

## Does the SWEPOP (Swedish Pregnancy, Obesity and Pelvic Floor) study suffer from a selection bias?

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## Title

Does the SWEPOP (Swedish Pregnancy, Obesity and Pelvic Floor) study suffer from a selection bias?

## Text

Gyhagen et al. have reported a prevalence of urinary incontinence (UI) 20 years after the first birth that is higher in cases of vaginal delivery (40%) than in cesarean delivery (29%). They conclude that it would be necessary to achieve 8-9 caesarean sections in order to avoid one case of UI, thereby suggesting that cesarean section has a protective effect (1,2).

This conclusion seems imprudent because a number of preconditions have not been met. A prophylactic intervention should ideally occur before disease onset. UI is particularly common in late pregnancy, when it affects 30-50% of nulliparous women (3). In reports from the SWEPOP study the UI starting date was not specified, probably because it is not known (1,2). We therefore have no precise idea of the antenatal prevalence of UI in the group of women delivered vaginally as compared with the caesarean group, or whether prevalence was similar in both groups.

The apparent protective effect of cesarean section in this survey could be explained by a selection bias. Two studies have shown that nulliparous women whose pregnancy will end by a cesarean section have prenatal characteristics putting them at a reduced risk of UI such as lower urethral mobility or levator hiatus (4,5). The mode of delivery could quite possibly be a consequence of antenatal pelvic floor characteristics. Urethral mobility measured during pregnancy is predictive of postnatal UI (3). Cesarean delivery at first birth could be an indicator of low UI risk without being really protective. In the current state of knowledge, this alternative explanation is not refutable. Only a randomized trial could answer the question.

The available randomized trial focusing on breech presentation at term is negative with respect to stress UI prevention.

The absence of a pathophysiological mechanism to explain a causal link between vaginal delivery and UI is also to be considered. The main mechanism of stress UI seems to be intrinsic sphincter deficiency and not urethral mobility (6). Postnatal values of maximum urethral pressure or sphincter volume are similar in cases of vaginal and of cesarean delivery (3,4). Six months after vaginal birth, the values of urethral mobility are similar to the prenatal values (4).

In the latest analysis by Gyhagen et al., it is disturbing to note that the distributions of UI type, severity, and bothersomeness are similar in incontinent women regardless of delivery mode (1). A protective effect of cesarean section would have to be accompanied by a different distribution, with more stress UI, more severe UI, and more bothersome UI in the vaginal delivery group. Instead the authors observed 12.4% of severe stress UI and 18.1% of troublesome stress UI in the vaginal delivery group versus 13.7% and 17.7% respectively in the caesarean section group.

In conclusion, a selection bias cannot be excluded and we need to be careful not to promote a prophylactic cesarean of which the expected benefits remain unclear.

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