Commentary: Fetal origins of social situations? Medicalization of social life?

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The ‘fetal origins hypothesis’ has been expanding rapidly. It has been shown that some social aspects of adulthood, such as marital status, are associated with birthweight.\(^1\) The study by Kristensen et al., published in this issue of the *International Journal of Epidemiology*, has added one more item to the list.\(^2\) It shows that there is an association between birthweight and unemployment among Norwegians. While it is exciting to see the new research findings and the expansion of the fetal origins hypothesis, it is not unjustified to caution against the medicalization of social life. In a comment on the study about birthweight and marital status, Brome criticized that it was ‘an idea stretching too far’ and called on the researchers to ‘stop playing with numbers to try to link every aspect of normal life to low birthweight’.\(^3\) There are at least two concerns here. Firstly, an association does not prove a causal link. If one tries to correlate many variables it is likely that sooner or later some associations between certain variables will be found. Secondly, even if birthweight and social situations in adulthood do have a causal relation, interventions on birthweight may not be beneficial. Furthermore, diverting attention to the fetal origins may not be helpful to tackling social problems. Arguments and opinions about medicalization abound in the literature. I will only discuss these two concerns from the viewpoint of research methods here.

Research findings about the fetal origins hypothesis are mostly based on multiple regression analyses of longitudinal data. The study by Kristensen et al. has also utilized this approach. One of the advantages of this study is that the data are collected from the population-based registries of Norway, giving a very good sample size and very high rate of successful follow-up. Unlike cross-sectional studies, these findings could unequivocally establish a time sequence of events. Furthermore, the potential effects of (known) confounders are adjusted for. Such analysis strengthens though not fully justifies the case for claiming causal relations. Useful though it is, multiple regression analysis does not directly address the issue of causation. Furthermore, it risks over-adjustment if the intermediate variables are included in the model. Structural equation modelling, or path analysis, is more suitable for this purpose. Although this technique has not been popular among epidemiologists, successful application of this to the studies of the fetal origins hypothesis has been seen.\(^4\) Structural equation modelling is notably more difficult to grasp than multiple regression analysis. In order to better understand causal relation, however, life-course epidemiologists will need to consider adopting this analytical approach more often.

The potential values and unintended consequences of interventions to improve fetal growth are uncertain.\(^5\) Even if there is a causal link between size at birth and adult diseases and social situations, one must exercise caution in making any medical recommendations. That there is a statistically significant relation does not necessarily mean there is any...
important implication for the population. The population attributable risk and attributable risk fraction can provide insights about the importance of a casual factor. Kristensen et al. have helpfully provided and compared the population attributable risk fractions of birthweight, childhood diseases, and social disadvantages. They showed that unemployment is much more attributable to social than medical factors. Despite its significant odds ratios, birthweight has limited relevancy to unemployment. Population attributable risk and fraction are not easily computable in the sense that computer software packages do not have readily available functions to calculate these values. The study by Kristensen et al. shows that these estimates are useful and that it is worth the efforts to obtain them.

References