Do maternal countries of origin matter to understand offspring's birthweight? A multilevel study

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Abstract

Objectives The dominant approach in demography and social epidemiology is focused on identifying differences in health indicators (e.g., risk factors) between populations (e.g., countries of birth) without much consideration of individual variation within populations. This focus on differences between population averages is justified by the demand of public health interventions aimed to shift the whole population distribution of the health indicators in the right direction. However, the approach based on population averages compromises our understanding of individual risk heterogeneity around the averages. In fact, population-level intervention may be ineffective if individual heterogeneity is high. Focusing on perinatal health, this study investigates to what extent individual (i.e., offspring) explained by differences in population averages (i.e., maternal countries of origin).

Methods We perform a multilevel linear regression analysis with babies (N= 757,811) at the first level, mothers (N= 537,093) at the second level, and maternal countries of origin (N= 68) at the third level.

Results Although there are differences in the mean birthweight between maternal countries of origin, this population level variance only accounts for 4% of the individual differences in birthweight.

Conclusions Maternal country of origin does not provide accurate information for determining individual offspring birthweight. Therefore, public health strategies directed to mothers from specific countries of origin (e.g., those with the lowest average birthweight values) will be pointless for many individuals. Analogously, many mothers from countries with the highest average birthweight values will deliver babies with low birthweight. Information on population averages is insufficient.