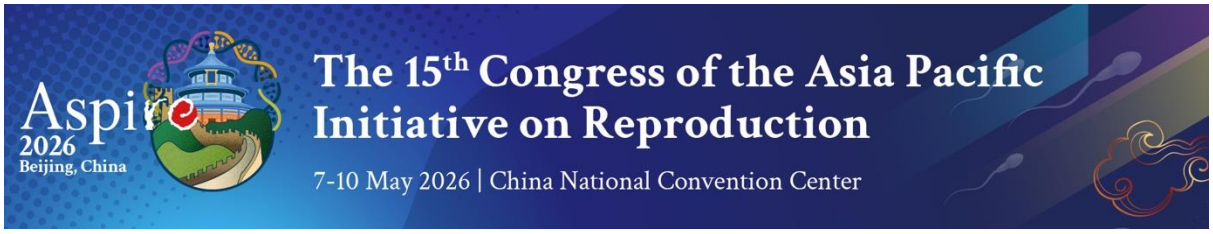

South and East Asia identified as hotspots of global warming related impacts on male fertility

Media Release, 9 May 2026

A major new study has shown that South and East Asia dominate patterns of global warming related decline in male fertility with the strongest and most consistent evidence coming from India, Pakistan and the southern parts of China.

The effects of increased environmental temperatures on male reproductive health include declining sperm concentration and motility and increased sperm DNA fragmentation, or genetic damage that can hinder fertilisation and embryo development.

Male related factors account for around 50 per cent of infertility cases around the world and the impact of rising ambient heat on semen parameters raises serious implications across wide areas of Asia where total fertility rates are in serious decline.

Outcomes of the study undertaken by the Taiwan IVF Group and Ton Yen General Hospital, Taiwan (China) in collaboration with Stanford University (USA) are being presented at the 2026 Congress of the Asia Pacific Initiative on Reproduction (ASPIRE) in Beijing.

Research principal and Adjunct Clinical Assistant Professor at Stanford University, Dr Jack Yu Jen Huang, MD, PhD, FACOG said: “Given the temperature sensitivity of spermatogenesis, even modest increases in ambient temperature could have cumulative, population-level effects over time.

“As global warming accelerates, male reproductive health may represent an emerging climate sensitive public health concern.”

The testes function optimally at temperatures lower than the internal body heat level, and previous studies have shown elevated scrotal or ambient temperatures can impair sperm production.

The latest research explored global patterns to reveal comparative data across regions. It is based on a systematic review of international studies on temperature exposure and semen parameter trends between 2000 and 2024. Artificial intelligence algorithms and machine learning tools were applied to extract key variables including geographic regions and semen outcomes.

Dr Huang said studies examining occupational heat exposure alone were excluded from the analysis as they reflected localised, job-specific conditions rather than broader climatic trends.

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“Our findings therefore represent population level climate associated temperature effects including consistent seasonal variations showing poor semen quality parameters in warmer periods.”

The global patterns on temperature associated lower sperm concentration and motility show South and East Asia as major hot spots of concern followed by the Middle East, Europe and North America.

“South and East Asia are likely more affected due to a combination of factors including higher baseline ambient temperatures and rapid urbanisation that contribute to greater cumulative heat stress on spermatogenesis,” Dr Huang explained.

“With ongoing global warming, chronic heat exposure may increasingly impact male reproductive health.”

Dr Huang said potential approaches to address the issue include:

- increasing public awareness of heat exposure and reproductive health;
- encouraging protective behaviours;
- expanding research integrating climate and reproductive health data; and
- exploring clinical and lifestyle interventions to mitigate heat-related effects.

The research team was assisted by research intern Jeffrey Zi Kang Huang from Taipei American School, particularly in the application of artificial intelligence in biomedical research including AI-assisted data analysis and pattern recognition across global datasets.

“Further longitudinal and mechanistic studies will be important to better define causality and guide interventions,” he added.

The ASPIRE Congress is being held at the China National Convention Centre in Beijing. More than 3,000 scientists, clinicians, nurses and counsellors in assisted reproduction from around the world are attending the Congress.

For further information, go to https://www.aspire2026.com

Interview

Dr Jack Yu Jen Huang is available for interview. To arrange, please contact Trevor Gill, ASPIRE Congress Media Relations.
Tel: (Australia) 61 418 821948 or email lighthousepr@adelaide.on.net