

# Contraceptive Methods and Depression Rates

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## QUESTION

- In sexually active females how does using hormonal contraceptive methods compared to using non-hormonal contraceptive methods affect depression rates?



[http://clipart-library.com/clipart/birth-control-cliparts\\_16.htm](http://clipart-library.com/clipart/birth-control-cliparts_16.htm)

## BACKGROUND

- According to the Centers for Disease Control and Prevention (CDC), 4.7% of the population in the United States have regular feelings of depression (CDC, 2022). Specifically, 1 in ten women suffer from depression in the United States (CDC, 2020b). Many people do not have a singular cause for their depression. (Mental Health Foundation, 2022).
- Hormonal contraceptives often will reduce the chance of pregnancy releasing hormones into the body causing a reaction to cause the egg and sperm to not meet. Examples of hormonal methods are the transdermal patch, the pill, and IUD (World Health Organization [WHO], 2020).
- Non-hormonal methods such as copper-containing IUDs and condoms don't use any hormones and prevent the interaction of sperm to egg through a barrier or chemical method (NIH, 2017).

## STUDY

## DESCRIPTION

## FINDINGS

Effects of Three Contraceptive Methods on Depression and Sexual Function: An Ancillary Study of the ECHO randomized Trial by Singata-Madliki et al., 2021.

**Level II Randomized Clinical Trial** that compared the effects of hormonal contraceptives, such as depot injections (DPMA-IM) and levonorgestrel (LNG) implant, to non-hormonal contraceptives such as a copper intrauterine device (IUD) on depression and sexual function in “sexually active, HIV seronegative women between the ages of 16 and 35 who were looking for long-term contraceptive methods” (Singata-Madliki, 2021, p. 256)

The participants interviewed during the three-month period had higher depressive rates when taking the Depot injections compared to the other methods; however, at the twelve-month follow-up the participants who had received the LNG implant and the copper IUD scored higher on the depression scale used (Beck Depression Inventory) as compared to those receiving Depot injections

Association of Hormonal Contraceptive Use with Reduced Levels of Depressive Symptoms: A National Study of Sexually Active Women in the United States by Keyes et al., 2013.

**Level IV Longitudinal Study** that examined the comparison between sexually active women aged 25-34 using four waves from the National Longitudinal Study of Adolescent Health (1994-2008) using various levels of contraception, ranging from most effective (hormonal) to least effective (no contraception, or non-hormonal contraception methods) and the effect on depressive symptoms

Those who were on hormonal contraception had “lower mean levels of past-week depressive symptoms, lower odds of high levels of depressive symptoms, and lower odds of past-year suicide attempts” (Keyes et. al, 2013, p. 1382). Participants who were on progestin-only hormonal contraceptives, also had lower levels of depressive symptoms as compared to those using the least effective methods or no method at all.

The Association of Contraceptive Methods and Depression by Ehsanpour et al., 2012.

**Level V Cross-Sectional Study** examined 216 women, ages 15-45 years, from 10 different health care centers in Isfahan in 2011 on whether depression rates increased depending on what birth control method they used. This was evaluated using the Beck Depression Inventory II through a questionnaire. The study compared low-dose estrogen combined pills, condoms and intrauterine devices.

This study found there was no viable correlation between depression rates and different contraceptive methods. Their findings found that depression is multi-causal and can't be determined by a single cause. There was a slight increase in cases of depression with the LD estrogen pills and IUD but not enough for their findings to change current practice.

Women's Satisfaction with Birth Control: A Population Survey of Physical and Psychological Effects of Oral Contraceptives, Intrauterine Devices, Condoms, and Sterilization Among 1466 Women by Oddens, 1999.

**Level II Cohort Study** investigated 1466 women and their satisfaction with their current birth control method. One of the questions asked about changes in mood and increased feeling of depression. This study discovered the interaction between increased depression with different types of birth control methods including condoms, oral contraceptives, IUD, and natural family planning.

The author concluded that there was an increase in depression rates with those who took oral contraceptives compared to the other contraceptive methods studied. The study shows that women who use a hormonal contraceptive have higher rates of depression compared to the women who used non-hormonal contraceptives.

The Effect of the Copper Intrauterine Device (Cu-IUD) and the Injectable Depomedroxyprogesterone (DMPA) Use on Women's Sexual Satisfaction and Depression by Hagh-Mohammadi Pasand et al., 2020.

**Level V Cross-Sectional Study** that examined 300 women from Tehran, Iran's University health centers. The women in the study used either a hormonal IUD or a non-hormonal DMPA contraception, and their depressive effects were measured using the Patient Health Questionnaire-9 (PHQ-9) and a follow-up question about perceived mood effects.

This study found that although sexual satisfaction and depression rates were higher in IUD users within the first year of use in contrast to DMPA users, the results did not show a significant relationship between the contraception of choice and depression effects.

Do Progestin-Only Contraceptives Contribute to the Risk of Developing Depression as Implied by Beta-Arrestin 1 Levels in Leukocytes? A Pilot Study by Smith et al., 2018.

**Level IV Case-Controlled** that examined 29 women between the ages 18-42 years old and their  $\beta$ -AR 1 protein level blood samples and depression questionnaire (HAM-D) responses during their contraceptive use and menstrual cycle days 21-25. Blood samples were taken before the HAM-D questionnaire was administered and was further extracted to obtain the  $\beta$ -AR 1 protein level via an Enzyme-Linked Immunosorbent Assay (ELISA) value.

The Progestin-Only Contraception (POC) group displayed lower  $\beta$ -AR 1 levels in contrast to the no contraception/non-hormonal (NC) and combined oral contraceptive (COC) group. Based on the low  $\beta$ -AR 1 protein levels and high HAM-D scores, POC demonstrated a potential risk factor for developing depressive symptoms.

## RESULTS

- The research was found to be inconclusive because most, if not all of the articles, had different findings regarding which contraceptive methods had a higher risk for depression rates
- Further research needs to be done on this topic for more conclusive findings and to support and educate women seeking contraceptive counseling in the future
- Depression was found to be multicausal and not directly related to any of the contraceptive methods



<https://www.istockphoto.com/search/2/image?mediatype=illustration&phrase=depression%20in%20brain>

## NURSING IMPLICATIONS

- Educate women to screen for depression after having contraceptives (especially new) or seeing increased signs of depression during follow-up.
- Many women use a form of contraception and are interested in the effects it may have in short term and long term. Expect and educate on possible lifestyle changes
- Providing information on misconceptions around contraceptive use and its effects on mental health/depression
- Recommend that they evaluate their own mental health status and talk to provider about what method would be best for them, especially in regards to risks and family history