

Childhood Respiratory Diseases Related to Indoor and Outdoor Air Temperature in Shanghai, China

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Abstract : Background: Studies on associations between air temperature and childhood respiratory diseases are lack in China. Objectives: We aim to analyze the relationship between air temperature and childhood respiratory diseases. Methods: We conducted the on-site inspection into 454 residences and questionnaires survey. Indoor air temperature were from field inspection and outdoor air temperature were from website. Multiple logistic regression analyses were used to investigate the associations. Results: Indoor extreme hot air temperature was positively correlated with duration of a common cold (≥ 2 weeks), and outdoor extreme hot air temperature was also positively related with pneumonia among children. Indoor and outdoor extreme cold air temperature was a risk factor for rhinitis among children. The biggest indoor air temperature difference (indoor maximum air temperature minus indoor minimum air temperature) (Imax minus Imin) (the 4th quartile, >4 oC) and outdoor air temperature difference (outdoor maximum air temperature minus outdoor minimum air temperature) (Omax minus Omin) (the 4th quartile, >8 oC) were positively related to pneumonia among children. Meanwhile, indoor air temperature difference (Imax minus Imin) (the 4th quartile, >4 oC) was positively correlated with diagnosed asthma among children. Air temperature difference between indoor and outdoor was negatively related with the most childhood respiratory diseases. This may be partly related to the avoidance behavior. Conclusions: Improper air temperature may affect the respiratory diseases among children.

Keywords : air temperature, extreme air temperature, air temperature difference, respiratory diseases, children

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