

# Pregnancy could curb desire to smoke before it is suspected or recognized

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Pregnant smokers reduced their smoking by an average of one cigarette per day before becoming aware they were pregnant, reports a new Northwestern Medicine study of more than 400 pregnant people. Then,

in the month after learning of their pregnancy, participants reduced smoking by another four cigarettes per day.

"Our findings suggest that pregnancy could curb smokers' desire to smoke before they are even aware of having conceived," said the study's lead author and principal investigator, Dr. Suena Huang Massey, associate professor of psychiatry and [behavioral sciences](#) and medical social sciences at Northwestern University Feinberg School of Medicine and a Northwestern Medicine psychiatrist.

"While recognition of pregnancy is a common motivation to reduce or quit [smoking](#), if [biological processes](#) in early pregnancy are also involved as suggested by this study, identifying precisely what these processes are can lead to the development of new smoking-cessation medications."

The study was published Oct. 17 in *Addiction Biology*.

The overwhelming majority of research in this field focuses on the impact of a person's smoking on the pregnancy and the baby. This study examines, instead, the impact of pregnancy on a person's smoking behavior.

While reduction in smoking during pregnancy is well established, no prior study has determined precisely when reduction in pregnancy smoking begins—and, especially, whether it begins before individuals are aware of the pregnancy.

"Before this paper, it was largely assumed that the only thing causing [pregnant smokers](#) to cut down was a desire to protect the baby," Massey said. "While our study does support the discovery of pregnancy as a salient event, levels of pregnancy smoking began to decline before smokers suspected they were pregnant."

These findings support a new line of research into what happens biologically during pregnancy that might be interrupting addictive behaviors, Massey said. Her hope is that the answer to this question will lead to the discovery of new and improved ways to treat addiction.

### **Could pregnancy hormones be a contributing factor?**

Human chorionic gonadotropin (hCG) is a hormone produced by the placenta in early pregnancy that is linked to morning sickness (nausea and vomiting during pregnancy).

"Strikingly, we observed the steepest declines in smoking precisely when hCG levels typically peak— between five and 10 weeks of pregnancy," Massey said. "What's more, pregnant smokers who do not quit during the first trimester (when hCG levels are elevated) are unlikely to quit before delivery, even with assistance from medications or financial incentives."

### **More about how the study worked**

Scientists estimated changes in cigarettes per day smoked, reported retrospectively, by 416 participants from two independent cohorts (145 people from the Midwestern U.S. recruited from 2000 to 2005 and 271 from the Mid-Atlantic U.S. recruited from 2006 to 2009). Every participant was a smoker prior to becoming pregnant. Women in the study were interviewed about their smoking habits at 16 weeks of pregnancy and provided [urine samples](#), so researchers could verify their reports.

On average, participants smoked about 10 cigarettes per day before conception. Between conception and the date they realized they were pregnant (highly variable and reported by each participant), smoking declined by an average of one cigarette per day. In the month after recognizing the [pregnancy](#), smoking dropped from an average of nine

cigarettes per day to five. Importantly, these patterns of decline in smoking frequency were seen whether pregnancies were planned or unplanned, and whether smokers quit or did not quit.

**More information:** Suena H. Massey et al, Within-person decline in pregnancy smoking is observable prior to pregnancy awareness: Evidence across two independent observational cohorts, *Addiction Biology* (2022). [DOI: 10.1111/adb.13245](https://doi.org/10.1111/adb.13245)

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