

Methodological Considerations in Humidex and Schizophrenia Research [Letter]

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Dear editor

We read with interest Han et al,¹ article “Association of Exposure to Humidex with Schizophrenia Admissions in Qingdao, China: A Time-Series Study”. While their investigation introduces an important perspective on environmental factors and mental health outcomes, several methodological consideration merit attention.

The study’s attribution of causality between low humidex and schizophrenia admissions requires careful interpretation. The reported “7.2% of schizophrenia admissions attributed to low humidex”, should be viewed cautiously as time-series analysis cannot fully establish causality without addressing mediating pathways. The proposed biological mechanism linking low temperatures to dopaminergic dysregulation remains speculative without supporting physiological measurements.

While the authors acknowledge limitations regarding individual-level data, they underestimate how significantly these factors may confound the relationship. Notably, treatment non-adherence shows seasonal variations that may independently explain admission fluctuations. Misdrabi et al² demonstrated that medication adherence in schizophrenia decreases by 18% during winter months, potentially confounding the relationship with low humidex.

The stratification analysis identifying females and younger individuals as vulnerable populations provides valuable insights. However, the absence of socioeconomic analysis limits our understanding of whether these vulnerability patterns reflect biological susceptibility or differential environmental exposure. Zhou et al³ revealed that housing quality mediates 40% of the relationship between environmental exposures and psychiatric admissions among younger populations.

The statistical approach to defining “low humidex” using percentile threshold may not align with physiologically meaningful thresholds. Future studies should employ change-point analyses to identify biologically meaningful thresholds rather than arbitrary percentile cutoffs.

Lastly, Qingdao’s coastal climate characteristics may limit generalizability. Coastal regions experience smaller temperature variations and higher humidity levels compared to inland areas, potentially altering the humidex-health relationship.

These methodological refinements would strengthen future research examining environmental influences on psychiatric admissions, advancing our understanding of climate factors’ impact on mental health outcomes.

Disclosure

The authors report no conflicts of interest in this communication.

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