

Debate

RISK FACTORS OF LOW BIRTHWEIGHT

A Comment

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Dr A. Bener and colleagues have reported socio-demographic risk factors associated with low birthweight in United Arab Emirates by conducting a case-control study.

In a case-control study, individuals selected as controls should not only be free of the study disease, but should also be similar to the cases in regard to past potential for exposure during the time period of risk under consideration. In this study there is a possibility that cases and controls differ in factors like maternal age, maternal weight-gain and maternal diseases like anaemia, hypertension and toxemia. The authors have not taken into account these factors, either in the selection process or at the analysis stage. Therefore these factors can act as confounding factors and may affect the validity of the study. Borros *et al.* (1985) have observed that the above mentioned factors increase the risk of low birthweight babies.

The Mantel–Haenszel procedure is used to calculate the summary or adjusted odds ratio from a stratified analysis to control the effect of confounding (Schlesselman, 1982). Although the authors have mentioned that the Mantel–Haenszel procedure was used to calculate the odds ratios in Tables 1 and 2, it appears that only crude odds ratios were computed without any stratification.

It is appropriate to use the Mantel–Haenszel procedure or multiple logistic regression analysis to compute adjusted odds ratios after taking into account the confounding factors.

References

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A Reply

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We would like to thank Dr K. Nagaraj for his comments on our article and would like to respond and clarify a few points.

We have tried in this study to consider as many factors as possible that could result in the birth of a low birthweight infant. In this study (Bener, Abdulrazzaq & Dawodu, 1996) we reported only the sociodemographic factors, but we also studied obstetric (Abdulrazzaq *et al.*, 1994) and biological risk factors (Dawodu *et al.*, 1996) in the same population. Therefore, factors like maternal age, maternal weight-gain and maternal diseases like anaemia, hypertension and toxoemia have all been considered and were found not to be of major significance. We did a multivariate analysis of 26 factors that we studied and found that maternal Body Mass Index of less than 19, multiple births and absence of housework-help were the only variables retained in the model and correctly predicted 90% of the controls to be of normal birthweight and 82% of the cases to be low birthweight.

As for the statistical method used, as was stated by Dr Nagaraj, we could have, at the design stage, selected equal numbers of cases and controls from each age group (the stratified analysis) or used matched design. However, we used an alternative method of taking into account confounding variables during the analysis and found an overall estimate, which is the Mantel–Haenszel estimate of odds ratio. The significance test used in this situation is the Mantel–Haenszel summary χ^2 test. In Table 1, the χ^2 test and Mantel–Haenszel test would give the same result. The most appropriate test for Table 2 was the Mantel–Haenszel test. Stepwise multiple logistic regression analysis was used to test the relationship between the eight sociodemographic factors and low birthweight (Table 3).

References

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