

**HEAT STRESS RISK ASSESSMENT FOR
INDIAN WOMEN**

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ABSTRACT

Climate change has increased the frequency and severity of heat stress, disproportionately affecting vulnerable populations. This exploratory study investigates the impact of heat stress on rural women aged 15-35 using the Intergovernmental Panel on Climate Change Assessment Report 4 (AR4) and Report 5 (AR5) frameworks for vulnerability and risk assessment by incorporating NFHS-4 indicators. This study attempts to add to the literature by constructing gender-focused heat stress vulnerability and risk assessment indices in rural India. The UTCI data from the Copernicus Climate Change Service from 1994 to 2024 is used to assess heat stress, and demographic and social indicators are from NFHS (2015–2016). UTCI Z-scores are used to identify high-risk regions and months while the indicator for vulnerability composed of exposure, sensitivity, and adaptive capacity based the AR4 framework and a risk assessment index based on hazard, exposure, and vulnerability based the AR5 framework are constructed. By integrating environmental and demographic indicators for rural women to analyze the impact of heat stress, the study reveals regional disparities in heat stress risk. Jharkhand and Bihar rank highest in the AR5 risk framework. In contrast, Sikkim and Himachal Pradesh exhibit low risk due to cooler climatic conditions. Southern states like Kerala and Tamil Nadu show high heat stress but low vulnerability, because of stronger adaptive capacity. These results highlight the need for gender and region-specific targeted policy interventions to mitigate the effects of heat stress in India.

Keywords: Universal Thermal Climate Index, Vulnerability Index, Risk Assessment Index, India, Women

JEL codes: Q54, I15, J16, O13, R11