

Study on pregnancy and alcohol fails to take psychological factors into account

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"It is OK to drink a little bit of alcohol during pregnancy" or "a pregnant woman should not touch alcohol at all during her pregnancy". These statements represent the contradictory conclusions that large population studies on pregnancy and alcohol can reach. Psychologist Janni Niclasen has just defended her PhD thesis on the subject at the University of Copenhagen.

She was surprised by the different results that were reached, and she decided to get to the bottom of the results by following up on the large population study done by the Danish Health and medicine authorities called "Danish National Birth Cohort" ("Bedre Sundhed for Mor og Barn") which gathered information about alcohol and [pregnancy](#). And her results are surprising.

"My study shows, among other things, that the [children](#) of mothers who drank small quantities of alcohol – 90 units or more – during their pregnancies show significantly better emotional and behavioural outcomes at age seven compared to children of mothers who did not drink at all. At first sight this makes no sense, since alcohol during pregnancy is not seen as beneficial to child behaviour. But when you look at the lifestyle of the mothers, you find an explanation. Mothers who drank 90 units or more of alcohol turn out to be the most well educated and healthiest lifestyle over all", says Janni Niclasen. She explains the result further:

"Further, it is a question of taking account of childhood related

psychological factors like attachment between mother and child in this type of study. This is a problem because we know that i.e. attachment is a very significant predictor for child cognitive and mental health. Therefore it should be taken into account in our statistical analysis", she says.

Janni Niclasen only examined the [alcohol consumption](#) of women who drank small quantities of alcohol during pregnancy. Therefore her study does not show the effect on children whose mothers drank large quantities of alcohol during pregnancy.

The problem of missing variables

Janni Niclasen's study looks at the results of a large population study conducted between 1996 and 2002. In this study over 100,000 pregnant Danish women were interviewed at three separate occasions about their consumption of alcohol twice in pregnancy and again at age six month of their child. They were also asked among other things about their educational background and lifestyle.

37,000 women who had answered all three rounds of questions were contacted again when their children were now seven years old. At this point in time the aim was to measure the scores of the children on the so-called Strengths and Difficulties Questionnaire (SDQ), which is a tool for screening children and adolescents's behaviour, emotions and peer relationships. It is these replies from the study that Janni Niclasen used in her research.

"My conclusion was that seven year olds born to mothers who drank small quantities of alcohol during their pregnancies did significantly better emotionally and behaviourally at age seven than the children of mothers who did not drink anything during pregnancy. However it is important to emphasise that this is not an invitation to pregnant women

to drink alcohol", she says.

Among other things it is the failure to include psychologically, socio-demographic and lifestyle factors that makes her question the findings of the large statistical studies about pregnancy and alcohol.

"It is already difficult to control for all the lifestyle factors as it is, and when, on top of that, information is lacking about psychological variables like for instance attachment and intelligence, you need to be careful when interpreting the results", she says.

Janni Niclasen's PhD thesis consists, in part, of five scientific papers out of which three are about alcohol and pregnancy. Four of the papers have already been published in scientific journals.

Facts on the scientific papers on alcohol and pregnancy:

Paper 1

Prenatal exposure to alcohol, and gender differences on child mental health at age seven years (2013). *Journal of Epidemiology and Community Health*, 11. November 2013.

Summary of the conclusions in the paper: children born to mothers engaging in binge drinking (defined as an intake of five or more units of alcohol on a single occasion), there is a slight, but statistically significant, association with behavioural and emotional development at age seven of their children.

Overall, we found no significant associations between exposure to low dose of alcohol and emotional and behavioural development at age seven. However we did find that the children with the most favourable outcomes at age seven were the children of the mothers who drank the

highest quantities during pregnancy. The children with the poorest outcomes were those whose mother abstained during pregnancy. It was concluded that the cause of this was due to the large discrepancies found in the background characteristics of the participants.

Paper 2

Niclasen, J, Teasdale, T., Strandberg-Larsen, K., Nybo Andersen, AM. Is Alcohol Binge Drinking in Early and Late Pregnancy associated with Behavioural and Emotional Development at Age Seven? (accepted for publication in *European Journal of Child and Adolescent Psychiatry*, December 2013)

Summary of conclusion: It was concluded that that it is worse for the behavioural development of the child if the mother had engaged in binge drinking in the large part of pregnancy compared to binge drinking in the early part of pregnancy or no binge drinking.

Paper 3

Drinking or Not Drinking in Pregnancy: The Multiplicity of Confounding Influences. *Alcohol and Alcoholism* (2013).

Janni Niclasen's study only includes pregnant women who drank small quantities of alcohol. The group that she defines as having been exposed to high quantities of alcohol are women who drank 90 units of alcohol or more (within this group of women she does not distinguish between women who drank 90 units of alcohol and women who drank a lot more).

Summary of the conclusion: The study finds that there are big differences in lifestyle factors between women who drink alcohol during pregnancy and women who do not drink alcohol during pregnancy.

There are significant differences on for example educational level and important lifestyle factors. The conclusion is that these factors are insufficiently controlled for in the statistical analyses investigating prenatal exposures to low doses of alcohol and child development. This conceals the (small) effects you might expect from the prenatal exposure to low doses of alcohol. Lifestyle factors, among other things, might explain the inconsistencies in the literature investigating the impact of alcohol on child mental health later in life.

Facts on the population study:

The "Danish National Birth Cohort ("Better Health for Mother and Child" in Danish: "Bedre Sundhed for Mor og Barn"/BSMB) is a birth cohort that is administered by the Danish Health and Medicines Authority, and includes information on more than 100,000 pregnancies. Between 1996 and 2002 all [pregnant women](#) were given the option to participate in the study.

The women were invited to participate in interviews at the following times:

- 1) Two telephone interviews during the first and second part of pregnancy. The questions are concerned with her health, [alcohol](#) consumption, smoking habits, medicine intake and other lifestyle factors as well as her socio-economic status
- 2) Two interviews conducted at age 6 and 18 months of the child in which she was asked about her lifestyle during the final part of pregnancy and her child's health and development
- 3) Questionnaires filled in at age seven of the child.

Provided by University of Copenhagen

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