

Sustained stress heightens risk of miscarriage

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Credit: American Friends of Tel Aviv University (AFTAU)

Several studies have examined the impact of stress on a pregnancy – both chronic stress, such as workload, and acute stress associated with traumatic events like the 9/11 terrorist attacks. They conclude that stress can lead to adverse birth outcomes, including miscarriage and premature birth.

Few studies, however, assess the impact of continuous military or political stress throughout a pregnancy, says Prof. Liat Lerner-Geva of Tel Aviv University's Sackler Faculty of Medicine and the [Women](#) and Children's Health Research Unit at The Gertner Institute for Epidemiology and [Health Policy Research](#) Ltd, Tel Hashomer. Now her

new study, conducted with PhD student Tamar Wainstock and Prof. Ilana Shoham-Vardi of Ben Gurion University, Prof. Eyal Anteby of the Barzilai Medical Center, and Saralee Glasser of Gertner Institute, Tel Hashomer, reveals that living under these sustained stresses significantly increases the risk of miscarriage.

Following the pregnancies of women from the Israeli town of Sderot, which is constantly under threat of rocket bombings from Gaza, and women from nearby Kiryat Gat, which is outside of Gaza's rocket range, the researchers demonstrated that those living under rocket fire were 59 percent more likely to miscarry than their neighbors.

These results, published in the *Psychosomatic Medicine Journal of Biobehavioural Medicine*, should be a call-to-action for practitioners, advises Prof. Lerner-Geva, who suggests making intervention readily available to pregnant women in stressful and threatening situations.

Studying stress under fire

Sderot has been a constant target of rocket fire from the Gaza Strip since 2001. Rocket attacks are preceded by an alarm warning residents to take shelter. The alarms themselves are loud, sudden, and themselves stress-inducing—once they sound, Sderot residents have only seconds before the rocket hits. Between 2001 and 2008, more than 1,000 alarms were sounded in the vicinity of Sderot. Since 2001, rockets exploding in the town have killed at least 13 residents, wounded dozens, and caused extensive property damage.

To study the impact of such sustained stress on pregnancy, researchers turned to the medical records at Barzilai Medical Center, a hospital which serves both Sderot and Kiryat Gat. They followed the pregnancies of 1,345 women from Sderot who were exposed to alarms and subsequent rocket fire, and 2,143 residents of Kiryat Gat who live out of

missile range. The medical records were then cross-referenced to local municipal databases that track the number and location of rocket attacks.

In the unexposed group in Kiryat Gat, miscarriage rates were 4.7 percent, which accords with predictions from existing medical research literature. In the exposed group in Sderot, however, 6.9 percent of women miscarried—a statistically significant increase. The results were controlled for other risk factors for miscarriage, such as age and other medical conditions.

Within the exposed group, the researchers also analyzed the intensity of exposure. Not every neighborhood in Sderot was subject to the same number of attacks, notes Prof. Lerner-Geva, and the researchers originally hypothesized that women in higher stress areas would have a higher probability of miscarriage. However, the results indicate that women in both high-intensity and low-intensity areas were at the same risk. One explanation is that the constant fear of attack is as stressful as the attacks themselves, she concludes.

Prevention through intervention

One advantage that healthcare providers have in dealing with populations under constant threat is that they can make use of early intervention, says Prof. Lerner-Geva. "Most of the Sderot pregnant women receive prenatal care through community health clinics. This presents an opportunity to run preventive interventions to reduce stress or even provide one-on-one counseling."

Currently, she and her fellow researchers are conducting further studies on the same population to determine whether sustained [stress](#) had an impact on other negative [birth outcomes](#), such as preterm delivery or low birth weights.

Provided by Tel Aviv University

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