

Preterm Birth and Future Childbearing: More Questions Than Answers

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Preterm birth, both from a medical and economic perspective, constitutes one of the greatest burdens in obstetrics.¹ Alenius et al² provide us with a unique analysis in which they seek to ascertain whether preterm birth is associated with additional, heretofore unappreciated social consequences: specifically, is there a relationship between the birth of a preterm infant and subsequent childbearing? In their analysis of data from Finland, they demonstrate that a lower gestational age at birth in 1 pregnancy was associated with a lower likelihood of having more children. The exception to this relationship was observed when a preterm infant died; in that case, a higher percentage of women had another child. Alenius et al² ultimately conclude that because of the connection between preterm delivery and future childbearing, 1220 subsequent children (denoted as “missing siblings”) would not be born per 100 000 livebirths.

The study and the authors’ ultimate conclusions are striking for a variety of reasons. First, the use of certain phrases (eg, “preterm birth has substantial consequences on the further reproductive behavior of both parents”²) suggests a causal relationship. Indeed, the calculation of “missing children” and the contention that preterm birth leads to population-wide demographic consequences suggests a causal interpretation. Yet this is an epidemiologic study; although the authors can postulate causality, it is impossible to know if

their finding is anything more than an association.

Second, the authors are careful to note the overall demographic characteristics of this Finnish study population. Beyond helping us contextualize women and their partners by education level, smoking, and interbirth interval, however, there is little detailing of or accounting for other factors, such as income, race and/or ethnicity, parental birthplace, and urban and/or rural living environment. The social life of reproduction (particularly what it means to be a mother and to carry a pregnancy) beckons for a more thorough evaluation of sociodemographic factors.³ These unmeasured variables could have implications for confounding bias. Thus, a host of unanswered questions follow such an analysis and suggest the need for researchers to conduct a qualitative study to evaluate desires around subsequent fertility.

Although omitted covariates are 1 concern, the inclusion of other covariates in the regression model that may be along the causal pathway of preterm birth is another concern. Previous stillbirth and recurrent miscarriage may well be historical factors that are mechanistically related to subsequent preterm birth; adjusting for them may result in a collider stratification bias, which occurs when there is no distinguishing between the “variable that is a confounder vs. the variable that is in the causal pathway (the intermediate variable), and then

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the intermediate variable is adjusted in an analysis.”⁴⁻⁶ In this regard, the adjustment for both history of miscarriage and stillbirth could lead to an association between preterm birth and future childbearing that may be misleading.

Even if one sets aside specific methodological issues, it may be most important to reflect on the very concept of the number of missing children in a given population. The philosophical assumption guiding such a calculation is that women have a certain number of children that they will bear. From a demographic perspective, this may make some sense because population studies have traditionally presented measures such as the mean number of children born per woman on a country-wide or global scale.⁷ But if a clinical and ethnographic perspective is employed, then another question comes to light: why is it not equally likely that birth experiences beyond preterm birth affect a given woman’s decision to have another child? Indeed, when looking at the observed versus expected future children among women delivering after 37 weeks’ gestation, there is still a difference between the number of

observed and expected births for women who have early-term births or late-term births compared with women who have term births (see Table 3, Supplemental Table 15).² This finding suggests that perhaps there is more to the decision around future childbearing than simply preterm birth and that the concept of missing children may be more about framing effects than actual consequences. For example, what if it were framed that women who have a term delivery actually end up having more children than they would have otherwise? In this case, one would argue that term births result in extra children and that there are no missing children at all.

Ultimately, Alenius et al² present a unique perspective on childbearing and its relationship to previous preterm birth and neonatal death. In their analysis and conclusions, however, they offer more questions than answers. Considering how reproductive history impacts choice around future births is a potentially fruitful avenue for research. By using both a qualitative and quantitative approach, future inquiry can attend to both the social and biological determinants of reproduction.

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