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Coping with heat in the city: what can we learn from a survey immediately after a hot weather period for future heat waves?

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Karlsruhe is one of the hottest cities in Germany with a temperature record of 40.2°C in August 2003. In 2013, two hot weather periods with continuous heat warnings by the German Weather Service for 7 and 8 days occurred during the second half of July and first 10 days of August 2013, and in early August the temperatures in Karlsruhe almost reached again the record of 40.2°C. To understand how citizens experienced the heat and what strategies they used to cope with the heat, we conducted a questionnaire survey on subjective heat stress and coping strategies immediately after the hot weather period. Based on a holistic approach the questionnaire included questions on heat stress experience in different contexts of daily life, health impacts of the heat, coping measures, housing conditions, urban environment, living conditions, and socio-demographic characteristics. The responses of the 323 survey participants living and working in Karlsruhe show that they on average experienced the heat as rather stressful event, whereby the heat stress experienced at home was significant lower than heat stress experienced at work or in general. Regression analyses show that, among the factors included in the questionnaire, the health impairments suffered during the heat, the control belief and the coping measures implemented mainly determine heat stress experienced in general and at work. For the subjective heat stress at home, factors of the built urban environment such as heat loading of district, living in the attic or the ground floor, and heat protection elements of the inhabited building also played a role. At the same time, the way the respondents used different coping strategies in context of their daily activities and routines during heat suggests lessons to learn from this event how individual response to heat differs from responses to other types of natural hazards.