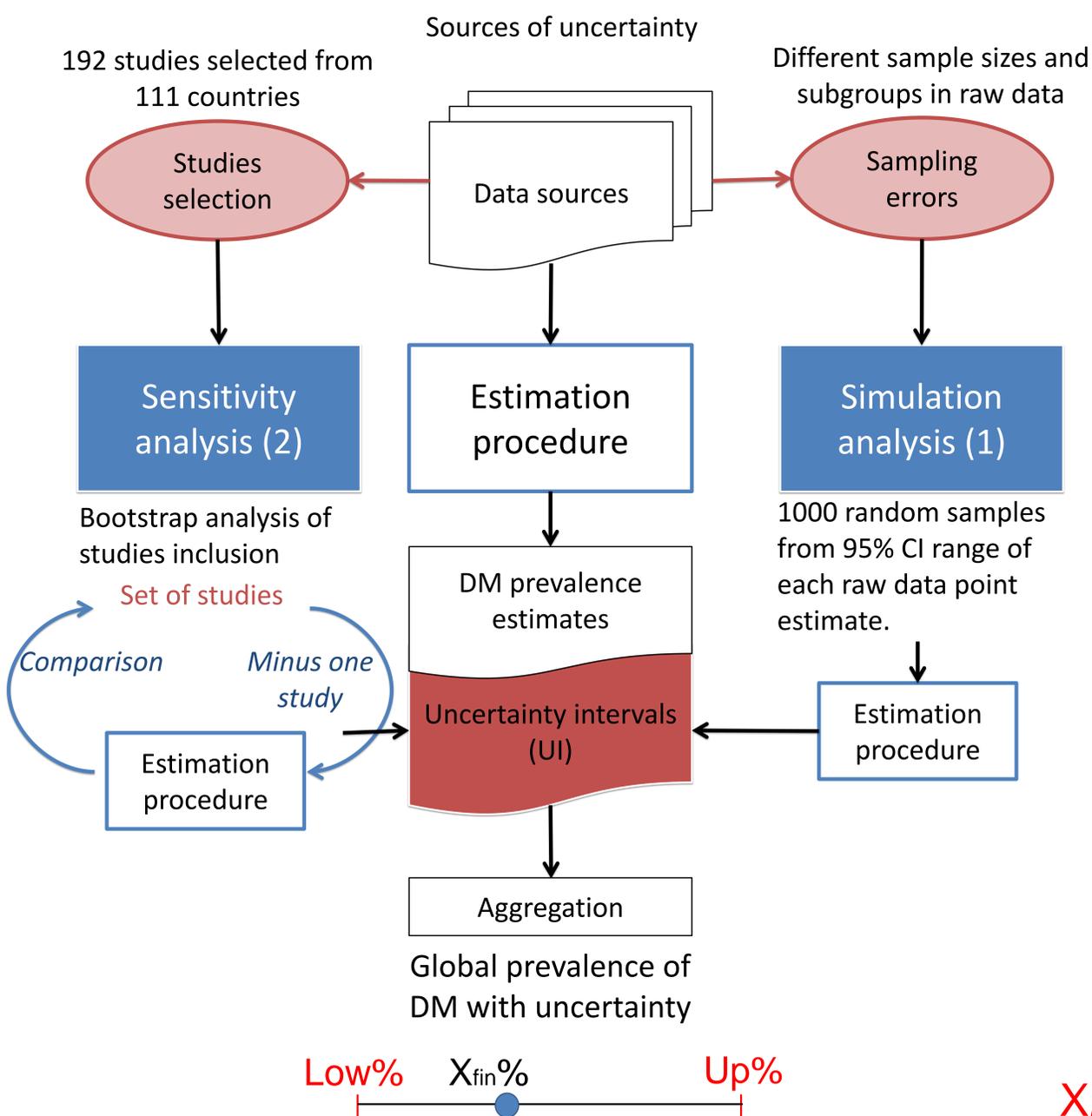


Figure 1. Uncertainty intervals computation diagram

Results

The simulation study produced the uncertainty interval of 2.71% wide. In the bootstrap analysis, the most important information was the extreme points in the analysis that composed 2.97% wide range. The total uncertainty interval was constructed as the united area of two measurements and was approximately 4.42% prevalence wide on the global level.

The uncertainty measurement will permit the comparison of IDF results with other sources and over time.

References

[1] Whiting, David R., Leonor Guariguata, Clara Weil, and Jonathan Shaw. 2011. "IDF Diabetes Atlas: Global Estimates of the Prevalence of Diabetes for 2011 and 2030." *Diabetes research and clinical practice* 94(3):311–21.

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Figure 2. Example of age-specific uncertainty estimates

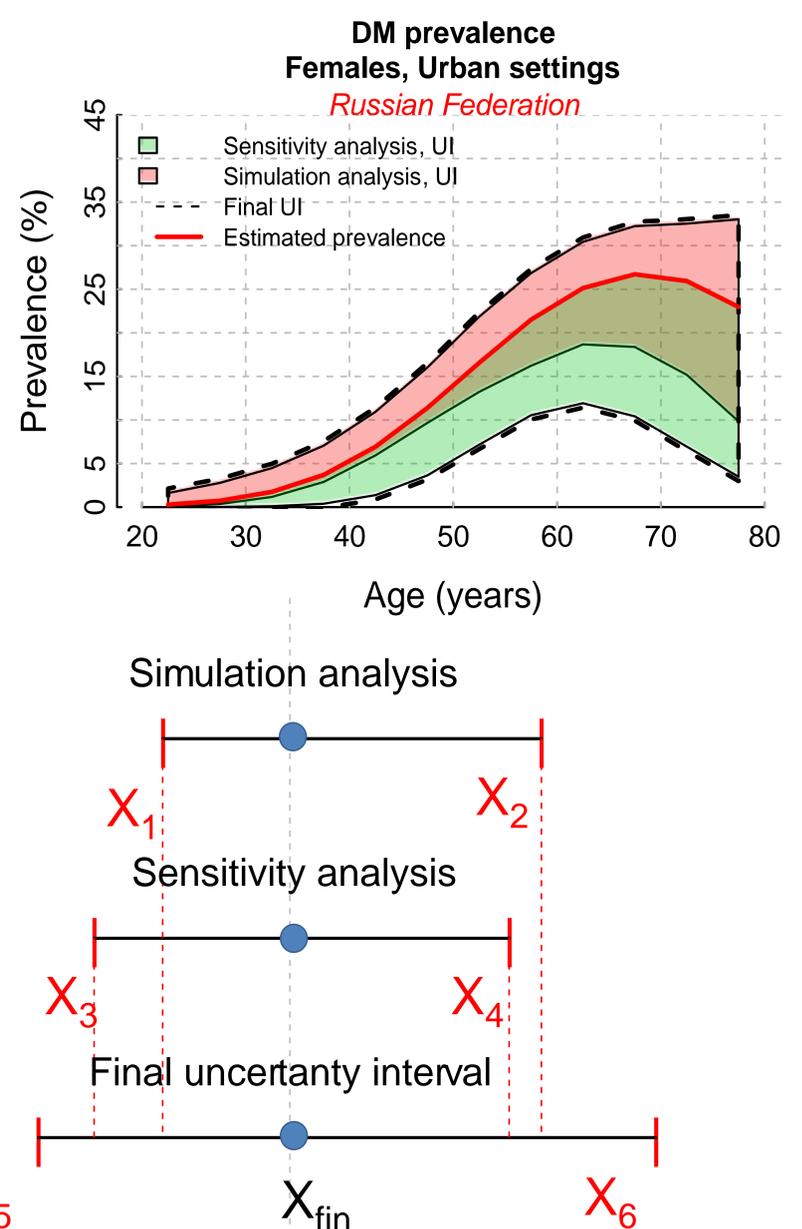


Figure 3. Uncertainty intervals summaries