

## A comparison of individual exposure, perception, and acceptable levels of PM<sub>2.5</sub> with air pollution policy objectives in China

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In order to explore the public perception of air pollution and evaluate what constitutes public acceptable concentrations of fine particulate matter (PM<sub>2.5</sub>), questionnaire surveys were conducted separately in three representative cities, Beijing, Nanjing, and Guangzhou in China. The multi-city results demonstrated great differences in public risk perception. The public perception of the health effects of air pollution (*Effect*) and familiarity with it (*Familiarity*) were significantly higher in the winter than in the summer. Moreover *Effect* and *Familiarity* during severe haze days were significantly higher than during typical days. The public perception of trust in the government (*Trust*) was consistent regardless of seasonal and weather conditions. Exposure to severe haze pollution and experiencing harms from it were key factors influencing public willingness to take action in response to haze. These results implied that individual levels of exposure correlate quite closely with risk perception and acceptance of PM<sub>2.5</sub>. However, there remains a crucial gap between public acceptable risk levels (PARL) of air pollution and the policy objectives of the Action Plan on Prevention and Control of Air Pollution. Thus, the results of this study may act as a strong reference for policymakers to develop more effective measures to combat air pollution.

Keywords: Air pollution, Risk perception, PM<sub>2.5</sub> exposure, Preventative action, Environment Management

