



AMBIENT TEMPERATURE EFFECT ON PREGNANCY OUTCOMES: SINGLE CENTER EXPERIENCE FROM BELGRADE

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INTRODUCTION



- Currently a global warming is occurring which might lead to more frequent and intense environmental disasters such as heatwaves, wildfires and hurricanes.
- This climate change can also have short and long-term effects on the human health.
- Pregnant women and fetus are a vulnerable group as numerous factors including environmental ones can disturb and complicate pregnancy.

OBJECTIVE

- The study aim was to assess the association between ambient temperatures of the last four weeks of pregnancy with the risk for having a preterm stillbirth.



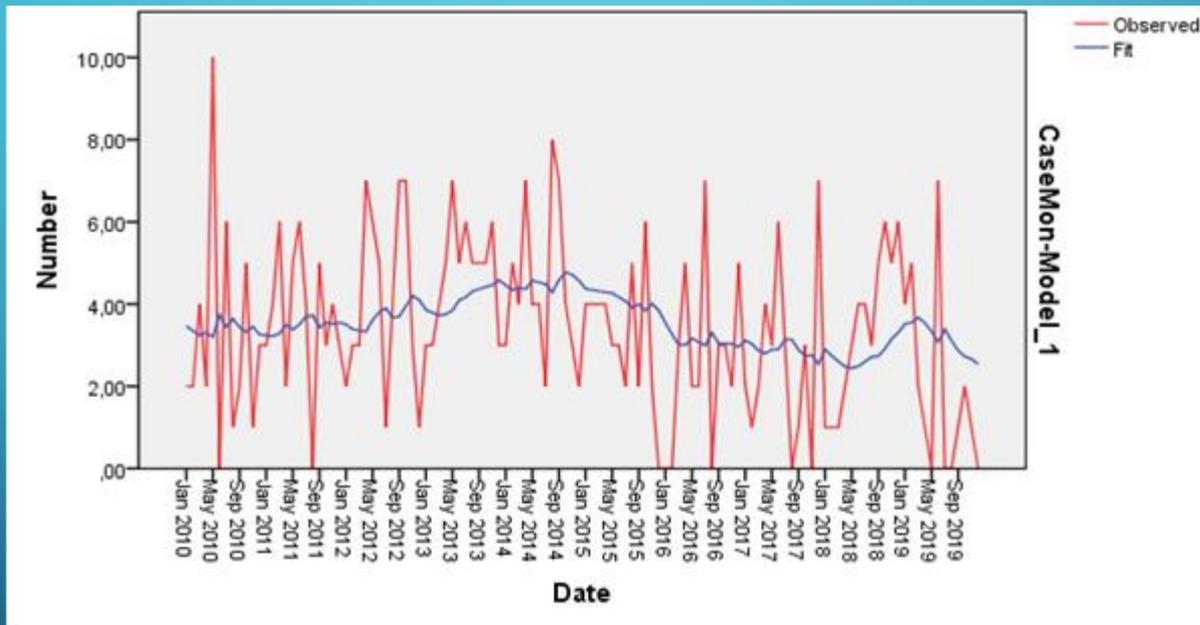
METHODS

- Study included all pregnant women with preterm stillbirth (<37 weeks of gestation) treated in the Clinic for Ob/Gyn University Clinical Center of Serbia during a ten-year period (2010 to 2019).
- Patient data were taken from medical records.
- We used meteorological data (minimal, mean and maximal temperatures) per year and month for the city of Belgrade which are provided by Republic Hydrometeorological Society of Serbia and are freely available.
- We assessed the impact of the average temperature during the last month of pregnancy with the pregnancy outcome.

RESULTS

- During the study period 409 stillbirths occurred in our Clinic (1.02% of all deliveries).
- Examined women had in average 30.93 ± 5.99 years of age and were mostly primiparous (54.5%; $p=0.001$).
- There were no significant differences regarding the gender of stillbirth children (males=51.8%; females=48.2%; $p=0.458$).
- Stillbirth delivery mostly occurred in the 23.8 ± 2.9 week of gestation.
- At the time of delivery children in average had 549.30 ± 214.75 grams.

RATES OF STILLBIRTHS PER MONTH DURING THE EXAMINED TEN YEARS (2010-2019)

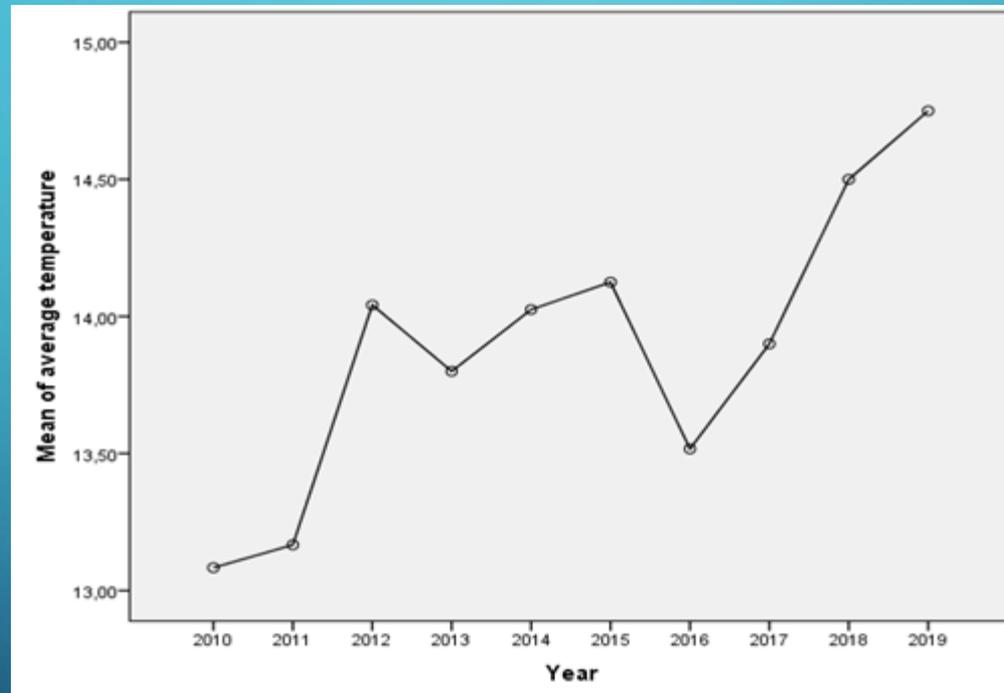


RESULTS

- In the examined ten-year period mean temperatures ranged from -3.3°C (January 2017) to 27°C (July 2012).
- The coldest month was January every year, while July and August were generally the hottest months ($p=0.001$).
- April to September are considered as summer and spring months with average temperature $\geq 15^{\circ}\text{C}$.
- The hottest years were 2012, 2013 and 2018 with average yearly temperatures $\geq 15.5^{\circ}\text{C}$.
- However, there were no significant differences in average yearly temperatures in Belgrade during the examined ten years ($p=0.738$).



MEAN TEMPERATURES PER YEAR IN BELGRADE, SERBIA BETWEEN THE YEARS 2010 AND 2019



RESULTS

- Rates of stillbirths were similar in spring and summer compared to autumn and winter months (233 vs. 186; $p=0.317$) as well as if temperatures were $<15^{\circ}\text{C}$ and $\geq 15^{\circ}\text{C}$ (200 vs. 209, $p=0.854$).
- Moreover, there was no trend in stillbirth rates in regards to ambient temperatures of the last four weeks of pregnancy ($p=0.435$).

CONCLUSION

- According to the results of our study the risk for preterm stillbirth was not associated with ambient temperatures of the last four weeks of pregnancy of women in Serbia.
- Further research with more parameters regarding the examined pregnancies as well as environmental factors during a longer periods of time are needed to fully understand the mechanisms of interection between environment and pregnancy health.