Birth Control Use in People who had an Abortion in the Southeast Region, 2014-15

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November 2023

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An abstract of a thesis submitted to the Faculty of the Rollins School of Public Health of Emory University in partial fulfillment of the requirements for the degree of Master of Public Health in Applied Epidemiology 2023

Abstract

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Access to birth control continues to be rife with complications and the prevalence of unintended pregnancies in the United States (US) remains high. Prior to the Dobbs decision, approximately half of people who experience an unintended pregnancy opted to terminate the pregnancy. Post the Dobbs decision, which severely reduced access to safe abortion care, it is imperative that people understand their options for effective birth control. It is also important to understand risk factors associated with non-use of a birth control method, which may results in an unintended pregnancy. This study focused on birth control failure and non-use in people who had an abortion in the Southeast region 2014-15, using the data from the Abortion Patient Survey (n=2,434). The results showed that among people presenting for abortion, condoms and the pill are the method most likely to fail. Long-acting birth control, such as IUDs, were the methods least likely to fail. The results also showed that over 50% of people reported not using any birth control method. Further multivariate regression analysis highlighted racial inequality and the wealth divide in birth control use. The results showed that among people presenting for abortion, Black people, people with lower educational attainment, and people below the federal poverty line were significantly more likely to have reported non-use of a birth control method. Non-black people were 1.35 (95% CI: 1.14, 1.58) times more likely to use a birth control method compared to Black people. Additionally, people who had a bachelor's degree or higher were 2.14 (95% CI: 1.53, 2.98) times more likely to use birth control compared to people who had less than a high school diploma. Finally, people who were at 200% or above the federal poverty line were 1.65 (95% CI: 1.36, 2.01) times more likely to use birth control compared to people below the federal poverty line. Improved access and early education on options for birth control is key to reducing the prevalence of unintended pregnancies.

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Chapter 1: Literature Review

Introduction

The percentage of unintended pregnancies remains high in the United States (US), with only a slight decline in the past 40 years. As of 2011, 45% of all pregnancies in the US were unintended, which is a decline from 2008, when 51% of all pregnancies were unintended (Finer & Zolna, 2016). Prior to 2011, there had been little change in the prevalence of unintended pregnancy, since unintended pregnancy was tracked starting in the 1980s (Finer & Zolna, 2016). According to the 2011 data, unintended pregnancies were most likely to occur among people ages 20-24 years old, people living below the federal poverty line, Black people, and Hispanic people (Finer & Zolna, 2016). The high percentage of unintended pregnancies in the US emphasizes the need for people to have easy access to birth control, to be aware of all their birth control options, and to understand the effectiveness and other characteristics of each option.

Among people who experienced an unintended pregnancy, 42% chose to terminate those pregnancies (Finer & Zolna, 2016). This was at a time when safe abortion care was still available to most people, prior to the overturn of Roe v. Wade with the Dobbs v. Jackson Women's Health decision. Many people now live in a state where they do not have access to safe abortion care. The Dobbs decision has left a gaping hole in access to safe abortion care in most states. Given the prevalence of unintended pregnancies that end in abortion in the US, it is important to understand the impact this decision will have on the number and outcome of unintended pregnancies, and to explore how unwanted pregnancies can effectively be prevented. When Roe v. Wade was overturned in July 2022, many states implemented complete abortion bans, with some not even allowing exceptions for rape or incest and narrow exceptions for the ill-defined situation "when the person's life is in danger". With full or partial abortion bans now in place in

18 states and bans only temporarily blocked in another nine states (NYT, 2022), it is critical that people are able to prevent unintended and unwanted pregnancy through the use of reliable birth control methods that meet an individual's needs. The effects of overturning Roe v. Wade will be far reaching and felt in the near- and long-term. Since many people will lack access to safe abortion care, they will, in actuality, be forced to give birth, forced out of high school and college, and forced out of the workforce. This suggests severe adverse economic impacts for people who do not have access to safe abortion care. More people and children will be forced into the cycle of poverty. Additionally, in cases of fetal anomalies and medical co-morbidities, people will be forced to carry a fetus where the pregnancy is not viable or where their own health is at risk, respectively. This will result in unnecessary deaths. Given the severe impacts of not having access to safe abortion care and the already high number of unintended pregnancies that end in abortion, it's important to study birth control methods and the effectiveness of those birth control methods. There is a need to understand which methods are most likely to fail and risk factors associated with birth control failure and non-use. Access likely has a significant impact on the use of certain birth control methods and this review will briefly discuss the potential impacts of barriers to birth control. While having access to reliable birth control will not resolve all the issues people will face without access to safe abortion care, it can help to reduce the already high number of unintended and unwanted pregnancies.

This review won't address situations where a person has not consented to sexual intercourse or otherwise does not have a choice in the use of a birth control method since this is outside the scope of this research. These people will also still need access to safe abortion care. This review also will not address adherence to short-term birth control methods, such as the pill,

in which inconsistent use may impact their effectiveness. Lastly, this review will also not address birth control use in people who sought an abortion but were denied abortion care.

Research Review

Birth control is key to preventing unintended pregnancies, however, reliable access to a birth control method suitable to a person's lifestyle is rife with challenges. There are many barriers people face in being able to use birth control, including knowledge, cost, access, and government policy. There have been several studies that have attempted to assess the link between behaviors and risk factors leading to an unintended pregnancy and abortion and birth control. A review of these studies follows.

One barrier to birth control is knowledge, among both patients and clinicians. Despite their ineffectiveness, abstinence only programs are still prevalent in the US. This has led to misconceptions about birth control effectiveness and safety, with many people believing there are serious health risks associated with the pill and that IUDs cause infections (ACOG, 2015). There is also confusion about how birth control methods work with many people incorrectly believing that birth control can cause an abortion (ACOG, 2015). There are also deficiencies among physicians, with many being uncertain about the risks and benefits of different types of birth control, particularly of IUDs, leaving physicians unable to effectively guide patients in making an appropriate selection (ACOG, 2015). Policy also makes it difficult for minors, in particular, to access birth control. Currently, 20 states restrict minors from receiving birth control (ACOG, 2015). Cost is another barrier. Many women remain uninsured and are left with high out-of-pocket costs (ACOG, 2015). Costs are also an issue for women who are insured, who must pay deductibles and copayments for birth control (ACOG, 2015). Many insurance plans also restrict how much can be dispensed at once, meaning people using the pill, for example,

must go to a pharmacy for a refill on a monthly basis (ACOG, 2015). Most birth control also requires a prescription and is not available over the counter (ACOG, 2015). This means people must see a physician to obtain a prescription, which is another barrier. Even with a prescription, pharmacies are allowed to refuse to fill prescriptions based on religious objections, making it more difficult for people to receive birth control (ACOG, 2015). Currently, six states allow pharmacists to refuse to fill a prescription with no protection for the patient (ACOG, 2015). In order to effectively prevent unintended pregnancies, these barriers must be addressed in addition to understanding the effectiveness of birth control methods and risk factors associated with failure.

Birth control methods are not equal in effectiveness. The CDC has ranked birth control methods by tier according to effectiveness. The most effective reversible methods are in the highest tier: IUDs and implants (CDC, 2014). This is followed by the second tier of moderately effective methods which includes injectables, the pill, the patch, ring, and diaphragm, in order of most to least effective. The least effective methods are in the third tier, which includes the male condom, female condom, withdrawal, sponge, fertility awareness-based methods, and lastly spermicide (CDC, 2014). Derived from the 2017-2019 National Survey of Family Growth (NSFG) data, in women ages 15-49 who reported using birth control, 21% used the pill, 13% used male condoms, 13% used an IUD, 6% used withdrawal, 3% used an implant, and 3% used an injectable (Guttmacher Institute, 2021). “The Role of Contraceptive Attributes in Women’s Contraceptive Decision Making”, examined why women select certain birth control methods. The top three considerations when selecting a birth control method were effectiveness, safety, and cost (Madden, Secura, Nease, Politi, & Peipert, 2015). Side effects and not having to remember to take the method were also ranked highly (Madden, Secura, Nease, Politi, & Peipert,

2015). Further examining the impact of side effects, 69% of women participating in this study reported at least one side effect and of those, 65% reported that it was serious enough that they stopped using the method (Madden, Secura, Nease, Politi, & Peipert, 2015). Weight gain, irregular bleeding, and mood changes were the top three most reported side effects, and the side effects that were most likely to lead to women discontinuing to use the method (Madden, Secura, Nease, Politi, & Peipert, 2015). Despite reporting effectiveness as the top consideration when selecting a method, only 13% of people used an IUD and 3% used an implant (Guttmacher Institute, 2021) which are the most effective reversible birth control methods (CDC, 2014). This could be due to other barriers, such as counseling, cost, and access. In the CHOICE project, women did not have to pay for the cost of their preferred method and were given access to their preferred method. After receiving contraceptive counseling, 75% of women chose either the IUD or implant (Madden, Secura, Nease, Politi, & Peipert, 2015). This study removed barriers for the women who participated, including significant financial barriers that most people continue to face.

Using the National Survey of Family Growth (NSFG) data from 2006-2010, one study, "Contraceptive Failure in the United States: Estimates from the 2006–2010 National Survey of Family Growth" estimated overall birth control failure rates among women who reported using a birth control method. The study focused on five birth control methods. It found that after 12 months of use, the withdrawal method had a failure rate of 19.9%, the male condom had a failure rate of 12.6%, the pill had a failure rate of 7.2%, the injectable had a failure rate of 4%, and the IUD and implant, each had a failure rate of 1.4% (Sundaram, et al., 2017). This study focused only on failure rates in the first year, and not long-term failure rates since it has been shown that failure (i.e. unintended pregnancy) is more likely to occur in the first year of use of a method.

This is because failure rates may improve with experience and continued consistent use, and users who experience failure and inconsistent use tend to discontinue use of a method. This could overestimate the failure rate of a method among long-term users or conversely, underestimate the cumulative failure rate of a method. However, trying to estimate absolute long-term failure rates would be difficult as it would require that researchers follow a cohort long-term over the course of their child-bearing years. This study also found that there were differences in failure rates for Black and Hispanic women. The overall contraceptive failure rate was 15% for Black people and 14% for Hispanic women, which was significantly higher compared to 8% for white women (Sundaram, et al., 2017). There was a similar significant difference for overall contraceptive failure rates reported among people below the poverty level compared to people at a minimum of 200% above the poverty level (17% vs. 6%) (Sundaram, et al., 2017). These disparities were not further explored. The article also noted that a limitation of the study is recall bias; women may not accurately remember the method they were using at the time of an unintended pregnancy, especially if it occurred several years in the past (Sundaram, et al., 2017). This introduces the possibility of a flawed failure rate for each birth control method studied. This study did not address barriers to birth control use.

The review, “Are higher unintended pregnancy rates among minorities a result of disparate access to contraception?” examines the rate of unintended pregnancies among Black and Hispanic women in the US. In Black people, 63% of pregnancies are unintended, and in Hispanic people, 48% are unintended, compared to 42% in white women (Troutman, Rafique, & Plowden, 2020). Unintended pregnancy in Black women is much higher than the national average of 45%. Despite the 21% difference in rates, the difference is not statistically significant after adjusting for factors such as age, educational attainment, and relationship status (Kim,

Dagher, & Chen, 2015). This paper does not examine the causes but does make suggestions for reducing the percentage of unintended pregnancies. These suggestions include increased access to and reduced cost of contraception, culturally sensitive education on birth control methods, and empowering pharmacists to provide information on birth control methods (Troutman, Rafique, & Plowden, 2020). Each of these suggestions would need to be explored further to see if they are effective in reducing unintended pregnancies.

Another study, "The Contraceptive Failure Rates in the Developing World: An Analysis of Demographic and Health Survey Data in 43 Countries" examined birth control failure rates in developing countries, which does not include the US. This study uses the Demographic and Health Surveys available in each of the 43 countries. They found that the collective failure rate, or the average across all countries, was 0.6% for implants, 1.4% for IUDs, 1.7% for injectables, 5.5% for the pill, 5.4% for condoms, and 13.4% for the withdrawal method (Polis, et al., 2016). Except for long-acting methods, these failure rates are considerably lower than the failure rates for each of these methods in the US. For the purpose of the study, the countries and results were grouped by region. There are significant differences by region, but differences between countries can be masked by this approach. One of the limitations of the study is that women were asked to recall events from seven years in the past (Polis, et al., 2016), which introduces recall bias. Another limitation is that recent surveys were not always available for each country and surveys as far back as 2002 were used and compared to more recent surveys (Polis, et al., 2016). This may either mask progress made in a country that has since reduced unintended pregnancy or it may mask setbacks. Another limitation of this study is that looking broadly at regional areas does not allow for examining local differences by race, socioeconomic status, and other risk factors that may impact birth control failure or other behaviors resulting in unintended pregnancy.

The “Declines in Unintended Pregnancy in the United States, 2008–2011” study examined the percentage of pregnancies that were unintended as of 2011 and the outcomes of those pregnancies. This study also used the NSFG data, as well as other data sources. They found a decline in the percentage of unintended pregnancies from 51% in 2008 to 45% in 2011 (Finer & Zolna, 2016). This study found that the highest rate of unintended pregnancy was among women ages 20-24, women who were unmarried but cohabiting, women whose income was below the federal poverty line, women who had less educational attainment, and Black and Hispanic women (Finer & Zolna, 2016). Women who had an unintended pregnancy, whose income was below the federal poverty line, and who had lower educational attainment were also less likely to have an abortion (Finer & Zolna, 2016). This could be due to, among other reasons, not having the means to pay for an abortion or not having the means to travel to obtain an abortion. This study did not address the role of birth control in reducing unintended pregnancies.

In another study, a survey was conducted to look at stigmas around birth control and unintended pregnancy, focusing on women in Alabama. “Norms and Stigma around Unintended Pregnancy in Alabama: Associations with Recent Contraceptive Use and Dual Method Use among Young Adult Women” found that perceived stigma pertaining to unintended pregnancy was associated with greater use of birth control (Rice, Turan, White, & Turan, 2018). This study also found that there was no difference in perception of stigma between women who used dual birth control methods and those who used one birth control method (Rice, Turan, White, & Turan, 2018). However, they did not examine which birth control methods were used. One limitation of this study is that it focused only on women ages 18-24. This accounts for only a portion of people who experience an unintended pregnancy. There is also bias likely present in

the sample. They recruited most of the women directly from a college campus and a convenience sample was used that is not likely representative of all women in Alabama.

The study, "Trends in Birth Rates After Elimination of Cost Sharing for Contraception by the Patient Protection and Affordable Care Act," examined whether eliminating the cost barrier to contraception lowered birth rates. The Affordable Care Act, in some cases, eliminated out-of-pocket cost for contraception for women with commercial insurance as of 2014 (Dalton, et al., 2020). The study found that among women living below the federal poverty line, the birth rate declined by 22% between 2014 and 2018 (Dalton, et al., 2020). The study also found that contraception prescriptions were more likely to be filled once cost was eliminated (Dalton, et al., 2020). Therefore, this study does enforce that cost is a barrier to contraceptive use. One drawback of this study is that it only included people who were commercially insured through an employer. It did not include people who were on Medicaid or did not have insurance. These people likely still face a cost barrier to accessing contraception. However, the results indicate that elimination of the cost barrier contributes to higher birth control usage rates and suggests that this contributed to lower birth rates.

The consequences of unintended pregnancies are impactful on people who continue the pregnancy, willingly or unwillingly, and give birth. One study, "The Implications of Unintended Pregnancies for Mental Health in Later Life" found that carrying an unintended pregnancy to term had a negative effect on mental health. This study showed that women who had an unintended pregnancy resulting in a live birth had a higher occurrence of depression and symptoms of depression, lasting long-term (Herd, Higgins, Sicinski, & Merkurieva, 2016). This study included pregnancies that were both unwanted and mistimed (Herd, Higgins, Sicinski, & Merkurieva, 2016). Another study has also shown that there are negative consequences for the

children of mothers who are denied an abortion and so carry an unwanted pregnancy to birth. The “Effects of Carrying an Unwanted Pregnancy to Term on Women's Existing Children” found that the children of women who were denied an abortion had lower child development scores, were more likely to live below the federal poverty line, and were more likely to live in a household where there is not enough money for food and housing (Foster, Raifman, Gipson, Rocca, & Biggs, 2018).

A study out of New Zealand also showed the impact of unintended pregnancies carried to birth on the parents and children long-term. The “Outcomes for children and families following unplanned pregnancy: Findings from a longitudinal birth cohort” results showed that these families were more likely to receive welfare, mothers were more likely to experience intimate partner violence, and the children were more likely to not have a strong bond with their parents, were more likely to experience violence in their household, and were more likely to drop out of school (Boden, Fergusson, & Horwood, 2015). This study compared two cohorts, pregnancies that were planned and pregnancies that were unplanned and carried to term. However, they did not define whether the pregnancies were wanted or unwanted, a key distinction. This study does show that the effects of carrying an unintended pregnancy to birth may be substantial and long-term. This further substantiates the need to study the birth control methods most likely to fail and risk factors associated with non-use. People need to be able to make informed decisions about which birth control methods best meet their needs.

There are many reasons that people have abortions, only one of which is to end an unintended and unwanted pregnancy. Greater access to reliable birth control and allowing people to make informed choices will reduce the need for some people to seek abortion care. However, it will not reduce the need for people who face life threatening conditions without access to safe

abortion care. Without access, there is an expected rise in maternal mortality rates. One study estimated that maternal mortality will rise by over 20% (Mueksch, 2022). The expected increase for Black people is even higher at 39% (Mueksch, 2022). The maternal mortality rate in the US is already much higher than any developed country. In the US, the maternal mortality rate is 17.4 per 1,000 (Tikkanen, Gunja, FitzGerald, & Zephyrin, 2020). The next highest rate in a developed country is 8.7 per 1,000, half the rate in the US (Tikkanen, Gunja, FitzGerald, & Zephyrin, 2020). The already high rate of maternal mortality, coupled with the expected sharp increase due to the lack of access to safe abortion care further highlights the need for people to understand which birth control methods are most effective in order to make informed decisions about their use.

There have been many studies that have examined unintended pregnancies and birth control methods, but none have studied birth control failure and non-use resulting in unintended pregnancy among people who have sought an abortion in the US. Further, this has not been studied in states where abortion is either restricted or banned and where there is a larger percentage of minority people, such as the states of Texas, Alabama, Mississippi, Louisiana, and Georgia. The demographic makeup of the US is 59.3% white, 13.6% Black, 18.9% Hispanic, and 6.1% Asian according to the most recent census in 2021 (Census Bureau, n.d.). However, in Texas, the population is 13.2% Black, 40% Hispanic, and 5.5% Asian (Census Bureau, n.d.). In Alabama, 26.8% of the population is Black, 4.8% Hispanic, and 1.6% Asian (Census Bureau, n.d.). In Mississippi, 38% of the population is Black, 3.5% is Hispanic, and 1.1% is Asian (Census Bureau, n.d.). In Louisiana, 33% of the population is Black, 5.6% is Hispanic, and 1.9% is Asian (Census Bureau, n.d.). In Georgia, 33% of the population is Black, 10.2% is Hispanic, and 4.6% is Asian (Census Bureau, n.d.). This cluster of states also has a higher rate of poverty

compared to the national average. In the US, the percent of those living in poverty is 11.6%. In Louisiana it is 19.6%, 19.4% in Mississippi, 16.1% in Alabama, 14.2% in Texas, and 14.0% in Georgia (Census Bureau, n.d.).

The percentage of unintended pregnancies is also higher in these states compared to the national average of 45%. In Texas, 54% of all pregnancies were unintended as of 2010 and of these pregnancies, 25% resulted in abortion (Guttmacher Institute, 2016). In Alabama, 55% of pregnancies are unintended (Power To Decide, 2023). As of 2010, 62% of all pregnancies in Mississippi were unintended and of those pregnancies, 19% ended in abortion (Guttmacher Institute, 2016). In Louisiana, 60% of pregnancies were unintended and 21% of those ended in abortion (Guttmacher Institute, 2014). In Georgia, 60% of all pregnancies were unintended and 28% ended in abortion (Guttmacher Institute, 2014). In each of these states, where abortion care was already limited at the time this data was collected, the rate of unintended pregnancy was higher and use of abortion lower than the national rates. This highlights a heightened need to understand which birth control methods are failing and the prevalence of non-user.

Since the Dobbs decision overturned Roe v. Wade, this cluster of southern states has some of the most restrictive abortion laws in the US, even among states with abortion bans or partial abortion bans in place. In Texas, abortion has been completely banned, leaving no exceptions for rape or incest (ACLU, 2022). The only exception is when the person's life is in danger (ACLU, 2022). In Alabama, same as in Texas, abortion has been banned with no exceptions for rape or incest and the only exception being where the person's life is in danger (Prebeck, Alabama Abortion Laws, 2022). Abortion is also banned in Mississippi, with an exception for rape and incest only when it has been reported to law enforcement (Prebeck, Mississippi Abortion Laws, 2022). Texas and Mississippi do not allow exceptions for when the

pregnancy is not viable due to a fetal defect (Walker, 2023). This forces the pregnancy to be carried to term even though it is not viable. In Louisiana, similar to Texas and Alabama, abortion is banned with the only exception being for when the person's life is in danger (Prebeck, Louisiana Abortion Law, 2022). In Georgia, abortion is banned once fetal cardiac activity is detected, which is typically around six weeks (Doherty & Hurt, 2022). There are also exceptions for rape or incest, but only after a police report has been filed and if the pregnancy is less than 22 weeks, and for when the pregnancy is not medically viable, or the person's life is in danger (Doherty & Hurt, 2022). Post the Dobbs decision, it will be extremely difficult for people living in this cluster of states to receive safe abortion care. These restrictive laws are further complicated by the vague language included for the exceptions of when the pregnancy is not medically viable or when the person's life is in danger. This is ill-defined and leaves doctors vulnerable to prosecution and unwilling to risk performing even medically necessary abortions. Since the abortion bans have taken effect, Louisiana has reported no abortions, Mississippi has reported two, and Texas and Alabama have reported low numbers as well (Walker, 2023). Removing access to safe abortion also does not address the high percentage of pregnancies that are unintended in these states. There is a clear need for people to also understand and receive counseling on effective birth control methods that meet their needs.

At the time data was last collected on people who have abortions in 2014-15, through the Guttmacher Abortion Patient Survey, abortion was restricted in these states but still legal. However, the restrictions each of these states imposed made it difficult for a person to receive an abortion. In Texas, abortions were banned after 22 weeks unless the person was at risk of death or the fetus was not viable and required any women seeking an abortion to have a sonogram (ACLU Texas, 2023). In 2003, a 24-hour waiting period was implemented and abortions after 16

weeks had to take place in an ambulatory care facility (ACLU Texas, 2023). At the time, none of the abortion clinics in Texas met this requirement (ACLU Texas, 2023). Of the 54 abortion clinics that were in operation in 2003, only 19 remained as of 2016 (Ura, 2016). In 2011, Texas began requiring people to have a sonogram and to hear the fetal heartbeat before getting an abortion, as well as requiring doctors to notify patients of alternatives to abortion (ACLU Texas, 2023). In Alabama, all abortions were banned after 20 weeks in 2011 with an exception only for medical emergencies (Lyman & Mealins, 2022). Prior to that, in 2002, a 24-hour waiting period was signed into law and since 1987, minors were required to have parental consent for an abortion (Lyman & Mealins, 2022). Due to added restrictions on abortion over the years, Alabama went from having 45 abortion clinics in 1982 to only five in 2014 (Lyman & Mealins, 2022). In 2014, the waiting period for an abortion was increased to 48 hours and guardians of minors were required to sign consent in front of a provider (Lyman & Mealins, 2022). In Louisiana, all abortions were banned after 20 weeks as of 2012 (Center for Reproductive Rights, 2022). In 2011, there were only seven clinics, which was reduced to three by 2017 (Center for Reproductive Rights, 2022). Louisiana also required that people undergo a sonogram, be provided information on alternatives, and had imposed a lengthy waiting period of 72 hours (Center for Reproductive Rights, 2022). In Mississippi, abortion was banned at 22 weeks in 2014, with exceptions only for risk of death and fetal abnormalities (Stampler, 2014). As of 2014, there was only one abortion clinic in Mississippi (Stampler, 2014). Similar to Texas and Louisiana, Mississippi also required a sonogram, counseling on alternatives, and a 24-hour waiting period (Arons, 2023). Mississippi also required that minors seeking an abortion have consent from both parents (Arons, 2023). Mississippi is also the only state that required abortion providers to also be ob-gyn physicians (Arons, 2023). In Georgia, abortion was banned at 22

weeks as of 2012 (Roberts, Gould, & Upadhyay, 2015). There were only five abortion clinics in Georgia as of 2015, four of which are in the Atlanta area (Roberts, Gould, & Upadhyay, 2015). Georgia requires a 24-hour waiting period, counseling, and that minors have parental notification (NARAL, 2023). In each of these states at the time of data collection, access to abortion care was already limited due to the abortion restrictions imposed. The restrictions effectively limited the number of abortion clinics that could operate, thereby limiting access to people who were seeking an abortion even prior to the Dobbs decision.

Further compounding a complex issue, minority people are more likely to be affected by limited or no access to safe abortion care. One study, "Racial disparities in pregnancy options counseling and referral in the US South" found that Black people were less likely to receive a referral for an abortion when seeking one, compared to non-Black people (14.8% vs 7.6%) (Nobel, Luke, & Rice, 2022). Black people were also less likely to have a provider discuss all pregnancy options compared to non-Blacks (6% vs 17%) (Nobel, Luke, & Rice, 2022). A drawback to this study is that the provider determined who to administer the survey to, which could have introduced selection bias. Another study, "Racial/ethnic and educational inequities in restrictive abortion policy variation and adverse birth outcomes in the United States," examined racial disparities in birth outcomes. Black people were more likely to have a baby prematurely and a baby with low birth weight compared to non-Black people (Redd, et al., 2021). Additionally, Black people were more likely to live in states where restrictive abortion policies were enacted and where they were less likely to be able to access safe abortion care (Redd, et al., 2021). This subjects minorities, who are already marginalized by the healthcare system, to further adverse health outcomes.

The states that have the most restrictive abortion bans in place are also the states that provide little to no support for people who do give birth. Texas and Georgia both have among the highest percentages of uninsured people in the US at 22% and 17%, respectively (Treisman, 2022). Texas, Alabama, Mississippi, and Georgia have all failed to expand Medicaid coverage (Treisman, 2022), which would help to cover medical needs for many people impacted by an unintended pregnancy. In Mississippi, close to 60% of the population lives in a maternal care desert, where there is little to no access to medical care (Treisman, 2022). The child poverty percentage is highest of all states in Mississippi and Louisiana, both of which have over 25% of all children in the state living in poverty (Treisman, 2022). In Alabama, over 20% of children are living in poverty and in Georgia and Texas, it is over 18% (Treisman, 2022). Alabama, Georgia, Mississippi, and Louisiana all have the highest percentages of children born with low birth weight (Treisman, 2022). This again highlights the need for reducing unintended pregnancies through effective birth control method use to decrease adverse health outcomes.

Conclusion

There have been many studies that have examined the effectiveness of birth control methods and attitudes towards birth control, but there have not been studies in the US on which birth control methods are most likely to fail among people presenting for an abortion, as well as factors that are associated with non-use of birth control in this population. This research is necessary so that counseling, outreach, and education can be targeted to people most at risk for an unintended pregnancy. This will enable more people to make informed decisions about which birth control methods to use, potentially increasing the use of more effective methods. This may also reduce the number of unintended pregnancies, which would reduce the need for abortion care, care that many people no longer have access to. It is important to note though that reducing

unintended pregnancies will not eliminate the need for people to have access to safe abortion care as unintended pregnancy is only one reason that people seek abortion care.

Clinics and practices that provide family planning services also need to be aware of which birth control methods are most likely to fail among people most at risk for experiencing an unintended and unwanted pregnancy. This is necessary so that they can effectively assist people in making informed decisions about birth control and select a method that best meets their needs. Community outreach, educational materials, and counseling services can be tailored for people most at risk of experiencing an unintended pregnancy.

The proposed study will use the Guttmacher 2014-15 Abortion Patient Survey data. The data is publicly available from the Inter-university Consortium for Political and Social Research (ICPSR) site. It will examine, among people who had an abortion in the Southeast region in 2014-15 (including Texas), which birth control methods were most likely to be used in the month they likely became pregnant. The hypothesis is that among people who sought an abortion in these states in 2014-15, certain birth control methods were more likely than others to fail and result in an unintended pregnancy and that there are risk factors associated with non-use of birth control in patients presenting for abortion. Potential factors to be examined include age, race, ethnicity, educational attainment, income, poverty status, previous abortion, health insurance status, and living with partner.

Chapter 2: Journal Article

Abstract

Access to birth control continues to be rife with complications and the prevalence of unintended pregnancies in the United States (US) remains high. Prior to the Dobbs decision, approximately half of people who experience an unintended pregnancy opted to terminate the

pregnancy. Post the Dobbs decision, which severely reduced access to safe abortion care, it is imperative that people understand their options for effective birth control. It is also important to understand risk factors associated with non-use of a birth control method, which may result in an unintended pregnancy. This study focused on birth control failure and non-use in people who had an abortion in the Southeast region 2014-15, using the data from the Abortion Patient Survey (n=2,434). The results showed that among people presenting for abortion, condoms and the pill are the method most likely to fail. Long-acting birth control, such as IUDs, were the methods least likely to fail. The results also showed that over 50% of people reported not using any birth control method. Multivariate regression analysis highlighted racial inequality and a pay divide in birth control use. The results showed that among people presenting for abortion, Black people, people with lower educational attainment, and people below the federal poverty line were significantly more likely to have reported non-use of a birth control method. Non-black people were 1.35 (95% CI: 1.14, 1.58) times more likely to use a birth control method compared to Black people. Additionally, people who had a bachelor's degree or higher were 2.14 (95% CI: 1.53, 2.98) times more likely to use birth control compared to people who had less than a high school diploma. Finally, people who were at 200% or above the federal poverty line were 1.65 (95% CI: 1.36, 2.01) times more likely to use birth control compared to people below the federal poverty line. Improved access and early education on options for birth control methods is key to reducing the prevalence of unintended pregnancies.

Introduction

In the United States (US), the percentage of unintended pregnancies has remained high and access to birth control continues to be rife with complications. As of 2011, 45% of all pregnancies were unintended (Guttmacher Institute, 2019). Prior to the Dobbs decision, 42% of

people chose to terminate an unintended pregnancy (Finer & Zolna, 2016). With the Dobbs decision, which overturned Roe v. Wade in June 2022, many people are now living in states where they do not have reasonable access to safe abortion care. As of July 2022, there were only 20 states that offer safe abortion care without severe restriction. This has left a gaping hole in access as many states have implemented complete abortion bans. Many of these bans do not allow exceptions for rape or incest and only narrow exceptions for the ill-defined situation of "when the person's life is in danger". While this is an issue throughout the US, states in the Southeast region have some of the most restrictive abortion bans in the country. Given the prevalence of unintended pregnancies that people have historically elected to terminate, it is important to explore how unwanted pregnancies can effectively be prevented. It has become critical that people are able to prevent an unintended pregnancy through the use of reliable birth control methods that meet an individual's needs.

The effects of the Dobbs decision will be far reaching and felt in the near- and long-term. People who are unable to access safe abortion care will be forced to give birth, forced out of high school and college, and forced out of the workforce. This suggests severe adverse economic impacts and more people and children will be forced into the cycle of poverty. Additionally, in cases of fetal anomalies or medical co-morbidities, people will be forced to carry a fetus in cases where the pregnancy is not viable or where their own health is at risk, respectively. Given the severe impacts of not having access to safe abortion care and the number of unintended pregnancies that have historically been terminated, it's important to study use and non-use of birth control in people presenting for abortion, including factors that may be associated with non-use, and to understand which birth control methods are most likely to fail.

Methods

This cross-sectional study used secondary data collected through the Guttmacher Institute's 2014-25 Abortion Patient Survey. The four-page, self-administered survey was given to patients presenting for abortion to complete while at the clinic or facility. Clinics and facilities were advised to provide the survey to each patient presenting for an abortion. It was available in both English and Spanish. The clinics or facilities were randomly selected from a list that included clinics and facilities where more than 25 abortions were performed annually. The data was collected from patients between April 2014 and June 2015 with a 76% response rate, for a total of 8,380 usable responses. Hospitals were excluded from the survey. The survey collected demographic data, such as race, ethnicity, age, religion, income, health insurance, and educational attainment, as well as data on the type of birth control in use at the time of likely conception of the pregnancy, whether that method was still being used, and how long that method had been used. The survey also collected data on living situation, relationship status, and life events at the time of the abortion. All responses were anonymous (Jones, 2014 Abortion Patient Survey, 2019). This survey did not ask about gender identity; therefore this paper will use inclusive language to describe the results.

The samples were not completely representative at the state level as people may travel out of state for abortion care, but patients who received an abortion in the Southeast were likely to be a resident of a state within the southeast (Jones, Email, 2023). To ensure that the results of our analyses were representative, the entire Southeast region was included in the analysis. This includes the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Texas is not considered part of the Southeast, but borders the states that are in the region and was

included due to their restrictive abortion laws, similar to the states in the Southeast region, even prior to the Dobbs decision.

A total of 8,380 surveys were collected across the country. Patients who completed the survey in the states of Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia were included in the analysis (n=2,434). Arkansas is a part of the Southeast, however no surveys were collected from the state and there were no patients who reported residing in Arkansas. Patients who reported seeking abortion care due to a miscarriage were excluded from analysis (n=44) as these pregnancies may have been intended and therefore patients may not have been using birth control to prevent pregnancy. Cases of abortion due to rape (n=28) were also excluded as the patient was not able to have input into selecting a birth control method. We also examined a subset of these states due to their higher rates of unintended pregnancies, higher rates of minority populations, higher rates of child poverty, and higher likelihood to be a maternal care desert. This includes the states of Alabama, Georgia, Louisiana, Mississippi, and Texas.

The dependent variable was a dichotomous variable on whether the person was using a birth control method immediately prior to finding out they were pregnant, derived from reported use of a birth control method. The independent variables examined were age, race, ethnicity, income, educational attainment, poverty status, living with partner, prior abortion, and health insurance status.

SAS 9.4 was used to examine weighted frequencies of birth control failures and demographic variables, complete multivariate logistic regression comparing people who reported using a birth control method to people who reported not using a birth control method, and complete multivariate logistic regression comparing people who used a long-acting birth control

method to people who used a short-acting birth control method, among people who had an abortion in 2014-15. The dependent variables, birth control method and long-acting birth control method, were both categorical variables. Each of the independent variables were categorical as well, with the exception of age and number of months of use, which were continuous variables that were then categorized. Birth control methods were categorized at the time of the survey as sterilization, implant, IUD, Depo-Provera, condom, pill, ring, patch, withdrawal, rhythm, other, and non-user. A dichotomous variable for birth control was created to examine patients by users and non-users of birth control, and a dichotomous variable was also created for patients who used long-acting birth control (sterilization, implant, and IUD) and patients who used short-acting birth control (Depo-Provera, condom, pill, ring, patch, withdrawal, rhythm, and other). This latter variable excluded patients who did not report using a birth control method. We also created a dichotomous variable for the number of months of use for a birth control method, use 12 months or less vs. use over 12 months. The age range was 14-50 and was categorized as 14-19, 20-24, 25-29, 30-34, 35-39, and 40-50. The 45-50 age group was included in a larger 40-50 age group due to the low number of patients in the 45-50 age group. Race was initially categorized as American Indian, Asian, Native Hawaiian/Pacific Islander, Black, White, and Other. Due to the low count of patients who reported their race as American Indian and Native Hawaiian/Pacific Islander, these patients were combined into the Other category to suppress low cell counts. We also created two additional dichotomous variables for race, for white people and non-white people as well as Black people and non-Black people. Ethnicity was dichotomously categorized as “yes” for Hispanic, Latina, or Spanish descent; or “no” for none of those. Income was categorized as below $10,000 annually and in $5,000 increments up to $74,999 annually and then over $75,000 annually. A dichotomous variable was also created for income, below $25,000

and $25,000 plus. Education was categorized as less than a high school diploma, high school diploma or GED, some college or an associate's degree, and college graduate. Health insurance was categorized as temporary Medicaid, Medicaid, private insurance, other insurance, and uninsured. A dichotomous variable was also created for insurance, for people who reported having some form of insurance and people who reported not having insurance.

Significance was set at alpha = .05 for inclusion in the model. Stepwise, backward, and forward selection was used to test variables for inclusion in the model, with significance set at alpha = .15 to enter the model. The results were tested and verified using the weighting variable provided, which accounted for gaps in survey responses. In SAS, procedure survey logistic was used to evaluate the variables to remain in the model and determine the final model. The variables considered in the model were age, race, ethnicity, educational attainment, poverty category, insurance status, income, previous abortion, and living with partner. The variables found to be significant were tested for interaction and confounding. There was no interaction found. Educational attainment was found to be a confounder and remained in the model examining use of long-acting birth control methods in the Southeast region. Additionally, there was no multicollinearity based on the variance inflation factor.

Results

The results showed that among people who had an abortion in the Southeast region of the US 2014-15, 50.2% reported using a birth control method. There were differences in reported use of birth control among people of different races. 55.7% of white people reported using a birth control method, compared to 50.7% of Asian people, 45.8% of Black people, and 41.6% among other races. Use of a birth control method tended to increase with educational attainment. Among people who had less than a high school diploma, 36.8% report using birth control, compared to

43.3% who have a high school diploma/GED, 55.1% with some college education or an associate's degree, and 55.5% with a bachelor's degree or higher. There was a similar trend in use according to poverty status. Among people below the federal poverty line, 44.8% report using birth control, compared to 51.7% who were at 100% or up to 199% of the federal poverty line, and 57.2% who were at 200% or above the federal poverty line. People who reported their ethnicity as Hispanic were less likely to use birth control, 46.7% of Hispanic people reported use of any birth control method, compared to 50.9% of non-Hispanic people. Health insurance was also a factor in reported birth control usage. In this population, 63.2% of people who had an abortion reported having some form of insurance and 52.6% of people who were insured reported using birth control, compared to 46.1% of people who were not insured.

Among all people who had an abortion, 23.6% reported using condoms, followed by 11.6% who reported using the pill, and 9.6% who reported using withdrawal. Among people who had an abortion and reported using a method, condoms were also the method most likely to fail. 47.0% reported using condoms, 23.0% reported using the pill, and 19.2% reported using withdrawal. Among people who reported using a method, 60.0% reported using their birth control method for 12 months or less.

Among people who had an abortion and reported using birth control, the use of long-acting birth control methods, which includes sterilization, IUDs, and implants, was low. 2.3% of people who had an abortion reported use of a long-acting birth control method. Again, there were differences in use of these methods by race. 3.1% of white people reported using a long-acting method, compared to 0.9% among Black people, 1.4% among Asian people, and 3.7% among other races. Hispanic people were more likely to report use of long-acting birth control, 4.7% compared to 1.8% of non-Hispanic people. Use of long-acting birth control increased as the level

of education increased. 1.3% of people with less than a high school diploma reported using a long-acting method, compared to 1.4% of people with a high school diploma/GED, 2.3% with some college or an associate's degree, and 3.5% with a bachelor's degree or higher.

Use of Any Birth Control Method

We conducted univariate analysis for age, race, ethnicity, educational attainment, poverty status, health insurance status, income, previous abortion, and living with a partner, with the use of any birth control method as the outcome. Race, educational attainment, and poverty status were found to be significant. Non-Black people were 1.4 (95% CI: 1.1, 1.6) times more likely to use a birth control method compared to Black people. White people were 1.5 (95% CI: 1.3, 1.8) times more likely to use a birth control method, compared to non-white people. Examining the differences between each race, white people were 1.5 (95% CI: 1.3, 1.8) times more likely to use birth control compared to Black people and people in the other race category were 1.8 (95% CI: 1.3, 2.4) times more likely to use birth control compared to Black people. There were no statistically significant differences in the use of birth control between white, Asian, and other races.

Examining educational attainment, people who had a bachelor's degree or higher were 2.1 (95% CI: 1.5, 3.0) times more likely to use birth control compared to people who had less than a high school diploma. People who had some college or an associate's degree were 2.1 (95% CI: 1.5, 2.9) times more likely to use birth control compared to people who had less than a high school diploma. There was not a significant difference between people with less than a high school diploma and a high school diploma or GED.

Univariate analysis of poverty status also showed significant results. People who were at 200% or above the federal poverty line were 1.7 (95% CI: 1.4, 2.0) times more likely to use birth

control compared to people below the federal poverty line. People at 100 up to 199% of the federal poverty line were 1.3 (95% CI: 1.1, 1.6) times more likely to use birth control compared to people below the federal poverty line.

Multivariate logistic regression analyses were conducted and race, educational attainment, and poverty status were included in the final model. Controlling for the covariates in the model, white people were 1.4 (95% CI: 1.2, 1.7) times more likely to use birth control compared to Black people. People with a bachelor's degree or higher were 1.8 (95% CI: 1.3, 2.5) times more likely to use birth control, compared to people with less than a high school diploma. Similarly, those with some college or an associate's degree were 1.9 (95% CI: 1.4, 2.6) times more likely to use birth control compared to people with less than a high school diploma. Those 200% or above the federal poverty line were 1.3 (95% CI: 1.1, 1.6) times more likely to use birth control compared to those below the federal poverty line.

Use of a Long-Acting Birth Control Method

We also examined the use of long-acting birth control methods in this population, although the total proportion using long-acting methods was low (2.3%). Univariate analysis showed that white people were 3.5 (95% CI: 1.1, 10.7) times more likely to use a long-acting birth control method compared to Black people. Similarly, analysis also showed that non-Black people were 3.4 (95% CI: 1.1, 10.3) times more likely to use long-acting birth control compared to Black people. Hispanic people were 2.7 (95% CI: 1.2, 6.3) times more likely to use long-acting birth control, compared to non-Hispanic people. There were no significant differences in use of long-acting birth control based on educational attainment, poverty status, insurance status, age, income, previous abortion, or living with a partner.

We also conducted multivariate logistic regression analysis. Adjusting for the covariates in a multivariate logistic model, there were no significant results to report.

States with Most Restricted Abortion Access

A smaller selection of states was examined, including Alabama, Georgia, Louisiana, Mississippi, and Texas (n=877), which prior to the Dobbs decision had some of the most restrictive abortion laws in the region, were more likely to be in a maternal care desert, and experienced higher rates of poverty. In this population, 48.2% report using any method of birth control. The univariate results showed that white people were 2.2 (95% CI: 1.7, 3.0) times more likely to use any form of birth control, compared to Black people. People with a bachelor's degree or greater were 2.6 (95% CI: 1.5, 4.7) times more likely to use birth control, compared to people with less than a high school diploma. People who were 200% or above the federal poverty line were 1.7 (95% CI: 1.2, 2.4) times more likely to use birth control, compared to people below the federal poverty line. In addition, people who had some form of insurance were 1.4 (95% CI: 1.0, 1.8) times more likely to use birth control compared to people who did not have insurance.

We also conducted multivariate logistic regression analyses, including race and insurance status in the final model. When controlling for health insurance status, we found that white people were 2.2 (95% CI: 1.6, 3.02 times more likely to use birth control, compared to Black people. When controlling for race, people who were insured were 1.4 (95% CI: 1.0, 1.9) times more likely to use birth control, compared to people without health insurance.

There were not enough people who reported use of long acting birth control in this subset of states to report on the factors that may determine whether or not a person chooses a long acting birth control method versus a short acting birth control method.

Discussion

The results show that race, educational attainment, and poverty status were associated with whether or not a person was using birth control at the time they presented for abortion care in the Southeast region of the United States. Overall, use of any birth control method was significantly higher among white people, people with higher educational attainment, and people 200% or above the federal poverty line in those who had an abortion. Non-use of a birth control method was highest among Black people, people who did not have a high school diploma, and people who were below the federal poverty line. Previous studies have found comparable results when examining unintended pregnancies. A study using the NSFG data found that Black people, people with less educational attainment, and people below the federal poverty line were more likely to experience an unintended or unwanted pregnancy (Dehlendorf, Rodriguez, Levy, Borrero, & Steinauer, 2011).

Overall, only 50% of people presenting for abortion reported that they were using any birth control method. Condoms and the pill were the two most commonly used methods, however, the results of this study showed that they were also the methods most likely to fail among people trying to avoid pregnancy. IUD and other long-acting birth control methods (implant and sterilization) were the least likely to fail. Long-acting birth control methods are methods that do not need to be taken on a daily basis or used at the time of intercourse. Use of these methods has increased in recent years, however, comparatively few people are using long-acting birth control methods and condoms and the pill continue to be the most prevalent methods used. An analysis of the NSFG data showed that IUD use was at 14% as of 2017 among people aged 15-44, up from 1% in 1995 (KFF, 2020). Use of implants remained low, with only 4% of people aged 15-49 using implants as of 2016 (Guttmacher, 2021). Also of note, 23.7% of people

aged 15-49 reported using a permanent method, such as tubal ligation or vasectomy, as of 2018 (Guttmacher, 2021). These methods are highly effective, which may be why we saw a low percentage of people (2.3%) presenting for abortion who reported use of these methods. Although use of long-acting methods was associated with non-Black race and Hispanic ethnicity in unadjusted analysis, the low use overall may explain why there were no significant variables associated with use of long-acting vs. short-acting methods in our regression model. Improved education about and access to long-acting birth control methods may increase use of these highly effective methods and therefore reduce the number of people who experience an unwanted pregnancy.

This study highlighted the substantial racial disparities between who was and was not using birth control. Race is not a variable with biological significance, but rather a marker for disparities in access to healthcare due to systemic racism in the healthcare system. Use of any birth control method was lowest among Black people. This is not a novel finding and previous studies have reported similar results. A study that used the NSFG data found that 16% of white people reported not using a method, compared to 24% of Black people (Dehlendorf, et al., 2014). This study also found that Black people were significantly less likely to use highly effective birth control methods, such as IUDs (Dehlendorf, et al., 2014), thus increasing their risk of an unwanted pregnancy. Outreach within the Black community is important for improving birth control use to prevent an unwanted pregnancy.

Lower educational attainment was also associated with an increased likelihood of not using a birth control method. This may indicate a lack of access to basic contraceptive education early on in high school. Abstinence-only sex education programs, long proven to be ineffective, are still prevalent in the Southeast region, if sex education is even taught in the classroom

(SIECUS, 2023). Abstinence-only programs do not adequately address the different birth control options available, or provide factual information about the advantages and disadvantages of each option. Therefore, the burden is on the individual to seek information on birth control methods and options, which minors and young adults may find difficult to access. A study using the NSFG data found similar results, people with less educational attainment were more likely to experience an unintended or unwanted pregnancy (Dehlendorf, Rodriguez, Levy, Borrero, & Steinauer, 2011). Conversely, studies have shown that improving access to birth control increases educational attainment. After Colorado expanded access to birth control at low or no cost, high school graduation rates increased by 1.7% (Stevenson, Genadek, Yeatmen, Mollborn, & Menken, 2021).

Lack of education on birth control methods was highlighted in a recent study from the Kaiser Family Foundation (KFF). This study found that 32% of a nationally representative sample of adults 18-64 reported being concerned about the side effects of birth control, 14% reported that they did not know they could get pregnant, 11% reported not being able to find a method that suited them, and 9% reported not knowing which birth control method to use (Frederiksen, Ranji, Long, Diep, & Salganicoff, 2022). Timely access to a person's preferred birth control method was also a concern. Of the people who used a form of oral contraceptive as their birth control method, 33% reported that they were unable to refill their prescription on time and missed taking a dose (Frederiksen, Ranji, Long, Diep, & Salganicoff, 2022). Further, only 30% of users of a birth control method report having all the information they needed prior to starting use of a birth control method (Frederiksen, Ranji, Long, Diep, & Salganicoff, 2022).

Poverty status was also a significant indicator of whether a person was using birth control. This may indicate that birth control is unattainable for many people due to prohibitive

costs. This could also explain the low use of long-acting birth control, which tends to be more costly than less effective methods. The average out-of-pocket cost for an IUD is up to $1,300 for someone without insurance or who cannot use their insurance, and requires an exam and that it be inserted by a provider (Bharadwaj, 2022). Comparatively, condoms cost on average $1 each and are more accessible, even though they are a less effective method.

Previous studies have also found that income is a factor. Another study found that 23% of low-income people were not using their preferred method and that they were more likely to be non-users of a long-acting birth control method (Kavanaugh, Pliskin, & Hussain, 2022). Dissatisfaction with a birth control method may result in eventual non-use of any method. This study also found that 25% of low-income people did not use any form of birth control, but of this population, 39% reported that they would use a method if they could afford birth control (Kavanaugh, Pliskin, & Hussain, 2022).

Examining the smaller selection of states in the Southeast region where abortion was restrictive even prior to the Dobbs decision, insurance status was also found to be a significant factor in whether someone used birth control. Again, the out-of-pocket costs for birth control is likely a factor for many people. As referenced above, the cost of an IUD is up to $1,300 and the cost of the pill averages $50 a month for someone without insurance, not including the cost of the exam that may be required to obtain a prescription (Planned Parenthood, 2020). Comparatively, for someone with insurance, there is likely no out-of-pocket cost for birth control. Access to birth control, for a multitude of reasons, remains an issue for many people.

Race was also a factor in this smaller selection of states. These states have higher minority populations compared to the larger Southeast region, yet there is greater disparity in use of birth control. White people in these states were more than twice as likely to use birth control,

compared to Black people. This indicates there are significant disparities in access and care for Black people, again a marker of systemic racism within the healthcare system.

Most of the states in the Southeast region of the United States already had restricted access to abortion care prior to the Dobbs decision by limiting at what gestational age abortion care could be provided, requiring parental notification for minors to receive care, and other restrictions aimed solely at curbing abortion care. After the Dobbs decision, many of these states took the step to completely ban most or all abortions, making it imperative that patients in these states understand their options for preventing an unwanted pregnancy. The data used in this study was collected prior to the Dobbs decision and data is not yet available on how Dobbs may influence a person's decision to use birth control. However, this study highlighted the need for better access to birth control and improved outreach and education on all available birth control methods. Data on why someone was not using birth control or whether a person was using their preferred birth control method was not collected in this survey. Collecting this information would allow further research on why the use of birth control is low among people presenting for abortion care.

Limitations

There were some limitations to this study. While the survey sample is representative at a regional level, it did not capture birth control use in all people who have had an abortion. There may also be differences at state and local levels that are masked by examining birth control use regionally.

It's possible that there was bias in how the surveys were administered. Distribution of the survey may not have been administered to all patients who sought an abortion at the clinic during the time the survey was being collected. The clinic may have been selective in who was given

the survey and this would have introduced selection bias. The survey was also only available in English and Spanish, which excludes patients who were not strong in reading either English or Spanish.

This study only explores birth control use among people who had an abortion. There may be differences in use of birth control in people who experience an unintended pregnancy and did not seek or could not access abortion care. It also does not address people who were trying to get pregnant but had a pregnancy that was not viable, or where their health was at risk and therefore sought an abortion. Since the survey also did not ask why a person was seeking an abortion, it is possible that some people seeking an abortion did originally intend to become pregnant, which may influence whether or not a person was using a birth control method.

Additional studies are needed to better understand why use of birth control is not more prevalent among people who had an abortion, and the role of access and education. More current data is also needed to understand the impact of the Dobbs decision on use of birth control now that many people no longer have access to safe abortion care.

Chapter 3: Public Health Implications and Future Direction

The impact of the Dobbs decision on birth control use and abortion care is still unknown beyond anecdotal reports of people not able to obtain the abortion care they need, which in many cases is putting a person's life at risk. Additional studies are needed to quantify the impact of the Dobbs decision and understand if it has changed birth control use. The Dobbs decision has limited or eliminated safe abortion care in many states and most people are in a location where they can no longer reasonably access safe abortion care. Yet, the prevalence of use of birth control among people presenting for abortion is low and additional studies are needed to understand why. It's likely that even though most health insurance plans are required to cover

birth control that access and cost remain issues. 64% of people included in this study reported having health insurance, yet use of birth control was seen in only 50% of people. Education on birth control options and the effectiveness of each method may also impact the percentage of people using a birth control method. It's likely that many people have not received adequate sex education that included information on birth control and therefore do not understand their options, or which methods are most effective. Better education on birth control, starting early in high school, is critical.

Abortion care remains a polarizing, political issue in the US. However, one solution would be to introduce a health policy that provides access to safe abortion care in each state and gives people the right to access this basic health care service when they need it. Decisions on medical treatment should be left in the hands of trained physicians and not law makers, most of which have no medical training or medical knowledge. Congress should not be making policies that impact a person's ability to obtain health care treatment. A national policy that provides access to safe abortion care in each state and improves protections for physicians who provide abortion care is one recommendation.

Another recommended health policy is a national, fact-based sex education program that starts in middle school and includes education on effective birth control methods and the advantages and disadvantages of each method. It should also provide resources on where people can obtain more information on options birth control methods and where people can go to obtain birth control. This program should also include information on what birth control is covered by type of health insurance and how to obtain a preferred birth control method at low or no cost. Lower educational attainment was strongly associated with non-use of birth control. A national

program like the one proposed above would help to increase use of birth control and thus reduce unintended pregnancies.

Lastly, a policy addendum aimed at further mitigating the costs of birth control for people who do not have health insurance would be a step towards increasing access to birth control. The Affordable Care Act of 2011 required that most health insurance plans cover the cost of birth control, however, it does not address access to birth control for those who are uninsured and do not qualify for Medicaid. This study showed that 36% of people presenting for abortion did not have a form of health insurance, which is much higher than the current national average of 11% for people aged 18-64 (Tsai, 2023). While we were not able to examine the reasons why a person was not using birth control, the cost of seeing a physician to obtain a prescription and the high out-of-pocket cost of filling the prescription is a likely factor. Making birth control, including highly effective birth control methods, accessible for people without insurance will help to reduce the number of unintended pregnancies.

Tables

Table 1: Weighted Demographic Information, Southeast Region

Demographic Variables	**n**	**Percentage**
	2,434	
Race		
Asian	110	4.53
Black	980	40.25
White	1122	46.10
Other	222	9.12
Ethnicity		
Hispanic	431	17.73
Non-Hispanic	2002	82.27
Age		
15-19	234	9.59
20-24	815	33.48
25-29	653	26.83
30-34	425	17.48
35-39	234	9.62
40+	73	3.00
Educational Attainment		
Less than High School Diploma	222	9.14
High School Diploma/GED	680	27.94

Demographic Variables	n	Percentage
Some College or Associate's Degree	1003	41.22
College Graduate or more	528	21.70
Poverty Category		
<100%	1,077	44.24
100-199%	668	27.46
200%+	689	28.31
Insurance		
Insured	1539	63.24
Uninsured	895	36.76
Birth Control at Time of Abortion		
User	1222	50.19
Non-User	1212	49.81
Birth Control Type		
Long-acting	28	2.27
Short-acting	1194	97.73
Birth Control Method		
Condoms	574	23.58
Pill	281	11.56
Patch	6	0.23
Ring	37	1.53
Depo-Provera	35	1.45
Withdrawal	234	9.62
Rhythm	2	0.08
IUD	19	0.80
Sterilization	6	0.25
Implant	2	0.09
Other	24	0.99
None	1212	49.81
Length of Birth Control Use		
12 months or Less	1207	59.95%
Longer than 12 Months	806	40.05%

Table 2: Univariate Analysis, Use of Birth Control

Univariate Analysis	n	Odds Ratio	p-value
Age Category (under 20 vs. 35-39)	2434	1.245 (.856, 1.810)	.2506
Race (white vs. Black)	2434	1.490 (1.250, 1.776)	< .0001
Hispanic (yes vs. no)	2434	.846 (.680, 1.051)	.1310
Insurance Status (yes vs. no)	2434	1.229 (1.096, 1.539)	.0026
Educational Attainment (college graduate vs. less than high school diploma)	2434	2.138 (1.533, 2.981)	< .0001
Educational Attainment (some college vs. less than high school diploma)	2434	2.102 (1.544, 2.863)	< .0001
Educational Attainment (high school vs. less than high school diploma)	2434	1.308 (.948, 1.805)	.1018
Income (>24,999 vs. <=24,999)	2241	1.465 (1.236, 1.736)	< .0001
Poverty Category (>200% vs. <100%)	2434	1.651 (1.356, 2.011)	< .0001
Poverty Category (100-199% vs. <100%)	2434	1.320 (1.083, 1.608)	.0059
Cohabiting (yes vs. no)	2403	1.000 (.849, 1.178)	1.000
Previous Abortion (yes vs. no)	2434	1.033 (.880, 1.214)	.6895

Table 3: Univariate Analysis, Use of Long Acting Birth Control

Univariate Analysis	n	Odds Ratio	p-value

Age Category (under 20 vs. 35-39)	1222	1.078 (.209, 9.602)	.9282
Race (white vs. Black)	1222	3.495 (1.142, 10.695)	.0283
Hispanic (yes vs. no)	1222	2.720 (1.185, 6.247)	.0184
Insurance Status (yes vs. no)	1222	1.363 (.560, 3.320)	.4944
Educational Attainment (college graduate vs. less than high school)	1222	1.084 (.118, 9.933)	.9429
Educational Attainment (some college vs. less than high school)	1222	1.780 (.226, 14.017)	.5835
Educational Attainment (high school vs. less than high school)	1222	2.787 (.349, 22.292)	.3336
Income (>25,000 vs. <24,999)	1142	1.287 (.578, 2.869)	.5364
Poverty Category (>200% vs. <100%)	1222	1.611 (.620, 4.183)	.3273
Poverty Category (100-199% vs. <100%)	1222	1.388 (.488, 3.944)	.5384
Cohabiting (yes vs. no)	1208	1.123 (.507, 2.486)	.7751
Previous Abortion (no vs. yes)	1222	1.296 (.588, 2.859)	.5199

Table 4: Univariate Analysis, Alabama, Georgia, Louisiana, Mississippi, and Texas, use of birth control

Univariate Analysis	**n**	**Odds Ratio**	**p-value**
Age Category (under 20 vs. 35-39)	877	1.030 (.557, 1.902)	.9259
Race (white vs. Black)	877	2.234 (1.661, 3.005)	< .0001
Hispanic (yes vs. no)	877	1.248 (.858, 1.815)	.2467
Insurance Status (yes vs. no)	877	1.360 (1.027, 1.800)	.0318
Educational Attainment (college graduate vs. less than high school)	877	1.736 (.991, 3.041)	.0540
Educational Attainment (some college vs. less than high school)	877	2.082 (1.217, 3.564)	.0075
Educational Attainment (high school vs. less than high school)	877	2.638 (1.484, 4.689)	.0010
Income (>25,000 vs. <24,999)	812	1.450 (1.090, 1.930)	.0108
Poverty Category (>200% vs. <100%)	877	1.544 (1.113, 2.140)	.0093
Poverty Category (100-199% vs. <100%)	877	1.688 (1.204, 2.366)	.0024
Cohabiting (yes vs. no)	865	1.188 (.901, 1.565)	.2212
Previous Abortion (yes vs. no)	877	.990 (.753, 1.301)	.9404

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