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Increasing climate change changes household medical expenditures

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Climate change is exacerbating global disease risks, which will change household medical expenditures. Employing machine learning techniques and fine-scale bank transaction data, this study explores the changing household medical expenditures in 290 Chinese cities under four SSP scenarios (SSP1-2.6□SSP2-4.5□SSP3-7.0□SSP5-8.5) and further evaluates the adaptive impacts from socio-economic and physiological adaptations. The results show that the increasing temperature is projected to decrease future medical expenses in China by 5.24% (SSP1-2.6) to 5.60% (SSP5-8.5) in 2060. Cities exhibit differentiated sensitivity to increasing temperatures. Richer cities have enhanced resilience to high temperatures, and cold regions demonstrate less vulnerability to extreme cold weather. Physiological adaptation to climate change can significantly reduce medical expenditures by 27.6% by 2060. Meanwhile, socio-economic adaptation is expected to amplify national total medical expenses by 22.5% in 2060 under the SSP5-8.5 scenario. Our study incorporates adaptation into the prediction of future medical expenditures in China, aiming to assist cities in devising tailored climate adaptation strategies to alleviate the household economic strain induced by climate change.