



Pregnancy Study Online (PRESTO)

BOSTON
UNIVERSITY



Welcome to the inaugural issue of the participant newsletter for Pregnancy Study Online (PRESTO)!

Our goal is to connect with past and current PRESTO participants regarding our recent research developments, all of which depend on your time and contributions to our research. We also hope to provide other relevant information regarding fertility and pregnancy, and spotlight members of the PRESTO team.

First, we are pleased to announce that **we recently enrolled our 15,000th female participant!** We truly could not do this work without you. Thank you for your participation, and we hope that you find this newsletter informative and engaging.

We encourage you to re-enroll if you are planning another pregnancy or refer our information to a friend who may be interested or eligible. Enrollment information can be found on our [website](#) under the “Enroll” Tab.

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Research Highlight: Male Marijuana Use and Miscarriage

Recreational use of marijuana is becoming increasingly common across the United States, with South Dakota, Montana, Arizona, Vermont, and New Jersey joining the list of states that have fully legalized marijuana in 2020 alone. Despite this, there has been little research on men's marijuana use and their partner's pregnancy outcomes. A recent PRESTO publication led by Alyssa Harlow, a doctoral student, found that men who used marijuana more than once a week before conception had twice the risk of their female partner experiencing a miscarriage compared with non-users of marijuana. We took great care to make sure other factors, such as reproductive history, were not affecting our findings.

We found that male marijuana use was more strongly related to early first trimester miscarriage, as opposed to later miscarriages. Early miscarriages are often caused by abnormalities in the DNA of sperm or egg, and previous research has shown that marijuana use is related to DNA damage and semen quality.

Paternal age was also important in shaping miscarriage risk. Male marijuana use was more strongly linked to miscarriage risk for men older than 35. Paternal age is also related to higher risk of miscarriage because sperm DNA anomalies occur more often in older men.



We previously found that male marijuana use is not related to [fertility](#); therefore, it may be that damaged DNA from marijuana use is not a barrier to conceiving a child, but may be related to early miscarriages. In this study, it was only male marijuana use that contributed to an increased risk of miscarriage – female use was not related to higher risk of miscarriage.

This is the first study to examine male marijuana use and miscarriage risk, and our findings need to be confirmed in future studies. However, male partners who currently smoke marijuana more than once a week may want to consider using marijuana less often while trying to conceive to lower their risk of miscarriage, especially if they are older than 35 years.

If you are interested in learning more about this study, you can read the entire paper [here](#). If you have questions, please do not hesitate to reach out to us at bupresto@bu.edu.

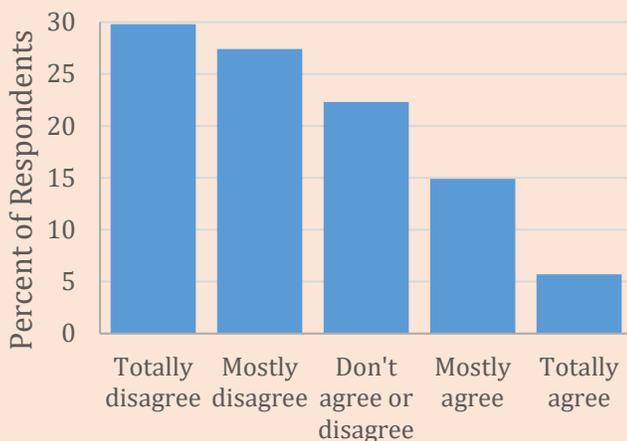
The COVID-19 Pandemic: Implications for couples trying to conceive

The ongoing COVID-19 pandemic has caused immense suffering and hardship across the globe. We mourn the more than 2.6 million people who have lost their lives to COVID. We stand in solidarity with those struggling from job loss and financial insecurity. The pandemic has changed the way we connect with each other and offer each other support, which can drastically affect mental health and well-being.

We recognize that these challenges are compounded during life transitions, such as planning for a family, and we appreciate the unique burden this pandemic has had on the lives of PRESTO participants. In May of 2020, we added a series of questions to our questionnaires on COVID-19, and here, we share some of these data with you and describe our plans to use these data moving forward.

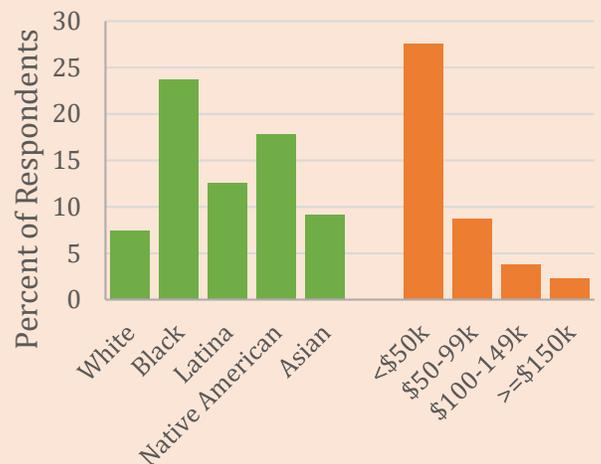
First, we asked how much you agreed with the following statement: “I am worried about the coronavirus affecting my chances of a successful pregnancy.” Over 20% of you “mostly agreed” or “totally agreed” (Figure 1). Our ongoing research will examine the effects of COVID-19 infection on reproductive health.

Figure 1. Distribution of responses to the statement, “I am worried about the coronavirus affecting my chances of a successful pregnancy.”



Second, the pandemic has shed light on long-standing systemic health and social inequities. These inequities were evident in our data: Black individuals and those with a household income of <\$50,000/year were most likely to report that their financial security was “severely affected” by the pandemic (Figure 2). Future work in PRESTO will examine how pandemic-related stressors have influenced health outcomes within our cohort.

Figure 2. Proportion of PRESTO participants who reported that their financial security was severely affected by the pandemic.



Finally, many reproductive-aged women have expressed concerns that COVID-19 vaccination will affect their fertility. The scientific evidence to date (summarized [here](#)) does not support an adverse effect of COVID-19 vaccination on fertility or pregnancy outcomes. We are urgently working on analyzing this question in PRESTO, and will alert participants when findings are available.

We have previously studied the [flu vaccine](#) and the [HPV vaccine](#) and have found no adverse effects on fertility.

Other Recent PRESTO Findings



Contraceptives and Fertility

In PRESTO and Snart Foraeldre, a Danish study with similar design, use of some hormonal contraceptive methods was associated with delays in return of fertility. Injectable contraceptives showed the longest delay (five to eight menstrual cycles). However, there was little lasting effect of long-term use of hormonal contraceptive methods on fertility. Read the full study [here](#).

Income/Education and Fertility

In PRESTO, we found that higher annual household income and educational attainment were associated with shorter time-to-pregnancy. Read the full study [here](#).

Fish Intake and Fertility

Higher intake of fried shellfish was associated with longer time-to-pregnancy among North American women. However no other associations were observed related to seafood intake and fertility. Read the full study [here](#).

Asthma and Fertility

In PRESTO, women with history of diagnosed asthma and asthma medication use were not at higher risk of longer time-to-pregnancy. Read the full study [here](#).

Flu Vaccination and Fertility

In PRESTO, preconception influenza vaccination ("flu shot") in either the male or female partner was not associated with longer time-to-pregnancy. Read the full study [here](#).

Male Alcohol Consumption and Fertility

In PRESTO and Snart Foraeldre, there was little association between male alcohol consumption and fertility. Read the full study [here](#).

Season and Fertility

The probability of conceiving may vary by season: couples were most likely to conceive in the late fall and least likely to conceive in the late spring. This association was strongest at southern latitudes. Read the full study [here](#).

Glycemic Index, Fiber and Fertility

Glycemic load measures the impact of specific foods on blood sugar. In PRESTO and Snart Foraeldre, diets high in glycemic load, carbohydrate-to-fiber ratio, and added sugar were associated with slightly longer time-to-pregnancy. Read the full study [here](#).

Abnormal Pap Smears and Fertility

A history of treatments for cervical intraepithelial neoplasia or abnormal Pap smears was not associated with fertility. Read the full study [here](#).



Future Research: Environmental Exposures and Pregnancy

Much of our future work in PRESTO will focus on how the environment affects fertility and miscarriage. We have received two large grants from the National Institutes of Health to study how air pollution and chemical exposures are related to reproduction. PRESTO is the largest study to examine these associations, and could provide key information on how the environment shapes human reproduction.

Our assessment of air pollution and fertility is underway. Living close to expressways and highways is a major source of exposure to traffic-related air pollutants. In a [recent publication](#), we measured how far PRESTO participants lived from major roads. We found that women who lived within 50 meters (150 feet) of a major road were 12% less likely to conceive in a given menstrual cycle compared with women who lived farther from major roads. Our next step is to use air pollution monitoring data from the U.S. Environmental Protection Agency to estimate participants' exposure to specific air pollutants. We are collaborating with air pollution experts at the University of Washington School of Public Health to complete this project.

We also recently launched a pilot study that uses FreshAir wristbands to measure pollutants in the environment. These wristbands, developed by a team at Yale University, can measure levels of over 100 chemicals in the air. Our hope is that this work will help us learn more about how chemicals that people are exposed to in everyday life can influence their chances of a successful conception and healthy pregnancy.



Also underway is “Environmental Pregnancy Study Online” (E-PRESTO), in which we are measuring participants' exposure to environmental chemicals. We are inviting a subset of women and men who live or work in the Boston, MA or Detroit, MI areas to visit our clinics in these cities to provide blood and urine samples. If you are eligible to participate we will contact you. We will then measure chemicals commonly found in household and consumer products, food packaging, and cosmetics, and assess how exposure to these chemicals is related to fertility and miscarriage. E-PRESTO participants will be able to access the results of their individual chemical analyses, when they are available.

We will be launching a mail-based component of E-PRESTO in the coming months, where we will ask participants from across the U.S. to collect their urine samples at home and ship them to us on ice. Collecting urine through the mail will allow us to enroll a broader group of participants from the larger PRESTO cohort.

These studies are in progress. We look forward to sharing our results with you when they are available.

PRESTO Team Member Spotlight: Marlon Joseph and Sydney Willis



Mr. Marlon D. Joseph, MPH

Marlon is a doctoral student in the Epidemiology Program at the BU School of Public Health. He is interested in men's reproductive health and lifestyle factors. His dissertation, which uses PRESTO data, focuses on lifestyle determinants of poor semen quality. In particular, he will examine patterns related to body size and soda intake in relation to reproductive health outcomes.

Marlon also teaches at St Francis College in New York City. His research in the past focused on breast cancer mortality in Trinidad and Tobago. Marlon has represented Trinidad and Tobago at the European Union, Latin American and Caribbean Countries Health Project (EULAC health project) and has attended strategic planning workshops in Mexico City and Madrid. Marlon was recently invited to collaborate with the National Health Committee to develop national guidelines for breast cancer screening in Trinidad and Tobago.

In his spare time, Marlon enjoys traveling and spending time with family in nature, especially on the beach. He enjoys playing soccer, listening to reggae music, and is an avid photographer.



Dr. Sydney K. Willis, PhD

Sydney Willis is a recent graduate of the Epidemiology Program at the BU School of Public Health. She had been conducting data analyses on the extent to which dietary factors (such as glycemic load, carbohydrates, red meat intake, dietary inflammation) and dietary allergens influence female and male fertility. She recently defended her dissertation which focused on the association between dietary factors, including dietary patterns and dietary allergens, and reproductive outcomes.

Sydney graduated with a BS in Anthropology and an MPH from the University of Utah. During her time at the University of Utah, she worked on fertility awareness methods research, including the effects of tracking menstrual periods and fertility signs in helping couple time intercourse to maximize their chances of a successful pregnancy and on analyzing day-specific probabilities of pregnancy.

On the weekends, you can often find her hiking in a nearby forest or at the beach.