

# Teens taking oral contraceptives may be at increased risk for depressive symptoms

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Ever since birth control pills first became available, researchers have been trying to understand the connection between oral contraceptive use and mood. A new study led by investigators at Brigham and Women's

Hospital and University Medical Center Groningen (UMCG) and Leiden University Medical Center in the Netherlands adds important, new information by surveying young women about depressive symptoms. Depressive symptoms—such as crying, sleeping excessively, and eating issues—can be far subtler than diagnosed clinical depression. But by surveying a cohort of more than 1,000 women every three years, investigators have amassed a unique trove of data about these subclinical symptoms.

In a study published in *JAMA Psychiatry*, investigators report that there was no association between oral contraceptive use and depressive symptom severity in the entire population they studied (ages 16 through 25). However, they found that 16-year-old girls reported higher depressive symptom severity compared with 16-year-old girls not using [oral contraceptives](#).

"One of the most common concerns women have when starting the pill, and teens and their parents have when an adolescent is considering taking the pill, is about immediate depressive risks," said corresponding author Anouk de Wit, MD, Ph.D., MPH, in training, formerly of the Brigham's Department of Psychiatry. De Wit is now a trainee in the Department of Psychiatry at UMCG. "Most women first take an [oral contraceptive pill](#) as a teen. Teens have lots of challenging emotional issues to deal with so it's especially important to monitor how they are doing."

"Depressive symptoms are more prevalent than [clinical depression](#) and can have a profound impact on quality of life," said co-author Hadine Joffe, MD, MSc, vice chair for Psychiatry Research for the Brigham's Department of Psychiatry and executive director of the Connors Center for Women's Health and Gender Biology. "Ours is the first study of this scale to dive deep into the more subtle mood symptoms that occur much more commonly than a depression episode but impact quality of life and

are worrying to girls, women and their families."

To conduct their study, de Wit, Joffe and colleagues analyzed data from [female participants](#) in the prospective cohort study, Tracking Adolescents' Individual Lives Survey (TRAILS), a longitudinal study of teens and young adults from the Netherlands. Each participant filled out a survey with questions about depressive symptoms, such as crying, eating, sleeping, suicidal ideation, self-harm, feelings of worthlessness and guilt, energy, sadness, and lack of pleasure. Their responses were used to generate a depressive symptom severity score.

Across the entire cohort of 1,010 participants ages 16 to 25 analyzed, the team found no association between oral contraceptive use and depressive symptom severity. However, they did find that, on average, 16-year-old participants who were using oral contraceptives had depressive symptom severity scores that were 21 percent higher than those who were not taking oral contraceptives. They reported more crying, more sleeping and more eating problems than their counterparts.

The authors note that the association between oral contraceptive use and depressive symptoms may be bidirectional: oral contraceptive use may contribute to symptom severity, more severe symptoms may prompt teens to begin taking oral contraceptives, or both. Observational studies, such as this one, cannot determine the direction of causality.

"Because of the study design, we can't say that the pills cause mood changes, but we do have evidence suggesting that sometimes the mood changes preceded the use of the pill and sometimes the pill was started before the mood changes occurred," said de Wit.

Another limitation that the authors note is that the Dutch are a relatively homogenous population—it remains to be seen if these results would be the same in a more diverse population. The authors also point out several

strengths to the study, including its large size and established, well-characterized cohort. In addition, the research focuses on symptoms that may be of concerns to teens, parents and clinicians.

"The magnitude of the association was small, and these depressive symptoms are mild enough that they did not constitute clinical or major depression. However, these mood changes were seen in oral contraceptive-using adolescents, who are a vulnerable population," said Joffe. "These concerns much be weighed against the bigger risk of lack of contraception leading to unintended pregnancies in teenagers and pregnancy complications including a potential postpartum depression."

Other forms of birth control known as long-acting reversible contraceptives (LARC), such as intrauterine devices (IUDs), deliver hormone exposure to the local uterine. The investigators are interested in following up to determine if hormone exposure that does not go throughout the whole body and brain is less associated with depressive symptoms.

"Oral contraceptive users, parents and health care providers should be aware of the increased likelihood of presence of [depressive symptoms](#) as it may affect [quality of life](#) and adherence to oral contraceptive use," said de Wit.

**More information:** *JAMA Psychiatry* (2019). [DOI: 10.1001/jamapsychiatry.2019.2838](#)

Provided by Brigham and Women's Hospital

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