Organizing an Earthquake Learning Exhibition for transferring geoscience knowledge to the public: the example from Nepal

(Supplementary file)

This file contains
- Table S1
- Figures S1-S20
- Pre-exhibition survey form
- Post-exhibition survey form

Table S1: Summary of questions and corresponding calculated and tabulated chi-square values, p-values at 0.05 significance level. Single-entry option questions which asked for both prior and post exhibition surveys are only included here.

Q.N.	Questions	Observed χ^2 Value	Threshold χ^2 Value	p-value	Remarks
Q2	Did you feel the earthquake that happened in 2015 or/and in 2023?	7.21	3.84	0.0072	H_0 rejected
Q3	What do you believe is the cause of earthquakes?	11.05	9.49	0.02600	H_0 rejected
Q4	In the event of an earthquake of Mw>8, what do you think could happen to you?	7.05	11.07	0.2169	H0 accepted
Q5	How likely do you think it is that an earthquake larger than the Gorkha earthquake will occur in Nepal during your lifetime?	30.83	12.59	0.00002	H0 rejected
Q6	Would your house resist a major (Mw≥7) earthquake?	29.0	5.99	0.00000054	H0 rejected
Q7	Do all the members of your family know what to do and where to go during an earthquake?	4.92	5.99	0.0854	H0 accepted
Q8	How do you plan on communicating with family/friends after a large earthquake?	0.16	5.99	0.923	H0 accepted
Q9	What do you think the level of risk for an earthquake is in your city?	12.88	5.99	0.00156	H0 rejected
Q10	The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family?	1.92	3.84	0.165	H0 accepted
Q11	Have you ever discussed the topic of earthquakes in school?	6.78	3.84	0.0092	H0 rejected

Figure S1. Word cloud representing participants' spontaneous responses to Q1: *"What is the first thing that comes to your mind when you hear the word 'EARTHQUAKE'?"* **The size of each word reflects its frequency of occurrence in the collected answers, highlighting the most common associations and perceptions among respondents.**

Figure S2. Responses to the Q2: *"Did you feel the earthquake that happened in 2015 and/or 2023?"* **The plot shows the distribution of participants' experiences, indicating the proportion of respondents who felt each earthquake or both.**

Figure S3. Distribution of participants' responses to Q4: *"In the event of an earthquake of Mw > 8, what do you think could happen to you?"*
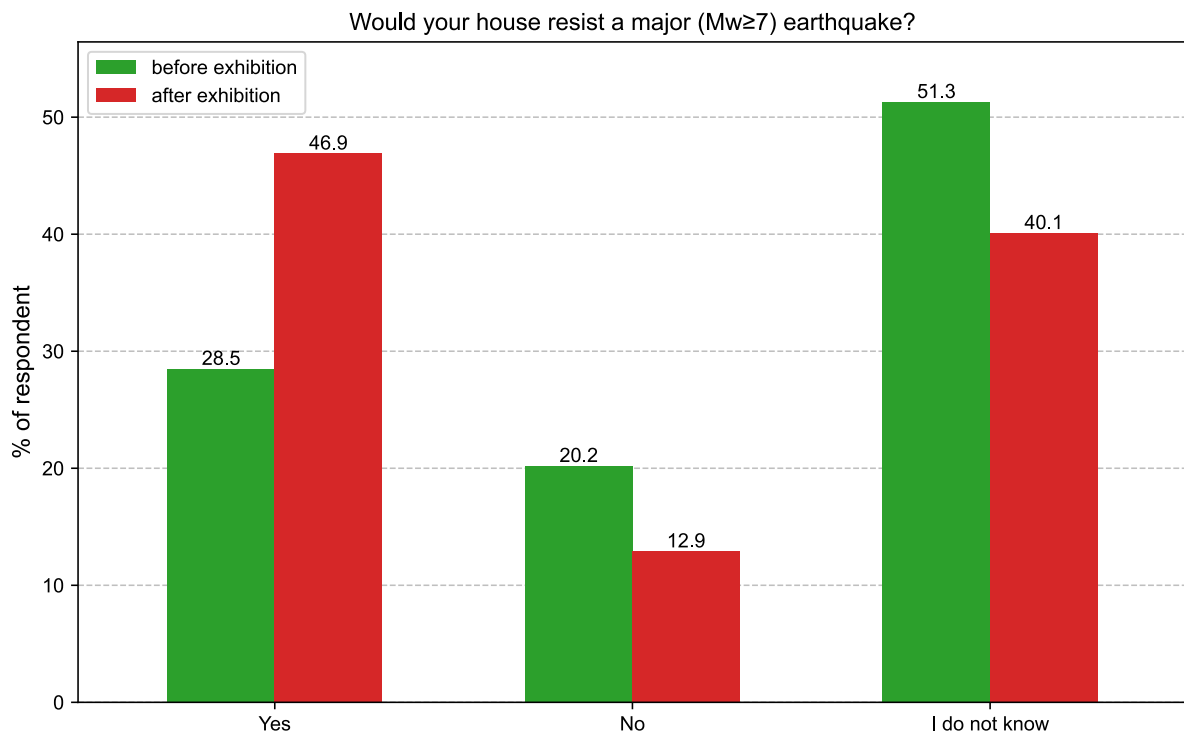
Figure S4. Distribution of participants' responses to Q6: *"Would your house resist a major (Mw≥7) earthquake?"*
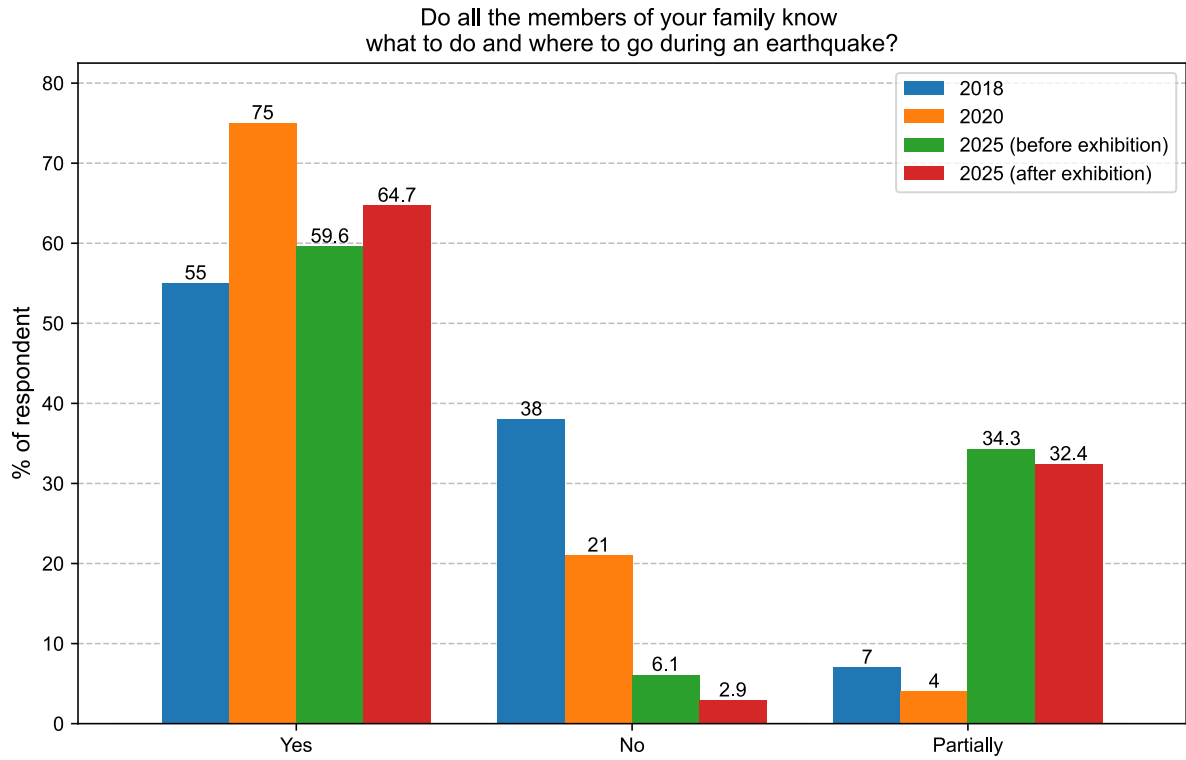
Figure S5. Distribution of participants' responses to Q7: *"Do all the members of your family know what to do and where to go during an earthquake?"*
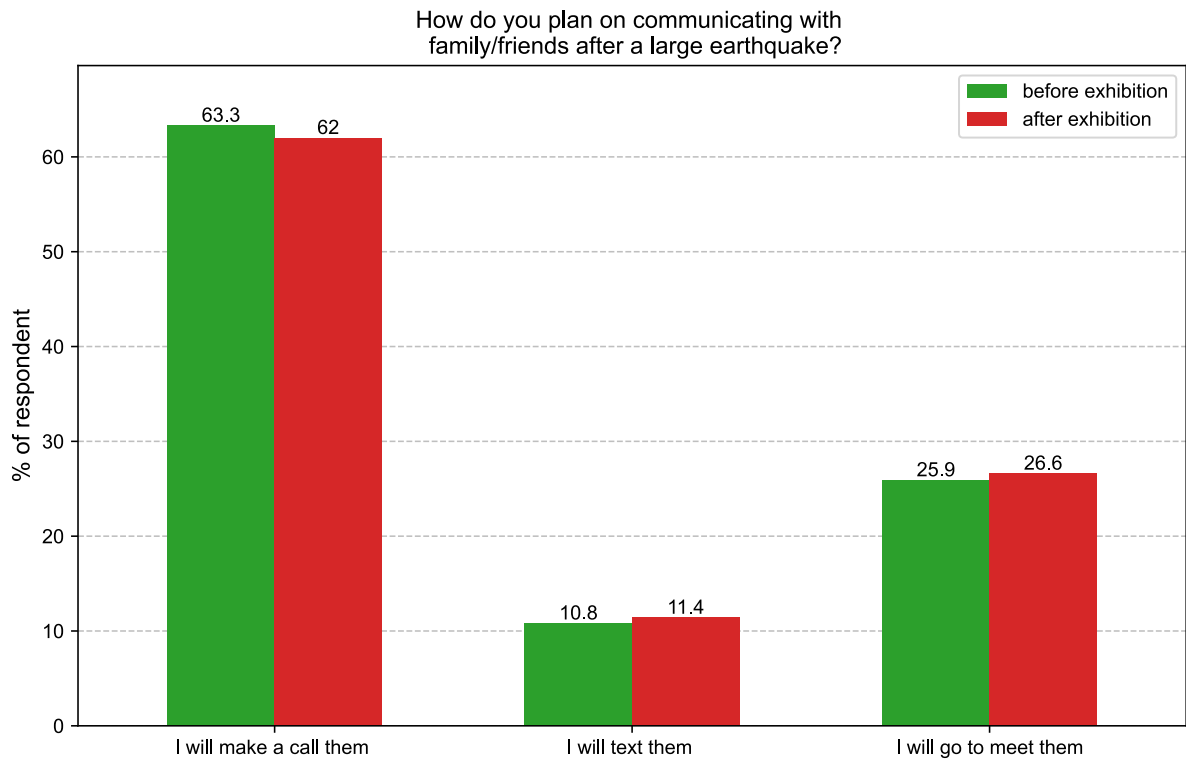
Figure S6. Distribution of participants' responses to Q8: *"How do you plan on communicating with family/friends after a large earthquake?"*
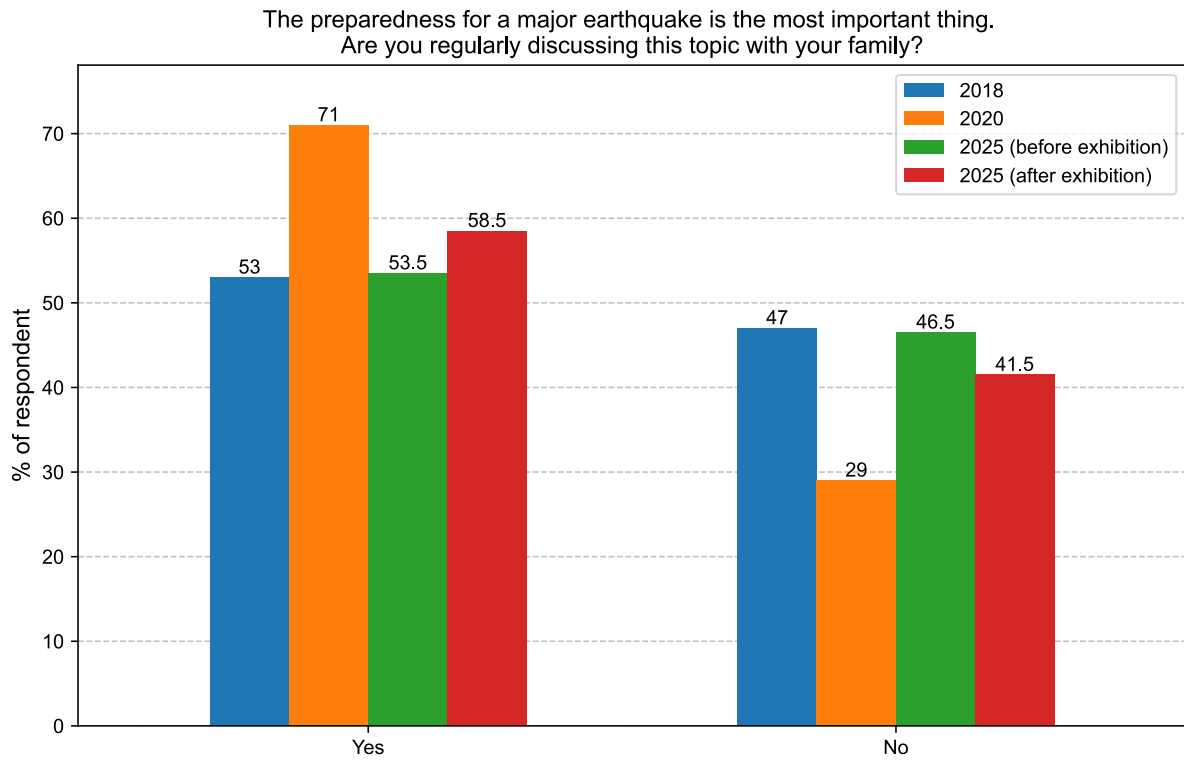
Figure S7. Distribution of participants' responses to Q10: *"The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family?"*
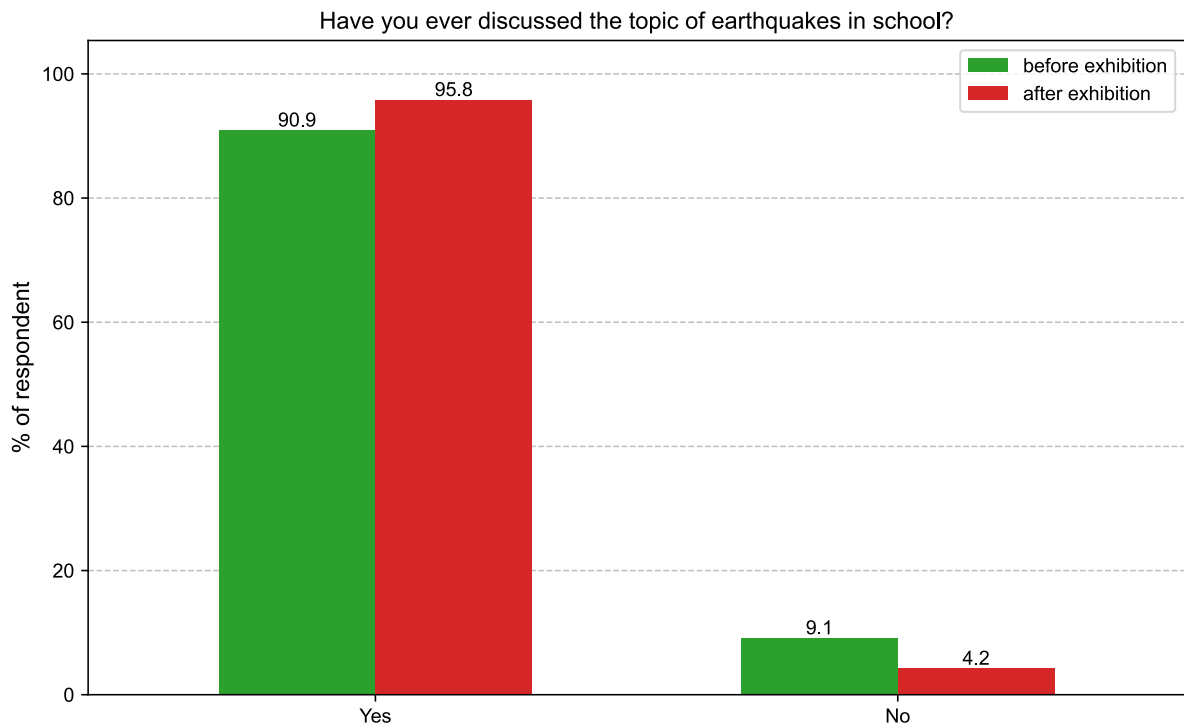
Figure S8. Distribution of participants' responses to Q11: *"Have you ever discussed the topic of earthquake in school?"*
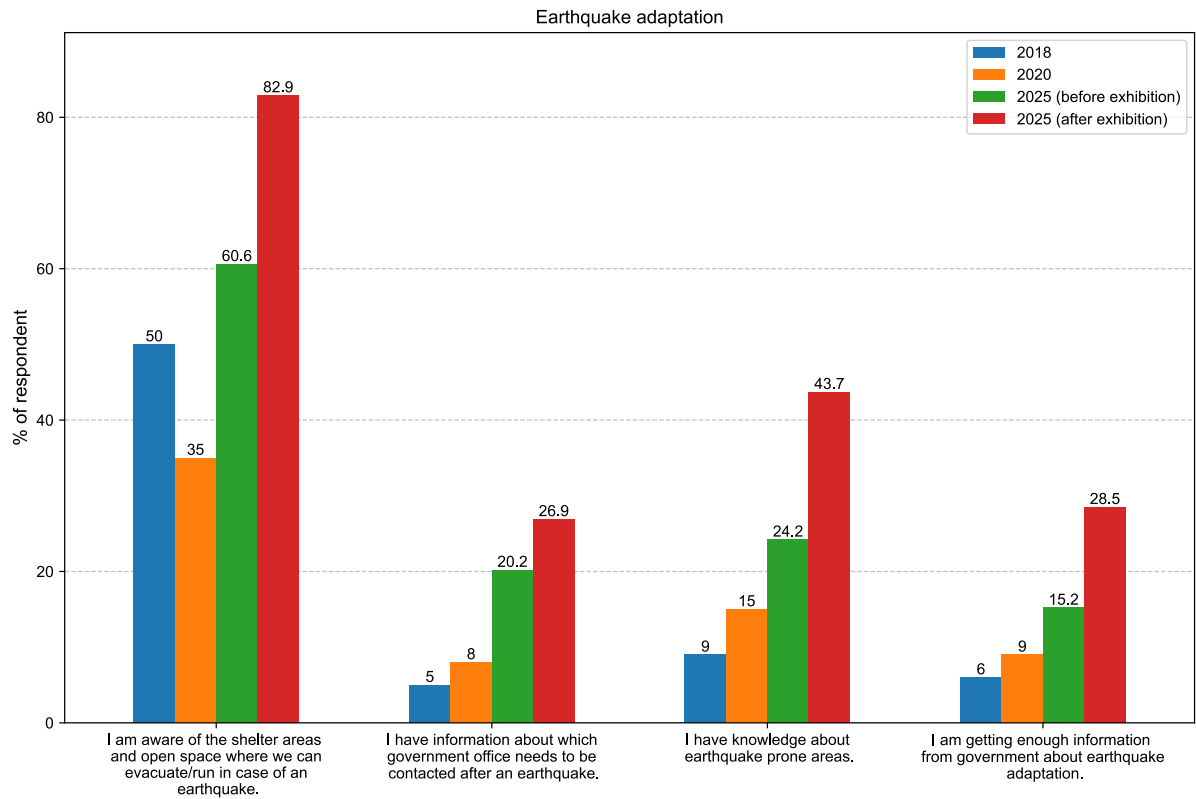
Figure S9. Distribution of participants' responses to Q14: *"Earthquake adaptation". Multiple answers are allowed for this question.*
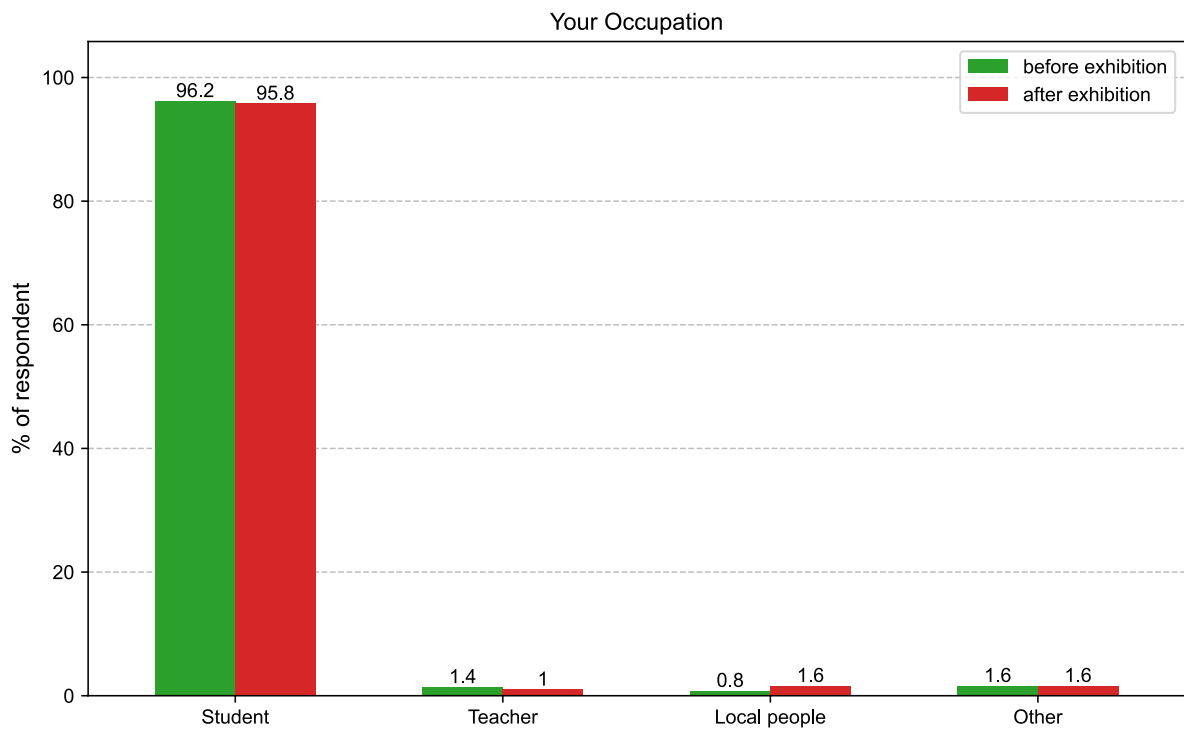
Figure S10. Plot of participants' statistics Q15: *"Your Occupation".*
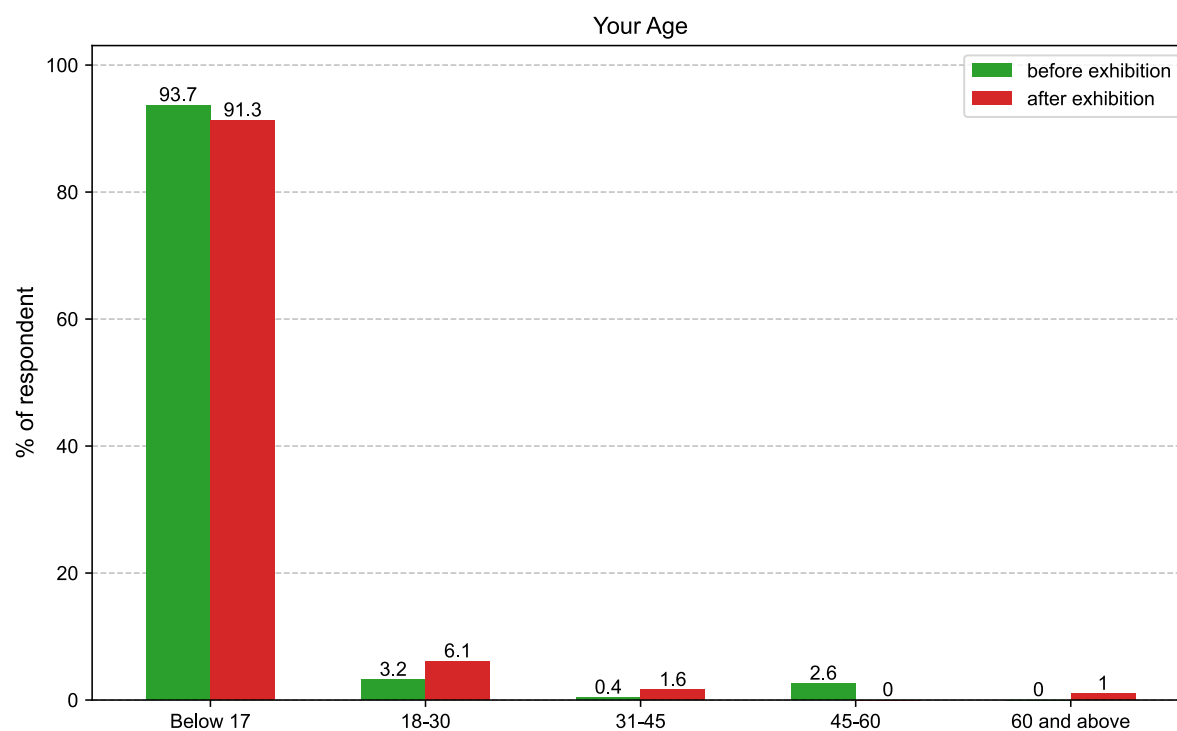
Figure S11. Plot of participants' statistics Q16: *"Your Age".*
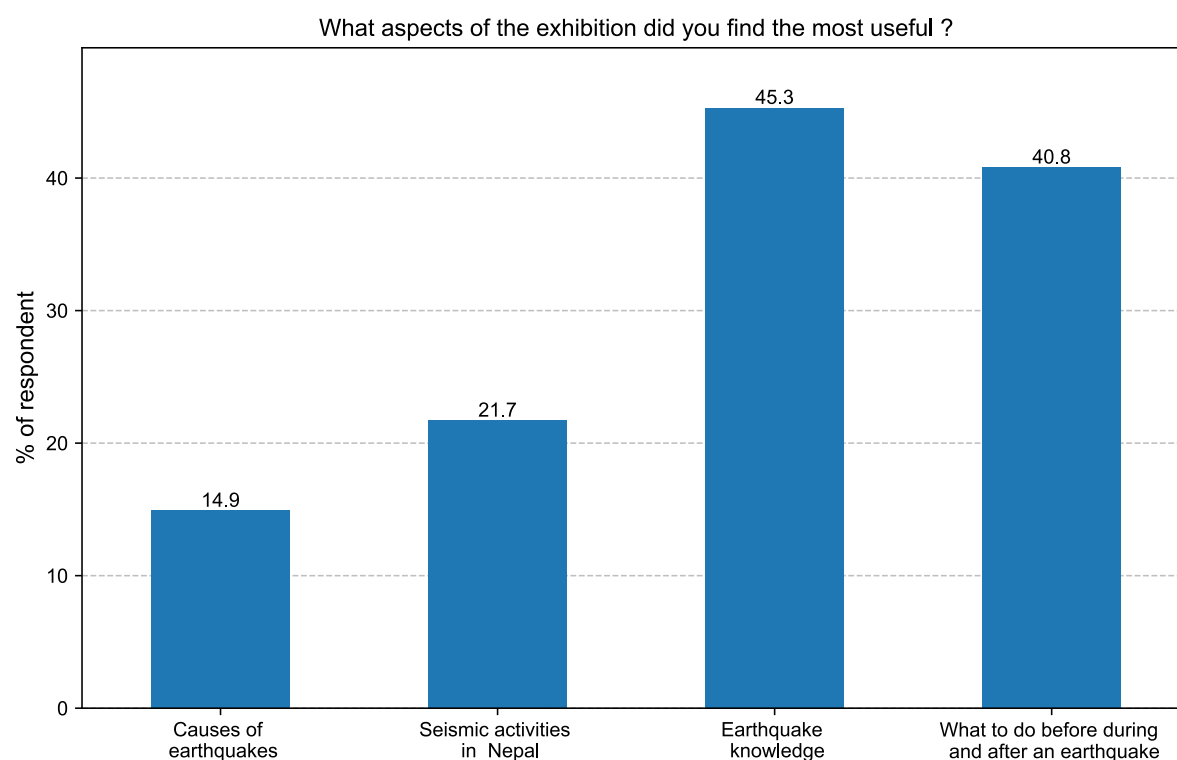
Figure S12. Participants' responses to Q17: *"What aspects of the exhibition did you find the most useful?". Multiple answers are allowed for this question.*

Figure S13: Word cloud plot of Q20: *"Which new information or skills did you learn from this exhibition?"*
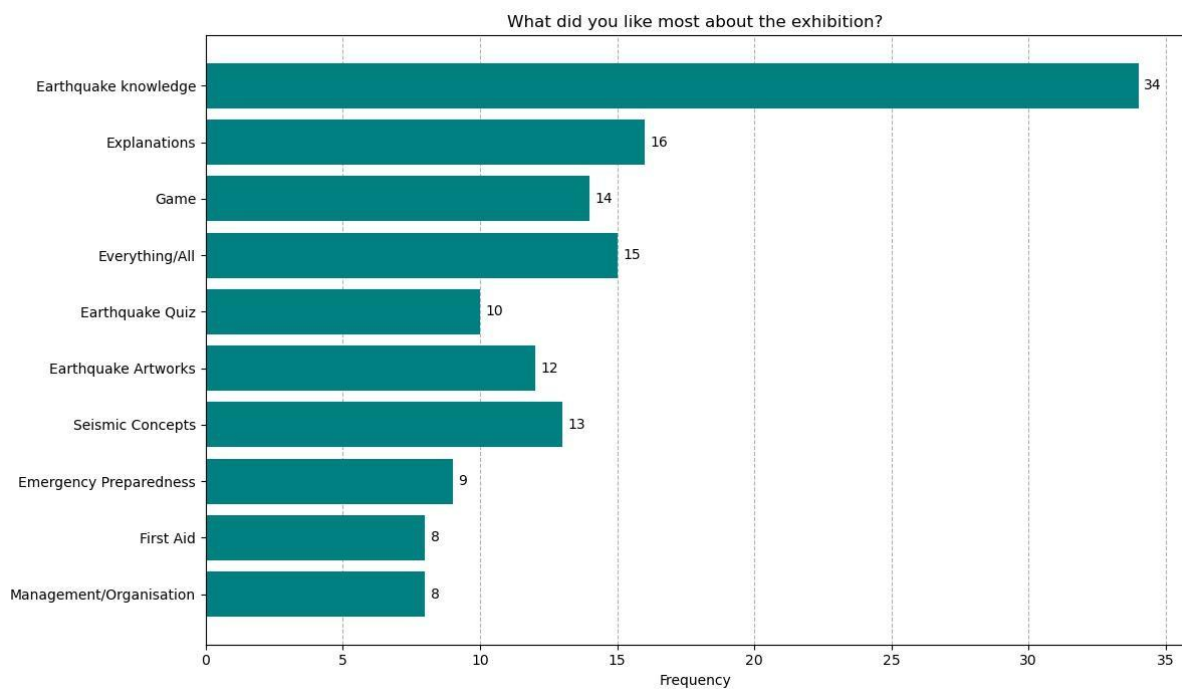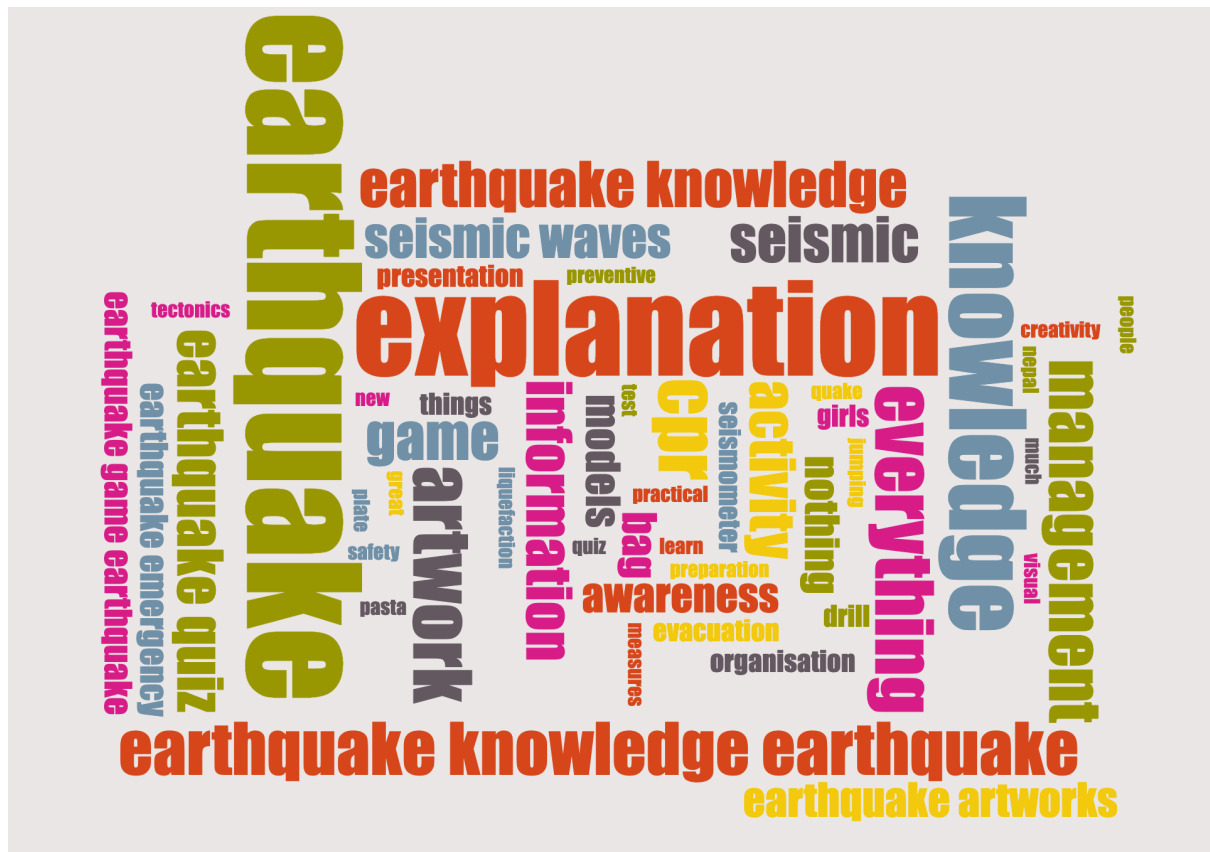
Figure S14: Word cloud (top) and frequency (bottom) plot of Q22: *"What did you like most about the exhibition?"*
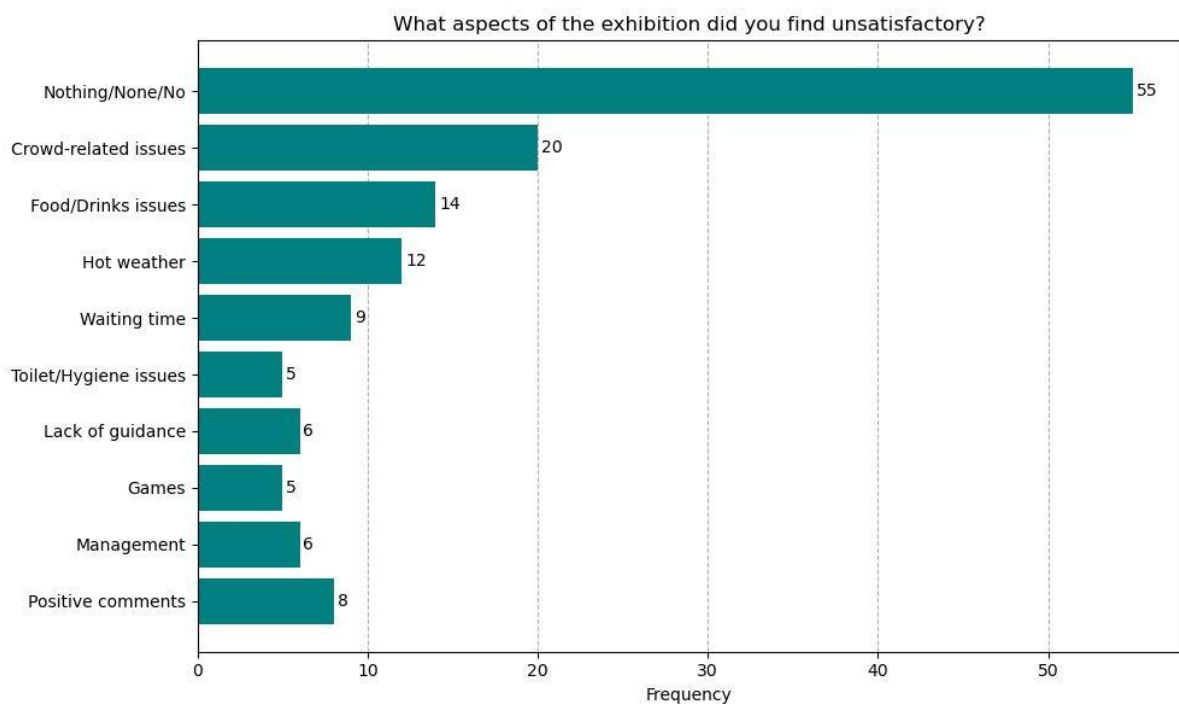
Figure S15: Word cloud (top) and frequency (bottom) plot of Q23: "*What aspects of the exhibition did you find unsatisfactory?*"
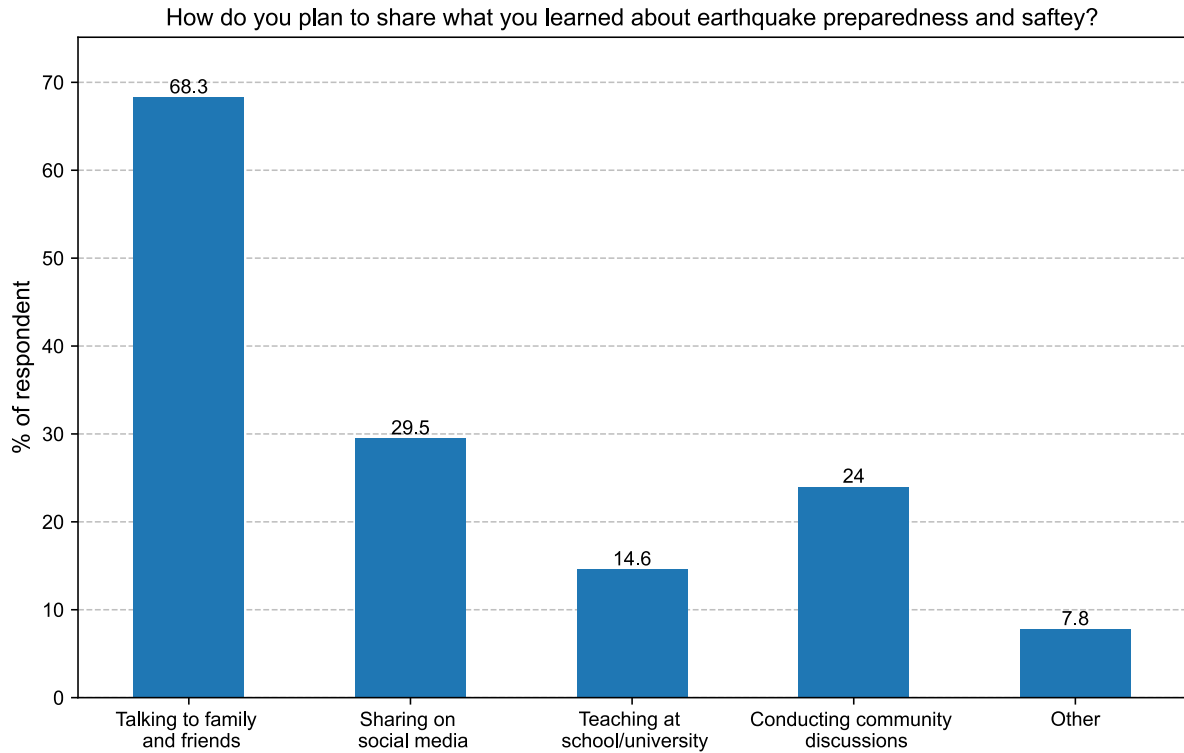
Figure S16. Participants' responses to Q26: *"How do you plan to share what you learned about earthquake preparedness and safety?". Multiple answers are allowed for this question.*
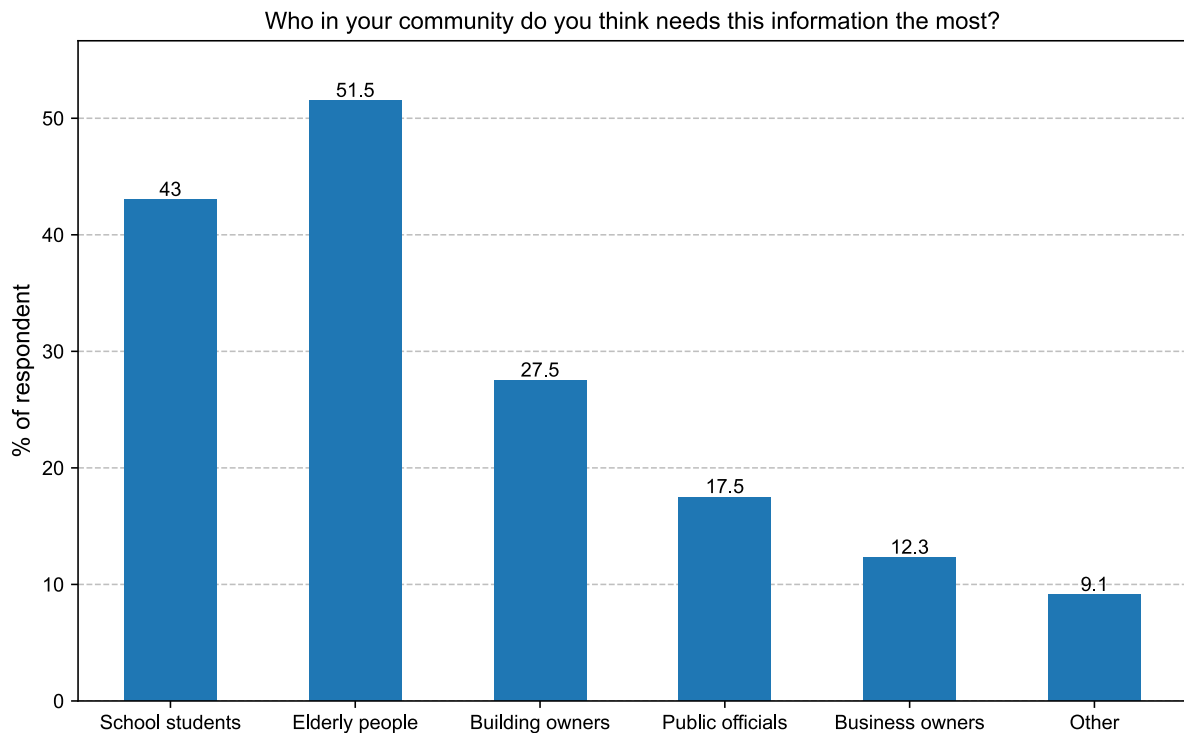
Figure S17. Participants' responses to Q27: *"How do you plan to share what you learned about earthquake preparedness and safety?". Multiple answers are allowed for this question.*
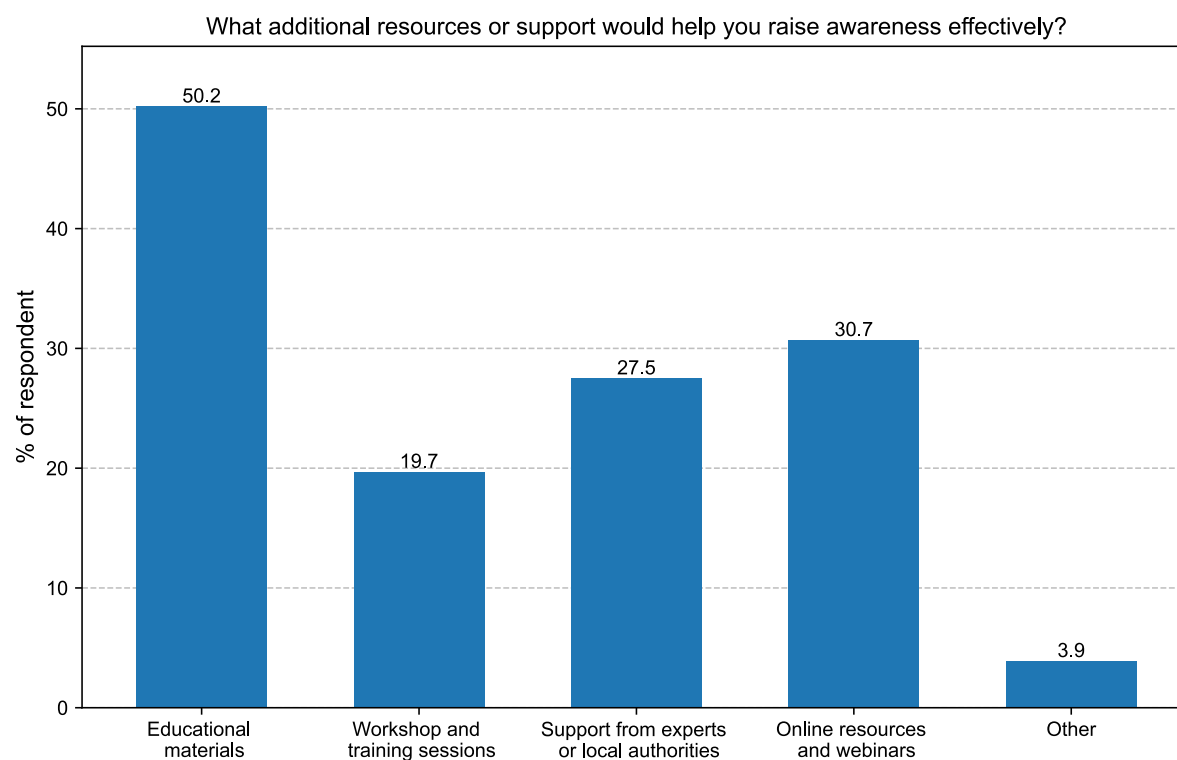
Figure S18. Participants' responses to Q28: *"What additional resources or support would help you raise awareness effectively?". Multiple answers are allowed for this question.*

Figure S19: Word cloud (top) and frequency (bottom) *plot of Q29: "Do you have additional comments or feedback?"*
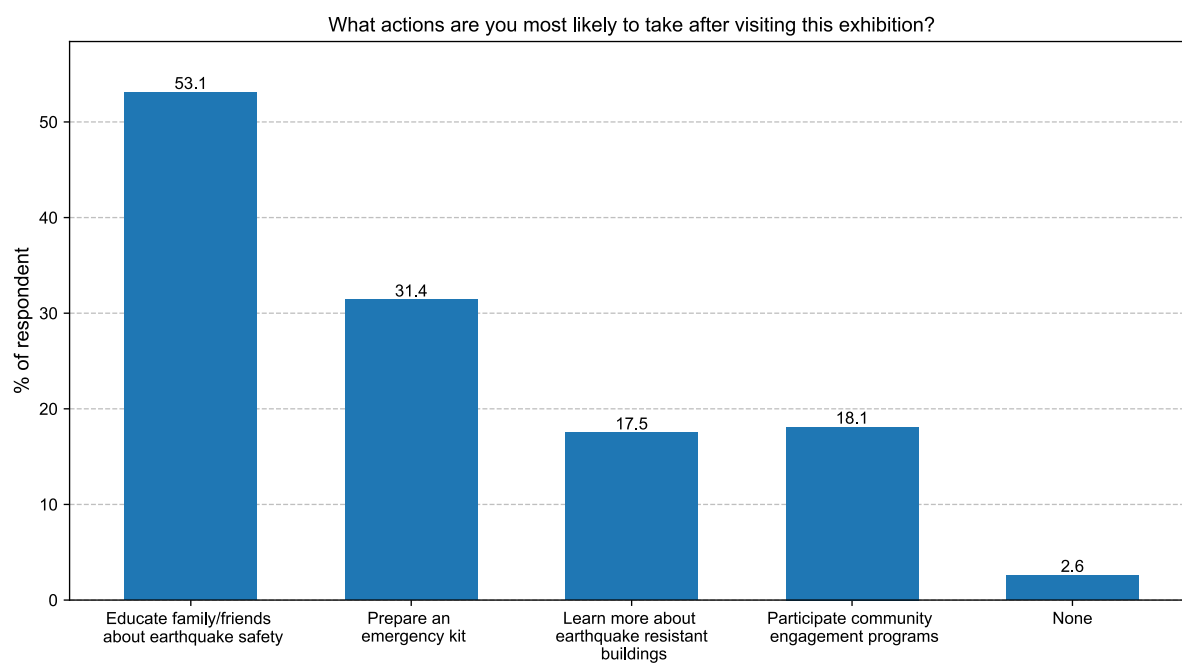
Figure S20: Participant's responses to *Q31: "What actions are you most likely to take after visiting this exhibition?"*

The goal of this survey is to understand local people's awareness regarding earthquakes and to further assess the impact of our program.

Survey: 1/2

Section 1: Visitor Information

1. What is the first thing that comes to your mind when you hear the word "**EARTHQUAKE**"? Without thinking too much, write down your first thought. "**भूकम्प**" भन्ने शब्द सुन्ने बित्तिकै तपाईको दिमाखमा के आउँछ ? तपाईको पहिलो सोचाई लेख्नुहोस् ।

....

2. Did you feel the earthquake that happened in 2015 or/and in 2023? वि.स. २०७२ वा २०८० सालमा गएको भूकम्प तपाईले महशुस गर्नुभयो ?

     □ Yes   □ No

3. What do you believe is the cause of earthquakes? तपाईको विचारमा भूकम्पको कारण के हुन सक्छ ?

□ Earth rotation पृथ्वीको घुमाई   □ Tectonic plates' movement जमिनमुनिको चट्टान सर्नु   □ Underground energy पृथ्वीभित्रको शक्ति

□ Earth carrying fish changes arm माछाले काध फेर्नु   □ Other, please specify अन्य……………………………………

4. In the event of an earthquake of Mw>8, what do you think could happen to you? यदी ८ रेक्टर स्केल भन्दा माथीको भूकम्प आए तपाईको अवस्था के हुन सक्छ ?

□ I could get hurt घाईते हुन सक्छु   □ I could be buried alive जिउँदै पुरिन सक्छु   □ My home could collapse मेरो घर भत्किएको हुन सक्छ

□ I could lose the people I love मलाई माया गर्ने मान्छे गुमाउन सक्छु   □ I could die मृत्यू हुन सक्छ   □Other, अन्य ………………

5. How likely do you think it is that an earthquake larger than the Gorkha earthquake will occur in Nepal during your lifetime? तपाईले आफ्नो जीवनमा वि.स.२०७२ सालको भूकम्प भन्दा ठूलो भूकम्प आउने सम्भावना कत्तिको देख्नुहुन्छ ?

□ Impossible (0%)   □ Very unlikely (10%)   □ Unlikely (30%)

□ Equally likely or unlikely (50%)   □ Likely (70%)   □ Most likely (90%)   □ I don't know

6. Would your house resist a major (Mw≥7) earthquake? तपाईको घरले विनाशकारी भूकम्प थेग्न सक्छ ?

     □ Yes   □ No   □ I don't know

7. Do all the members of your family know what to do and where to go during an earthquake? के तपाईको परिवारको सदस्यलाई भूकम्पको समयमा के गर्ने र कहाँ जाने भन्ने कुरा थाहा छ ?

     □ Yes थाहा छ   □ No थाहा छैन   □ Partially अलि अलि थाहा छ

8. How do you plan on communicating with your family/friends after a large earthquake? भूकम्पलगत्तै साथी परिवारसंग कसरी कुरा गर्नुहुन्छ ?

     □ I will make a call them   □ I will text them   □ I will go to meet them

9. What do you think the level of risk for an earthquake is in your city? तपाईको शहरमा भूकम्पको जोखिम कत्तिको छ भन्ने ठान्नुहुन्छ ?

     □ High धेरै   □ Medium मध्यम   □ Low थोरै

10. The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family? ठूलो भूकम्पको पूर्व तयारी अति महत्वपूर्ण छ । के तपाई यस विषयमा परिवारसंग नियमित छलफल गर्नुहुन्छ ?

     □ Yes   □ No

11. Have you ever discussed the topic of earthquakes in school? के तपाईंले कहिल्यै स्कूलमा भूकम्पको विषयमा छलफल गर्नुभएको छ ?

    □ Yes   □ No

12. Earthquake-related knowledge (Tick all that apply) भूकम्प सम्बन्धी ज्ञान

□ I know exactly when an earthquake will occur. मलाई भूकम्प कहिले आउँछ भन्ने ठ्याक्कै थाहा छ ।

□ I know earthquake cannot be prevented. भूकम्पको रोकथाम गर्न सकिदैन भन्ने कुरा मलाई थाहा छ ।

□ I have participated in disaster risk education training or workshop. मैले विपद व्यवस्थापन सम्बन्धी शिक्षा-तालिममा भाग लिएको छु ।

13. Earthquake preparedness (Tick all that apply) भूकम्पको तयारी

□ I think to come across an earthquake and remain alive depends on our luck. भूकम्पमा पर्नु र बाँच्नु हाम्रो भाग्यमा भरपर्छ ।

□ I know it is important to share experiences and knowledge about earthquakes. भूकम्पको अनुभव ज्ञान बाँड्नु महत्त्वपूर्ण छ भन्ने थाहा छ ।

□ I know the government will provide enough facilities after an earthquake and we will not face problems to survive.
  भूकम्पको विपद् पछि सरकारले प्रशस्त सुविधा प्रदान गर्छ र हामीलाई बाँच्न कुनै समस्या हुँदैन भन्ने कुरा मलाई थाहा छ ।

□ I trust in the government's reconstruction activities after a disaster. भूकम्पपछि सरकारको पुनर्निर्माण गतिविधिहरूमा मलाई विश्वास छ ।

□ It's important to talk about natural hazards with neighbors, friends and colleagues.
  भूकम्पको बारेमा छिमेकी र साथीभाईसँग छलफल गर्नुको महत्व मलाई थाहा छ ।

14. Earthquake adaptation (Tick all that apply) भूकम्प अनुकूलता

□ I am aware of the shelter areas and open space where you can evacuate/run in case of an earthquake.
  भूकम्पको बेलामा जान सकिने खुल्ला सुरक्षित ठाउँ कहाँ छन् भन्ने कुरा मलाई थाहा छ ।

□ I have information about which government office needs to be contacted after an earthquake.
  भूकम्पपछि कुन सुरकारी निकायसँग सम्पर्क गर्ने भन्ने कुरा मलाई थाहा छ ।

□ I have knowledge about earthquake prone areas. मलाई भुकम्पिय जोखिमयुक्त क्षेत्रको बारेमा ज्ञान छ ।

□ I am getting enough information from government about earthquake adaptation.
  मैले सरकारबाट भूकम्पसम्बन्धी प्रशस्त जानकारी पाईरहेको छु ।

15. Your Occupation: □ Student   □ Teacher   □ Local person   □ Other...

16. Your Age: □ १७ वर्षसम्म   □१८ देखी ३० वर्षसम्म   □ ३१ देखी ४५ वर्षसम्म   □ ४६ देखी ६० वर्षसम्म   □ ६० वर्षभन्दा माथी

The goal of this survey is to understand local people's awareness regarding earthquakes and to further assess the impact of our program.

Section 1: Visitor Information

1. What is the first thing that comes to your mind when you hear the word "**EARTHQUAKE**"? Without thinking too much, write down your first thought. "**भूकम्प**" भन्ने शब्द सुन्ने बित्तिकै तपाईको दिमाखमा के आउँछ ? तपाईको पहिलो सोचाई लेख्नुहोस् ।
....
2. Did you feel the earthquake that happened in 2015 or/and in 2023? वि.स. २०७२ वा २०८० सालमा गएको भूकम्प तपाईले महशुस गर्नुभयो ?
      □ Yes   □ No
3. What do you believe is the cause of earthquakes? तपाईको विचारमा भूकम्पको कारण के हुन सक्छ ?
□ Earth rotation पृथ्वीको घुमाई   □ Tectonic plates' movement जमिनमुनिको चट्टान सर्नु   □ Underground energy पृथ्वीभित्रको शक्ति
□ Earth carrying fish changes arm माछाले काँध फेर्नु   □ Other, please specify अन्य..................................

4. In the event of an earthquake of Mw>8, what do you think could happen to you?
   यदी ८ रेक्टर स्केल भन्दा माथीको भूकम्प आए तपाईको अवस्था के हुन सक्छ ?
□ I could get hurt घाईते हुन सक्छु   □ I could be buried alive जिउँदै पुरिन सक्छु   □ My home could collapse मेरो घर भत्किएको हुन सक्छ
□ I could lose the people I love मलाई माया गर्ने मान्छे गुमाउन सक्छु   □ I could die मृत्यु हुन सक्छ   □Other,अन्य ....

5. How likely do you think it is that an earthquake larger than the Gorkha earthquake will occur in Nepal during your lifetime?
तपाईले आफ्नो जीवनमा वि.स.२०७२ सालको भूकम्प भन्दा ठूलो भूकम्प आउँने सम्भावना कत्तिको देख्नुहुन्छ ?
□ Impossible (0%)   □ Very unlikely (10%)   □ Unlikely (30%)
□ Equally likely or unlikely (50%)   □ Likely (70%)   □ Most likely (90%)   □ I don't know

6. Would your house resist a major (Mw≥7) earthquake? तपाईको घरले विनाशकारी भूकम्प थेग्न सक्छ ?
    □ Yes   □ No   □ I don't know

7. Do all the members of your family know what to do and where to go during an earthquake?
   के तपाईको परिवारको सदस्यलाई भूकम्पको समयमा के गर्ने र कहाँ जाने भन्ने कुरा थाहा छ ?
    □ Yes थाहा छ   □ No थाहा छैन   □ Partially अलि अलि थाहा छ

8. How do you plan on communicating with family/friends after a large earthquake? भूकम्पलगत्तै साथी र परिवारसंग कसरी कुरा गर्नुहुन्छ ?
    □ I will make a call them   □ I will text them   □ I will go to meet them

9. What do you think the level of risk for an earthquake is in your city? तपाईको शहरमा भूकम्पको जोखिम कत्तिको छ भन्ने ठान्नुहुन्छ ?
    □ High धेरै   □ Medium मध्यम   □ Low थोरै

10. The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family?
ठूलो भूकम्पको पूर्व तयारी अति महत्वपूर्ण छ । के तपाई यस विषयमा परिवारसंग नियमित छलफल गर्नुहुन्छ ?
    □ Yes   □ No
11. Have you ever discussed the topic of earthquakes in school? के तपाईले कहिल्यै स्कूलमा भूकम्पको विषयमा छलफल गर्नुभएको छ ?
    □ Yes   □ No

12. Earthquake-related knowledge (Tick all that apply) भूकम्प सम्बन्धी ज्ञान
□ I know exactly when an earthquake will occur. मलाई भूकम्प कहिले आउँछ भन्ने ठ्याक्कै थाहा छ ।
□ I know earthquake cannot be prevented. भूकम्पको रोकथाम गर्न सकिदैन भन्ने कुरा मलाई थाहा छ ।
□ I have participated in disaster risk education training or workshop. मैले विपद् व्यवस्थापन सम्बन्धी शिक्षा-तालिममा भाग लिएको छु ।

13. Earthquake preparedness (Tick all that apply) भूकम्पको तयारी
□ I think to come across an earthquake and remain alive depends on our luck. भूकम्पमा पर्नु र बाँच्नु हाम्रो भाग्यमा भरपर्छ ।
□ I know it is important to share experiences and knowledge about earthquakes. भूकम्प अनुभव र ज्ञान बाँड्नु महत्त्वपूर्ण छ भन्ने थाहा छ ।
□ I know the government will provide enough facilities after an earthquake and we will not face problems to survive.
   भूकम्पको विपद् पछि सरकारले प्रशस्त सुविधा प्रदान गर्छ र हामीलाई बाँच्न कुनै समस्या हुँदैन भन्ने कुरा मलाई थाहा छ ।
□ I trust in the government's reconstruction activities after a disaster. भूकम्पपछि सरकारको पुनर्निर्माण गतिविधिहरूमा मलाई विश्वास छ ।
□ It's important to talk about natural hazards with neighbors, friends and colleagues.
   भूकम्पको बारेमा छिमेकी र साथीभाईसँग छलफल गर्नुको महत्व मलाई थाहा छ ।

14. Earthquake adaptation (Tick all that apply) भूकम्प अनुकूलता
□ I am aware of the shelter areas and open space where you can evacuate/run in case of an earthquake.
   भूकम्पको बेलामा जान सकिने खुल्ला सुरक्षित ठाउँ कहाँ छन् भन्ने कुरा मलाई थाहा छ ।
□ I have information about which government office needs to be contacted after an earthquake.
   भूकम्पपछि कुन सरकारी निकायसँग सम्पर्क गर्ने भन्ने कुरा मलाई थाहा छ ।
□ I have knowledge about earthquake prone areas. मलाई भूकम्पिय जोखिमयुक्त क्षेत्रको बारेमा ज्ञान छ ।
□ I am getting enough information from government about earthquake adaptation.
   मैले सरकारबाट भूकम्पसम्बन्धी प्रशस्त जानकारी पाईरहेको छु ।

15. Your Occupation: □ Student □ Teacher □ Local person □ Other…………………………………..

16. Your Age: □ १७ वर्षसम्म □ १८ देखी ३० वर्षसम्म □ ३१ देखी ४५ वर्षसम्म □ ४६ देखी ६० वर्षसम्म □ ६० वर्षभन्दा माथी

Section 2: Exhibition Experience प्रदर्शनी अनुभव

17. What aspects of the exhibition did you find most useful? (Select all that apply.) प्रदर्शनीको कुन पक्ष तपाईलाई सबैभन्दा उपयोगी लाग्यो ?
  □ Causes of earthquakes □ Seismic activities in Nepal
  □ Earthquake knowledge □ What to do before, during, and after an earthquake

18. Rate the effectiveness of the exhibition in improving earthquake knowledge and preparation (1=Not at all, 5=Extremely effective): भूकम्पको ज्ञान र भूकम्प तयारीमा सुधार गर्न प्रदर्शनीको प्रभावकारिताको मूल्याङ्कन गर्नुहोस् (१ = प्रभावकारी छैन, ५ = अत्यन्तै प्रभावकारी):
  □ 1 □ 2 □ 3 □ 4 □ 5

19. Did the exhibition change your perception of earthquake risks and preparedness?
  के प्रदर्शनीले भूकम्प जोखिम र तयारीको बारेमा तपाईको सोचाई परिवर्तन गर्यो ?
  □ Yes, significantly □ Somewhat □ Not much □ No

20. Which new information or skills did you learn from this exhibition? यस प्रदर्शनीबाट तपाईले कुन नयाँ कुरा थाहा पाउनुभयो ?
  ……

21. After attending the exhibition, do you feel more prepared to handle an earthquake?
  प्रदर्शनीमा भाग लिएपछि तपाई भूकम्पको सामना गर्न अझ तयार महशुस गर्नुभयो ?
  □ Yes □ Somewhat □ No

22. What did you like most about the exhibition? प्रदर्शनीमा तपाईलाई सबैभन्दा धेरै के मन पर्यो ?
  ……

23. What aspects of the exhibition did you find unsatisfactory? प्रदर्शनीको बारेमा तपाईलाई के मन परेन ?
  ……

24. Would you recommend this exhibition to others? के तपाई यो प्रदर्शनी अवलोकन गर्न अरूलाई सिफारिश गर्नुहुन्छ ?
  □ Yes □ Maybe □ No

25. Will you share the earthquake knowledge you learned today with people in your community?
  के तपाई आज सिकेको भूकम्पसम्बन्धी ज्ञान समुदायमा बाड्नुहुन्छ ?
  □ Yes, with many people (n>10) □ Yes, with some people (n>5) □ Yes, only with parent □ No at all

26. How do you plan to share what you learned about earthquake preparedness and safety? (Select all that apply.)
  भूकम्पको तयारी र भूकम्प सुरक्षाको बारेमा सिकेका कुराहरू अरुलाई कसरी बताउनुहुन्छ ?
  □ Talking to family and friends □ Sharing on social media □ Teaching at school/university
  □ Conducting community discussions □ Other (please specify) …………………………………………

27. Who in your community do you think needs this information the most? (Select all that apply.)
  तपाईको समुदायमा कसलाई भूकम्पसम्बन्धी जानकारी सबैभन्दा बढी आवश्यक छ जस्तो लाग्छ ?
  □ School students □ Elderly people □ Homeowners/building owners
  □ Public officials □ Business owners □ Other (please specify) …………………………………

28. What additional resources or support would help you raise awareness effectively?
  भूकम्पसम्बन्धी चेतनास्तर बढाउन तपाईलाई कुन थप श्रोतले सहयोग गर्छ ?
  □ Educational materials (brochures, posters, videos) □ Workshops and training sessions
  □ Support from experts or local authorities □ Online resources and webinars □ Other…………………………

29. Do you have additional comment or feedback? प्रदर्शनीको बारेमा तपाईसँग थप प्रतिक्रिया छ ?
  ……

30. After attending this exhibition, are you more likely to take steps for earthquake preparedness (e.g., creating an emergency plan, securing household items, spreading awareness)? यस प्रदर्शनीमा भाग लिएपछि तपाईले भूकम्पको तयारीको लागि काम गर्नुहुन्छ ?
  □ Yes, definitely □ Maybe □ Not really □ No

31. What actions are you most likely to take after visiting this exhibition? यो प्रदर्शनीको भ्रमण पछि तपाईले के गर्ने सम्भावना बढी छ ?
□ Educate family/friends about earthquake safety □ Prepare an emergency kit
□ Learn more about earthquake-resistant buildings □ Participate community awareness programs
□ None □ Others, please specify: …………………………………