



Pregnancy Study Online (PRESTO)

BOSTON
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We are excited to share the 2023 Pregnancy Study Online (PRESTO) annual newsletter with you!

During the past year, PRESTO received funding from the National Institutes of Health to continue for another five years. PRESTO also received funding to explore how climate change and other environmental factors influence reproductive health. Plus, we assembled a Scientific and Community Advisory Board (for more information, visit our website at presto.bu.edu).

The PRESTO team is tremendously grateful for your participation, and we hope you find this newsletter helpful and informative. **We could not do any of this without you!**

1. Research Highlight: Neighborhood Characteristics and Fertility
2. Research Highlight: Sexual Health in the Preconception Period
3. Other Recent PRESTO Findings
4. Ongoing and Future PRESTO Research
5. Team Member Spotlight: Jennifer Yland and Martha Koenig

Research Highlight: Neighborhood Characteristics and Fertility

Take-Home Messages

- Neighborhood socioeconomic disadvantage was associated with reduced fertility.
- Living near plants, trees, and grassed areas was associated with greater fertility.
- This research underscores the importance of well-designed, maintained, and resourced neighborhoods for reproductive success.

We examined associations of neighborhood disadvantage (Willis et al., *JAMA Network Open* 2022) and greenspace (Willis et al., *Environmental Health Perspectives* 2023) with fertility.

In the first paper, we assessed neighborhood disadvantage using the Area Deprivation Index (ADI), a combination of markers of disadvantage such as housing conditions, employment rates, income, and educational attainment. We found that couples living in neighborhoods with more disadvantage (higher ADI scores) took longer to conceive than those living in more advantaged neighborhoods.

In the second paper, we examined the influence of green space in one's neighborhood on fertility. There is evidence that greater exposure to greenery may improve health by facilitating physical activity, strengthening social connections, and reducing stress. We found that residential green space was associated with greater fertility.



These studies were some of the first to examine how where people live influences their ability to conceive.

Neighborhood characteristics are not easily modifiable without action from local and state government. While most fertility research focuses on individual and couple-based exposures, our findings suggest that investments in the neighborhoods where we live may create environments conducive to reproductive success.

You can read the full papers [here](#) and [here](#).

Research Highlight: Sexual Health in the Preconception Period



For many couples, having sex is a key part of trying to have a baby. Couples dealing with infertility often report sexual health issues, which can include feeling a lack of desire or arousal. However, less is known about the sexual health of couples trying to have a baby who are not experiencing infertility.

We introduced the **Sexual Health and Well-Being Survey** to PRESTO in March of 2021 to examine these topics. This optional survey is available to all female participants. We have published two papers using data from this survey.

In the first paper, we described the methods behind development of the survey and predictors of participation. We published this in the *Journal of Sexual Medicine* (Bond et al., 2022).

Take-Home Messages

- Pain and distress around sex were common in the preconception period.
- Most participants did not discuss their sex lives with a healthcare provider when mentioning their plans to conceive, even if they were experiencing problems.

In the second paper, we described sexual health and well-being among participants. We found that 1 in 3 participants reported some pain with sexual intercourse in the past four weeks (Bond et al. *Am J Obstet Gynecol* 2023). We also found that 12% of participants experienced feeling distressed about their sex lives in the past four weeks.

We also asked participants about whether they discussed their sex lives with a healthcare provider when discussing plans to conceive. Most participants, even those who reported sexual distress, did not discuss it with a provider.

Our findings suggest that sexual health issues are not uncommon among people trying to become pregnant, even when they have not been trying for very long. People rarely discuss these issues with a healthcare provider. This research is a first step in determining how to support the sexual wellness of people trying to have a baby.

You can read more [here](#) and [here](#).

Other Recent PRESTO Findings

Hair Relaxers and Fertility

Current and former users of hair relaxers experienced a longer time-to-pregnancy, particularly those with longer durations of use, more frequent use, earlier ages at first use, and more chemical burns during their application. Read more [here](#).



Diet Quality and Fertility

Anti-inflammatory diets and Mediterranean diets were associated with shorter time-to-pregnancy among pregnancy planners. Read more [here](#).

Male Heat Exposure and Fertility

Personal exposures to heat among male participants were associated with slightly longer time-to-pregnancy. Read more [here](#).



Antibiotics and Miscarriage

Antibiotic use in early pregnancy was not associated with miscarriage. Read more [here](#).

Please contact us at bupresto@bu.edu if there is an article you are interested in reading and have trouble accessing.

Mail-based Biological Sample Collection

Despite a slightly higher cost compared with in-clinic collection, mail-based collection of biological samples was more widely accepted by participants and increased recruitment of geographically and racially/ethnically diverse study populations. Read the full paper [here](#).



Migraine and Miscarriage

Overall, having a history of migraines was not associated with miscarriage, but more severe migraines, suggested through certain medication patterns, were associated with a slightly higher risk of miscarriage. Read the full paper [here](#).



Fertility-Tracking App and Fertility

Use of a fertility-tracking app may help couples conceive faster. Read the full paper [here](#).

Fertility and Postpartum Depression

Participants who experienced a longer time-to-pregnancy were more likely to report symptoms of postpartum depression. Read the full paper [here](#).

Ongoing Research



PRESTO Renewal Grant

We recently received funding from the NIH to continue PRESTO for another five years. With this funding, we will enroll additional couples who are trying to conceive and conduct research examining how sleep, stress, and life course adversities are associated with healthy pregnancies. We will also study how social support can buffer the health effects of adversity. **The supplemental Psychosocial Questionnaire, available in the participant portal of all past and current PRESTO participants, is critical to this work and we encourage you to complete it!**

We will use novel data collection methods to measure sleep and stress. Specifically, we are inviting participants to enroll in a **Fitbit substudy** where they will wear a Fitbit for two months and share their data with us. Participants can keep the Fitbit at the end of the study period. We are also testing the **collection of hair and saliva** through the mail. These specimens will be used to measure cortisol and alpha-amylase, which are biomarkers of stress. We will contact currently enrolled participants if they are eligible for these sub studies.

We will also conduct qualitative research to identify facilitators and barriers to participation among people of color. With the goals of making PRESTO more relevant and welcoming to a broader group of participants, we will conduct focus groups to identify personal and cultural factors that contribute to decision-making about participation and gauge reactions to existing and proposed recruitment methods in PRESTO.

We look forward to sharing the results of these research projects with you when they become available.



Oil and Gas Drilling Grant

This year, Dr. Mary Willis received a grant to study effects of residential proximity to oil and gas drilling sites on reproductive health in PRESTO. This highly competitive grant, known as the National Institutes of Health Director's Early Independence Award, is only awarded to a handful of early-career scientists who propose valuable and innovative research questions.

Oil and gas drilling sites are the scene of a range of industrial activities that can pollute surrounding areas. Water contamination, noise pollution, and air quality are just a few issues that have the potential to harm human health, particularly reproductive outcomes such as infertility and miscarriage. At the same time, the oil and gas industry fundamentally changes the economic and social fabrics of affected communities.

Research on this topic is scarce, however, Dr. Willis and her collaborators hope that this research not only fills a gap in scientific literature, but also informs local communities and policy makers about the safety of these activities. To learn more, please click [here](#).

PRESTO Team Member Spotlight



Jennifer Yland, PhD

Jennifer Yland received her PhD in Epidemiology from the Boston University School of Public Health in May 2023 and her MS in Epidemiology from the Harvard T.H. Chan School of Public Health in 2018. Her dissertation research focused on using observational data to emulate randomized trials assessing the safety of medications used before and during pregnancy. Her work has evaluated a variety of medications including contraceptives, asthma medications, and vaccines. Dr. Yland has published in top journals including *BMJ* and *AJE*. She started a new job as an Epidemiologist at Optum in May.

In her spare time, Jennifer enjoys trail running, visiting local farmers markets, and hiking with her family and dog.



Martha Koenig, MPH

Martha Koenig received her MPH in Epidemiology and Biostatistics from Boston University School of Public Health in January 2023, and has been working on the PRESTO study since November of 2020. She is now a Research Fellow on PRESTO and oversees many study operations and conducts data analysis for various projects. Martha is passionate about science which gives growing families accurate information about fertility and pregnancy, and she is particularly interested in the role of environmental chemicals and nutrition. Martha grew up in Appleton, Wisconsin, and currently lives in South Carolina.

In her spare time, Martha enjoys hiking with and training her Westie puppy, Casper, going to yoga classes, and listening to live music.

Have questions about participation in PRESTO?
Want to enroll again, or invite a friend to enroll?
Curious to learn more about our findings?
Have suggestions for future research or future newsletters?
Contact us at bupresto@bu.edu or (617) 358-3424