



Citizens' awareness of earthquakes, and their concern and fear after the 2020 Zagreb earthquake

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Abstract

The 2020 Zagreb earthquake occurred in the most populated part of Croatia. In order to collect macroseismic data and share information about the occurring aftershocks, a Facebook group was opened. The group soon also became a platform for educational outreach and prompted us to conduct an online survey. Its goal was to see which information sources citizens use to gather information about earthquakes, is the emotional distress expressed in Facebook comments widespread, and to check whether the knowledge on earthquake preparedness improved in the following months after the mainshock. Citizens confirmed feeling worried, while their knowledge about earthquakes and earthquake preparedness increased.

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Introduction

On 22 March 2020 at 6:24 local time, a M_L 5.5 earthquake occurred in the immediate vicinity of Zagreb, the capital of Croatia, and affected approximately 1.2 million people. On 23 March the Croatian Seismological Survey (CSS) in collaboration with Andrija Mohorovičić Geophysical Institute and Slovenian Environment Agency created a Facebook group to collect macroseismic data from citizens. Group members provided real-time comments on occurring aftershocks and expressed their worries and fear in the following months. Thus, in July 2020, we conducted an online survey to examine the following:

- which sources of information citizens mostly use when looking for information about earthquakes;
- the level of fear present in the population immediately after the main event, and in the subsequent months;
- citizens' awareness and knowledge about earthquakes and earthquake preparedness before the main event and at the time of filling out the survey.

Methods

The survey was prepared by seismologists (authors of this study) with the help of a psychologist. It was conducted using LimeSurvey software (LimeSurvey GmbH) and transmitted through social network accounts, the Faculty of Science and the Department of Geophysics websites, and through personal communication.

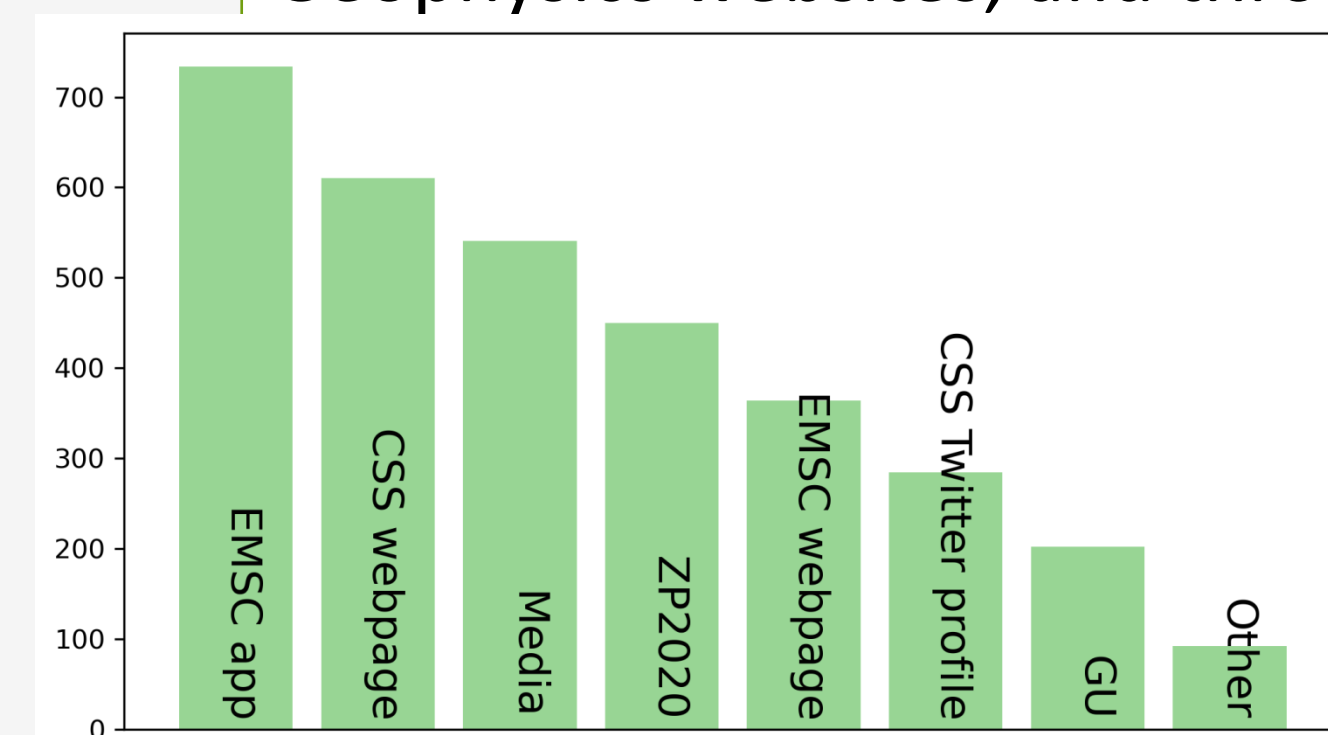


Figure 1. Main sources of information. ZP2020 and GU are Department of Geophysics Facebook accounts.

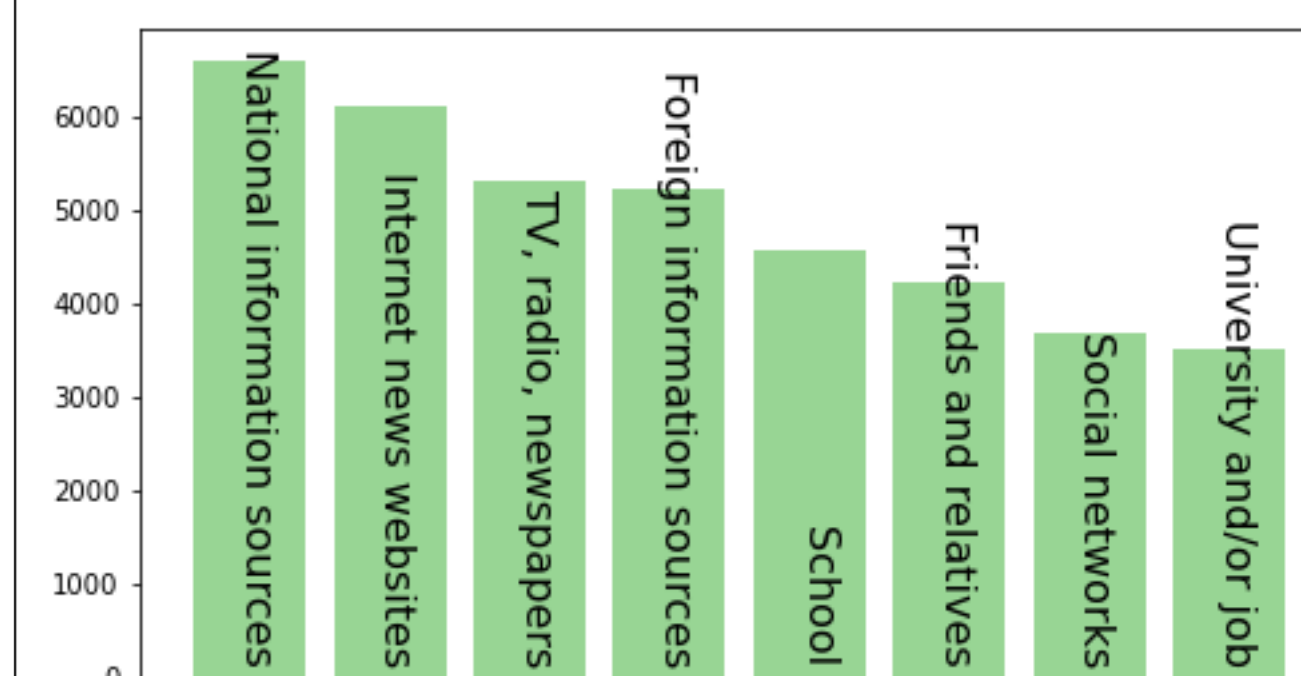


Figure 2. Main educational resources.

Figure 3. The level of fear on a scale from 1 (not worried) to 5 (extremely worried).

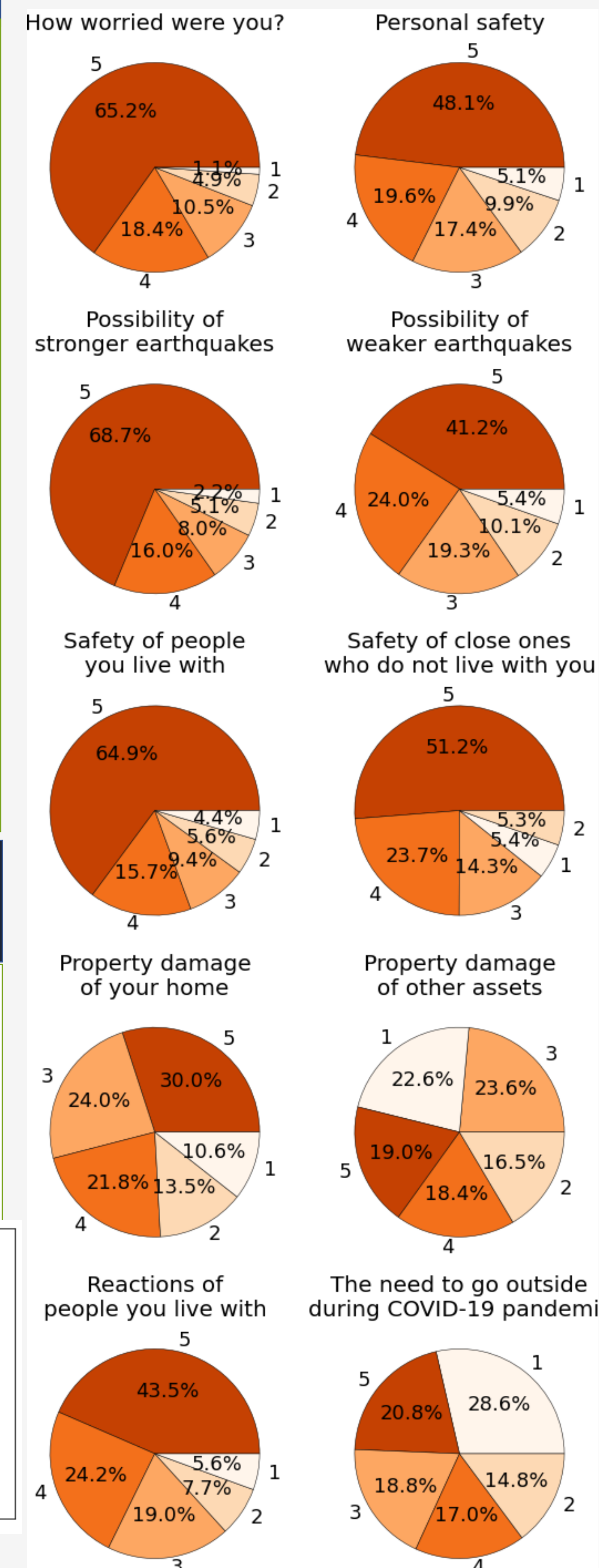
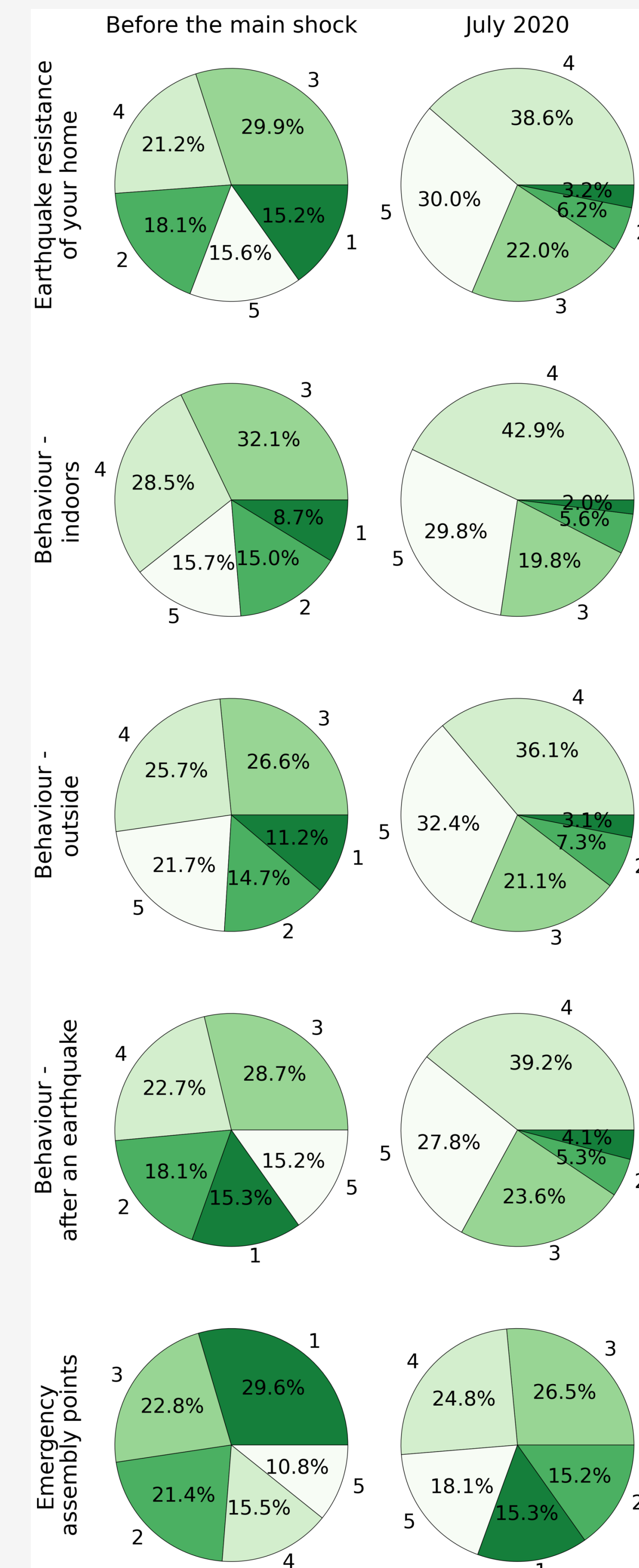


Figure 4. The level of knowledge on aspects of earthquake preparedness from 1 (very poor) to 5 (very good).



Results

The survey was completed by 1330 people: 98% were located in the City of Zagreb, 76% were female, predominantly between 20 and 50 years of age and highly educated.

Their **main sources of information** were the European-Mediterranean Seismological Centre (EMSC) mobile application, the CSS webpage and the media (Fig. 1). Respondents considered to **have learned the most from** national information sources and internet news websites, while other sources of information received a similar number of responses (Fig. 2). **Over 65%** of the respondents **were extremely worried on the day of the mainshock**, mostly for the possibility of a stronger earthquake, safety of people they live with and safety of other close ones (Fig. 3). **Their knowledge** about earthquake resistance was average to above-average before the event, and improved by July 2020), except for familiarity with emergency assembly points in the city (Fig. 4). Their assessment of a strong earthquake occurring in Zagreb ranged from 0 to 100 % before the mainshock (Mustać et al., 2021).

Discussion and Conclusions

The 22 March 2020 Zagreb earthquake induced high levels of fear in a population mildly aware of the seismic risk. After a few months of intensive informing and educating through various media and social networks, citizens' knowledge on earthquake preparedness has improved.

Acknowledgements

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