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#### Abstract

The Lifestyle During Pregnancy Study Group. The effect of different alcohol drinking patterns in early to mid pregnancy on the child's intelligence, attention, and executive function.

**Objective** To conduct a combined analysis of the estimated effects of maternal average weekly alcohol consumption, and any binge drinking, in early to mid pregnancy on general intelligence, attention, and executive function in 5-year-old children. **Design** Follow-up study.

**Setting** Neuropsychological testing in four Danish cities 2003-2008. **Population** A cohort of 1628 women and their children sampled from the Danish National Birth Cohort.

**Methods** Participants were sampled based on maternal alcohol consumption during early pregnancy. At age 5 years, the children were tested for general intelligence, attention, and executive function. The three outcomes were analysed together in a multivariate model to obtain joint estimates and P values for the association of alcohol across outcomes. The effects of low to moderate alcohol consumption and binge drinking in early pregnancy were adjusted for a wide range of potential confounding factors. **Main outcome measures** Wechsler Preschool and Primary Scale of Intelligence-Revised (WPPSI-R), the Test of Everyday Attention for Children at Five (TEACH-5), and the Behavior Rating Inventory of Executive Functions (BRIEF) scores.

**Results** Multivariate analyses showed no statistically significant effects arising from average weekly alcohol consumption or any binge drinking, either individually or in combination. These results replicate findings from separate analyses of each outcome variable.

**Conclusions** The present study contributes comprehensive methodological and statistical approaches that should be incorporated in future studies of low to moderate alcohol consumption and binge drinking during pregnancy. Furthermore, as no safe level of drinking during pregnancy has been established, the most conservative advice for women is not to drink alcohol during pregnancy. However, the present study suggests that small volumes consumed occasionally may not present serious concern.