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Abstract Despite the progress made in understanding the characteristics of earthquakes, the predictions of earthquake activity are still inevitably very uncertain, mainly because of the highly complex nature of the earthquake process. The population's mental strength is of high importance not only to cope with an earthquake but also to return quickly to functioning. Social-emotional preparedness for extreme adverse events and crises is a critical factor in the population's quick recovery and return to full functioning. In the present study, we apply a multi-disciplinary lens to extend the scope of earthquake preparedness to include social-emotional programs. Using info-gap theory that considers uncertainties of events, we implement methods to assess the robustness of social-emotional programs. The findings show that a robust social-emotional preparedness program (SEPP) makes a significant contribution to the population's ability to return to functioning. The application of the methodology and the examination of the level of robustness in the face of uncertainty were carried out by qualitative analysis using info-gap decision theory. The findings indicate gaps between the level of robustness of a SEPP in different scenarios and the need to formulate a highly robust SEPP rather than planning based on a 'one size fits all' approach. A key conclusion that emerges from the study is the importance of analyzing the robustness of SEPP to make decisions immune to surprises. Ways to create or improve earthquake preparedness are suggested for policy and in-school application.

Keywords Earthquakes, info-gap decision theory (IGDT), robustness, social-emotional proxies for robustness, uncertainty