

Mapping spatial patterns of people's risk perception of landslides

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The resilience of communities against natural hazards is largely influenced by how the individuals perceive risk. A good understanding of people's risk perception, awareness and hazard knowledge is crucial for developing and improving risk management and communication strategies between authorities and the affected population. A lot of research has been done in investigating the social aspects of risks to natural hazards by means of interviews or questionnaires. However, there is still a lack of research in the investigation of the influence of the spatial distance to a hazard event on people's risk perception. While the spatial dimension of a natural hazard event is always assessed in works with a natural science approach, it is often neglected in works on social aspects of natural hazards.

In the present study, we aimed to overcome these gaps by combining methods from different disciplines and assessing and mapping the spatial pattern of risk perception through multivariate statistical approaches based on empirical data from questionnaires.

We will present results from a case study carried out in Badia, located in the Province of South Tyrol- Italy, where in December 2012 a landslide destroyed four residential buildings and led to the evacuation of 36 people. By means of questionnaires distributed to all adults living in the case study area we assessed people's risk perception and asked respondents to allocate their place of residence on a map of the case study area subdivided in 7 zones. Based on the data of the questionnaire results we developed a risk perception factor in order to express various assessed aspects linked to risk perception with one metric. We analyzed and mapped this factor according to the different zones reflecting the spatial distance to the event. Furthermore, a cluster analysis identified various risk behavior profiles within the population. We also investigated the spatial patterns of these risk profiles. We revealed that the residential zone in the immediate proximity to the landslide event showed significantly different results than all other zones.

Though we have been able to observe spatial patterns of our developed metrics that changed significantly with geographic distance, our results led to the assumption that risk perception cannot be expressed in units of length. The appropriate spatial unit rather seems to be "immediate proximity" to the event.

The results of our study can support response forces and authorities in planning and adopting different communication and management strategies tailored to different groups of affected persons.