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Vanilla is not always best: Why to try other flavors of study methodology

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Vanilla works, but not on every occasion. The same is true for study methodology. In a recent issue Kravdal demonstrated that families with two children can contribute to estimation of birth interval effects using a sibling design.¹ The novelty of this approach is that an interval for the first child is not observed, yet the sibling design can still be applied. It is this same property that has drawn criticism to Kravdal's study² and our earlier study,³ which sparked the debate. In his paper, Kravdal clearly describes model parameterizations for a "sibling design" even if exposure cannot be defined for the first child without a birth interval. Kravdal shows that precision can be improved and that under certain conditions, estimates are unbiased. Why would epidemiologists choose such an approach? For the same reason that we apply other sibling designs, namely, substantial confounding due to comparisons between women. This confounding is very difficult to control by statistical adjustment. There will always be some confounding left over and a lot of this confounding is possibly explained by variation between women. Until recently, the vast majority of studies have applied a conventional (*vanilla*) approach - large cohort studies relying solely on between-women comparisons with extensive statistical adjustment - to the exclusion of other flavors like sibling designs (*rocky road?*).⁴ It is therefore not surprising that evidence synthesis concludes with a precise and highly consistent harmful effect of short birth spacing on birth outcomes – repeated samplings of vanilla replicate the same source of bias time and again. This key source of bias - unobserved factors that vary between women but invariant within women – is addressed in sibling studies by design. To triangulate the causal effect we need multiple

studies, applying different methodologies that each address different key sources of bias.⁵ We need not attempt the impossible task of addressing every source of bias in a single study. For example, it is okay to apply an approach in a cohort that is not generalisable if the study can address an unrelated key source of bias. Complementary flavors of methodology have been encouraged in the broader epidemiological literature⁵ and are much needed in perinatal studies on birth spacing. The methodology described by Kravdal is therefore a unique and valuable contribution published by this journal.¹ We first applied a sibling design to the topic almost three decades after publication of one of the first seminal studies on the topic.⁶ Vanilla can remain our favourite, but triangulation of a causal effect is impossible without trying other flavors of methodology too.

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CONFLICT OF INTEREST

None to declare.

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