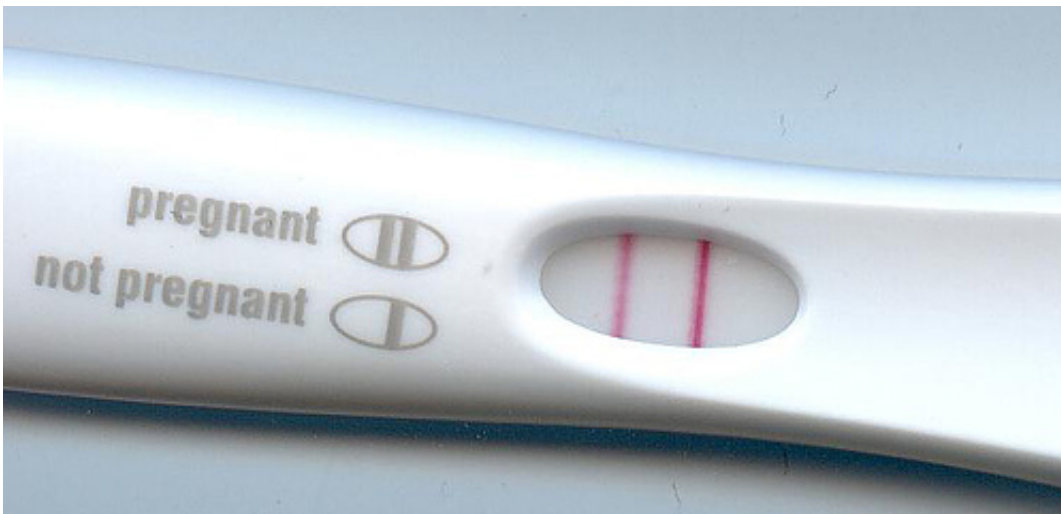


Before you freak out about birth control and depression, read this

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Pregnancy test. Credit: public domain

Some recent headlines and news stories claiming the birth control pill is linked to depression have overstated the findings of a new study and caused panic among some women. Some journalists have misinterpreted the study findings and made it sound like the risk of depression from taking birth control is way higher than what the researchers report in their study.

The study, published last week in the *Journal of the American Medical Association's JAMA Psychiatry*, does not prove that hormonal birth control causes depression. The study design means it cannot determine if

one causes the other. The study authors know this and you can tell they know this from the language they use. But that hasn't stopped some reporters from saying that birth control causes depression.

The study itself is not without flaws but, let's face it, studies are rarely perfect. Overall, it does a pretty good job of looking at a large group of women over an average of six years and trying to advance an important area of research about depression and [hormonal contraception](#).

The researchers found that each year, 2.2 percent of women using hormonal birth control were likely to start using an antidepressant compared to 1.7 percent of women not using hormonal birth control. When it came to a diagnosis of depression, 0.3 percent of women using hormonal birth control were diagnosed compared with 0.28 percent of non-users.

These are not big differences, but you wouldn't know that from looking at the media coverage. Before we look at the news reports, let's break down the study.

The researchers in Denmark looked at the records of 1,061,997 women ages 15 to 34 from 1995 to 2013. They analyzed the data to see if use of hormonal contraception was associated with using an antidepressant and diagnosis of depression at a psychiatric hospital.

Roughly half of the women were current or recent users of hormonal contraception including the [oral contraceptive pill](#), patch, vaginal ring, implant, injection or intrauterine system (sometimes known as the hormonal coil). The remaining women did not use any hormonal contraception.

POOR CHOICE OF CONTROL GROUP

And this is where the problems begin. Comparing women who use hormonal contraception with those who don't use it is a study flaw. As you can imagine, there could be big differences between these two groups of women regarding their access to medical care and willingness to take medications.

For example, a woman who takes the pill is likely to have a doctor who gives her the prescription for birth control and a routine where she pops a pill on a daily basis. Compare that to a woman who doesn't take the pill. She may not be registered with a doctor or she may not see a doctor regularly and may be less willing to take medication.

What epidemiologists worry about is that any variation in the rate of depression between the two groups of women could be explained by these differences as opposed to hormonal contraception. And bear in mind, one of the key outcomes the study authors were looking at was use of an antidepressant - a medicine that has to be prescribed by a doctor and one that someone averse to popping pills may not be willing to take.

Choosing a control group is tough, but in this instance a better comparison group would be women who use the copper coil, a form of non-hormonal contraception, said Chelsea Polis, an epidemiologist at the Guttmacher Institute, an organization that researches reproductive health and contraception.

Women who use the copper coil, while not being exposed to hormones like estrogen and progesterone, still use some form of contraception and have a relationship with a physician. In the past, studies comparing women who take the pill to women who use the copper coil found women on the pill were not more likely to have a loss of sexual desire.

ANTIDEPRESSANTS ARE PRESCRIBED FOR A BUNCH OF THINGS OTHER THAN DEPRESSION

The researchers found that women using hormonal contraception were more likely to be prescribed an antidepressant compared to women who did not use hormonal birth control. But studies have found that about half of all people taking an antidepressant are taking it for something other than depression.

Antidepressants can be prescribed to treat pain, sleeping problems, ADHD, migraine and even problems of the digestive and urinary tracts.

WOMEN EXCLUDED FROM THE STUDY

When you're looking at a study to decide whether it's a good one, it's helpful to look at whom the researchers excluded from the study. In this case, women were excluded during pregnancy and for six months after having a baby. The researchers did this "to reduce the influence of post-partum depression," they said.

But Polis is concerned that this could skew the study findings. "Women who are not using hormonal contraception are likely to become pregnant more often and to have more unintentional pregnancies," she said. "So you would think they would be more likely to face post-partum depression or other types of depression around the time of pregnancy, particularly if they were dealing with an unintentional pregnancy."

Those are some flaws of the study. Now on to mistakes made by reporters writing about the study.

BIG MISTAKES

The study found that women who used hormonal contraception were 40 percent more likely to get a prescription for an antidepressant or receive a diagnosis of depression. But some news outlets reported this as an overall 80 percent increase, which is wrong. The 80 percent figure

comes from a specific subset of women, those 15 to 19, and specifically those using the combined oral contraceptive pill.

If reporters wanted to communicate the overall [risk](#) of depression for women using the combined oral contraceptive pill, they should have said that taking the combined oral contraceptive pill was associated with a 10 percent increased risk of being diagnosed with depression.

This may or may not be an acceptable risk for women who take the pill (I'm fine with it having looked at the study and seeing its flaws), but the inaccurate media reports could sway a woman's decision.

In the study, the forms of contraception associated with the biggest increases in the risk of depression or taking an antidepressant were those that contained only the hormone progestin. The biggest increases were seen in women 15 to 19, and women of that age "are more susceptible to risk factors for depression," the authors write.

COMMUNICATING RISK

Some journalists were picky about which risk estimates they chose to include in their stories. Many chose to include relative risk, which tells you how more or less likely a disease occurs in one group compared to another. Relative risk does not tell you the actual likelihood that something will happen to you.

A useful way of explaining risk is to explain the absolute risk, and I'm not sure why many journalists shy away from doing this. (One expert was told by a reporter that it was tricky and there wasn't enough space in the article to explain absolute risk. I think this is a disservice to the public, since absolute risk is a helpful way to understand your actual risk of developing a disease.)

While the relative risk can sound high (an 80 percent increase in depression!) the likelihood of [depression](#) occurring in the first place is really low. In this study, for instance, I calculated that for every 300 [women](#) who use hormonal contraception, an additional one woman will use an antidepressant.

Again, that may or may not be an acceptable number for you, (I won't be canceling my prescription anytime soon), but what is unacceptable to me is the way this study has been misreported. We all deserve accurate reporting on scientific studies so we can make fact-based decisions about our bodies and the pills we take.

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