

Policy Brief: Oral Contraceptives and Adolescents' Mental Health

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Overview

The introduction of the oral contraceptive pill (OCP) in the 1960s marked a transformative milestone in public health, offering women unprecedented reproductive autonomy. While the benefits of oral contraceptives for women's educational and labor market outcomes are well-documented, recent evidence raises concerns about their potential adverse effects on adolescent mental health (Anderl et al., 2020; Skovlund et al., 2016, 2018; Zethraeus et al., 2017). This brief synthesizes findings from a working paper by Costa-Ramón, Daysal, and Rodríguez-González (2023), which uses Danish administrative data and two complementary empirical strategies to revisit the relationship between OCP use and the mental health of teenage girls. We use three proxies for mental health: the probability of visiting a psychiatrist, of receiving a depression diagnosis, and of redeeming a prescription for antidepressants.

Methodology

1. Event Study Analysis

- We analyze the evolution of mental health outcomes around the time of OCP initiation using a panel of adolescent girls who start using the pill at some point between ages 12 to 17, and follow them from five quarters before to four quarters after their first combined OCP prescription.
- In order to rule out events that may jointly drive pill initiation and mental health deterioration, we additionally study the evolution of risky behaviors (e.g., substance abuse or sexually transmitted infections) around the time of OCP initiation.
- Finally, we compare the mental health trajectories of girls who initiate combined OCP to the mental health trajectories of girls who use other types of hormonal contraceptives (e.g. the progestin-only pill).

2. Exploring the Role of Primary Care Providers

- We next examine how the practice style of primary care providers (PCPs), proxied by their tendency to prescribe the pill, influences adolescents' contraceptive use and mental health outcomes.
- PCPs may play an important role in adolescents' access to OCPs as patients require a medical prescription to obtain them and the majority of prescriptions are issued by primary care doctors.
- In order to avoid doctor-shopping, we assign each girl to the PCP they most visited at age 12. This PCP is chosen by the parents and rates of pill use is very low at this age.

Key Findings

1. Mental Health Deterioration Following OCP Initiation: Event Study Evidence

- Within three months of starting OCPs, adolescent girls experience a 17% increase in psychiatric visits and a 40% rise in depression diagnoses.
- Antidepressant use among these girls is 65% higher one year after initiation.

- Although baseline rates of these outcomes are low, the observed increases point at substantial relative changes.
- We find no increase in risky behaviors around the time of OCP initiation, suggesting that these factors might not be the key drivers of the mental health impacts.
- The observed deterioration in mental health is only visible among combined pill users, but not among users of the progestin-only pill (also known as “mini-pill”), suggesting that the hormonal composition of the contraceptive matters.

2. Role of Primary Care Providers (PCPs)

- We document substantial variation in PCPs’ propensity to prescribe the pill to teenagers. This variation is unrelated to the observable characteristics of the patients.
- PCP practice style influences adolescents’ contraceptive use: switching from a provider at the 10th percentile of the distribution to one at the 90th percentile increases the likelihood of contraceptive use by age 15 by 6.5% and by age 16 by 4%.
- PCPs’ prescribing tendencies also matter for the mental health outcomes of adolescents: girls assigned to PCPs with higher OCP prescribing rates have a higher likelihood of psychiatric contacts, of depression diagnoses, and of antidepressant use at ages 16-18.
- We find no evidence linking PCPs’ prescribing behavior to lower-quality care in general, and show that this dimension of practice style is unrelated to the mental health outcomes of adolescent boys.

Policy Implications and Recommendations

1. Informed Consent and Counseling

- Adolescents and their guardians should receive clear information about the potential mental health risks associated with OCPs.
- Healthcare providers should discuss alternative contraceptive options, including progestin-only products, which have weaker associations with mental health issues.

2. Targeted Training for PCPs

- Training programs should equip PCPs with tools to assess mental health risks and provide tailored contraceptive counseling.
- Providers should balance the need for effective contraception with minimizing mental health risks.

3. Need for Additional Research

- Further research is needed on the long-term mental health effects of hormonal contraceptives and on potential mitigating factors.

Conclusion

The findings underscore the need for additional research to better understand the potential costs of hormonal contraceptives on women’s mental health. Previous causal evidence on the topic is scarce, with a handful of small clinical trials yielding mixed findings, potentially due to limited statistical power. Our study leverages large

administrative data and combines two complementary empirical approaches to circumvent these limitations. The results call for nuanced contraceptive policies that safeguard adolescent mental health while maintaining access to effective birth control. Policymakers should prioritize informed consent, provider education, and integrated care to address these emerging challenges. By doing so, we can uphold the dual objectives of promoting reproductive autonomy and protecting mental health in vulnerable populations.

References

- Anderl, C., Li, G., & Chen, F. S. (2020). Oral contraceptive use in adolescence predicts lasting vulnerability to depression in adulthood. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 61(2), 148–156. <https://doi.org/10.1111/jcpp.13115>
- Costa-Ramón, A., Daysal, N. M., & Rodríguez-González, A. (2023). The Oral Contraceptive Pill and Adolescents' Mental Health. CEPR Discussion Paper, 18269.
- Skovlund, C. W., Mørch, L. S., Kessing, L. V., Lange, T., & Lidegaard, J. (2018). Association of hormonal contraception with suicide attempts and suicides. *American Journal of Psychiatry*, 175(4), 336–342. <https://doi.org/10.1176/appi.ajp.2017.17060616>
- Skovlund, C. W., Mørch, L. S., Kessing, L. V., & Lidegaard, O. (2016). Association of hormonal contraception with depression. *JAMA Psychiatry*, 73(11), 1154–1162.
- Zethraeus, N., Dreber, A., Ranehill, E., Blomberg, L., Labrie, F., von Schoultz, B., Johannesson, M., & Hirschberg, A. L. (2017). A first-choice combined oral contraceptive influences general well-being in healthy women: a double-blind, randomized, placebo-controlled trial. *Fertility and Sterility*, 107(5), 1238–1245. <https://doi.org/10.1016/j.fertnstert.2017.02.120>