

# Are pandemic-related stressors increasing young women's vulnerability to STIs?

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Researchers at the University of Illinois Chicago have been awarded \$2.6 million in research funding from the National Institutes of Health to study how pandemic-related stressors influence sexual behavior and risk

of sexually transmitted infections among girls and young women in Kenya.

The award will allow the UIC researchers to continue an [ongoing study](#) of 436 secondary school-aged [girls](#) in western Kenya through 2023 and incorporate new survey measures around the socioeconomic, behavioral and psychosocial impact of the COVID-19 crisis in the region into the study.

"We want to understand how this relates to girls' sexual exposures, and subsequent risk of bacterial vaginosis, STIs and HIV," said Supriya Mehta, professor of epidemiology and biostatistics and interim associate dean for global health at the UIC School of Public Health. "We will specifically look at the association between biological measures of stress, like cortisol and estradiol levels, and rates of infections."

The original study, which began in April 2018 by co-investigator Penelope Phillips-Howard at Liverpool School of Tropical Medicine, aimed to understand the impact of menstrual cups and the role of the vaginal microbiome in mitigating rates of bacterial vaginosis and STIs in a randomized controlled trial in western Kenya's Siaya County. In this region, gender inequities and stigmas around menstruation are significant. Research has shown that it is common for girls to engage in transactional sex to obtain necessities such as sanitary products, soap and underwear, and that [young women](#) ages 15-19 carry a disproportionate share of STIs and other reproductive system infections.

Following the first 18 months of the study, which took place prior to the COVID-19 pandemic, the team found that an optimal vaginal microbiome, which can aid in preventing infections, was most likely among girls who did not report sexual activity. A non-optimal vaginal microbiome was mostly likely among girls who used cloth to manage their menses, girls who were older, and those who were sexually active.

"When considered alongside the fact that the rates of a non-optimal vaginal microbiome among adult women in the area are high, this suggests that vaginal health is most likely altered with certain behaviors and that a non-optimal composition may be preventable," Mehta said. "Adolescence could be a critical intervention point for preventing adverse reproductive health outcomes."

They also found that the prevalence of infections was high, with about 10% of girls having STIs and 11% having bacterial vaginosis, an inflammatory condition caused by an overgrowth of certain bacteria naturally found in the vagina.

These recent findings are reported in the journal *Frontiers in Cellular and Infection Microbiology*.

Mehta said the new NIH award is critical to understanding the reproductive health of girls in Kenya, where COVID-19 lockdowns and school closures have significantly affected the community and likely altered girls' access to and reliance on exchange sex for necessities, particularly those that may have been otherwise available through schools.

Preliminary post-pandemic data from the study—collected in fall 2020, during month 30 of the study—shows a dramatic increase in infections when compared with data collected one year prior: a 55% increase in BV (about 14% to 22%) since month 18 and a 34% increase in STIs (about 12% to 16%) since month 12. Adjusted for socioeconomic factors, girls reporting high COVID-related stress and interpersonal violence had increased odds of infections.

"I think these early numbers illustrate the need for further investigation, and we are grateful for the opportunity to continue our research," said Mehta, who hypothesizes that the increased vulnerability to infections is

related, at least in part, to changes in the vaginal microbiome that results from increased stress hormones in the body.

"Adolescents are especially sensitive to stress-induced effects on the endocrine and reproductive systems. Increased stress and subsequent rise in cortisol lead to reduced estrogen, which is necessary to support the right balance of microbes in the vagina to help prevent BV, STIs and HIV," Mehta said. "The information we uncover could impact the health of girls and young women in the region, and it also has the potential to shed light on important connections between reproductive [health](#) and life experiences such as long-term stress and trauma."

**More information:** Supriya D. Mehta et al, High Prevalence of *Lactobacillus crispatus* Dominated Vaginal Microbiome Among Kenyan Secondary School Girls: Negative Effects of Poor Quality Menstrual Hygiene Management and Sexual Activity, *Frontiers in Cellular and Infection Microbiology* (2021). [DOI: 10.3389/fcimb.2021.716537](https://doi.org/10.3389/fcimb.2021.716537)

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