

Assessing Earthquake Preparedness in a Culturally Diverse Student Population in Japan

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Tatul Atalyan¹ and Netra Prakash Bhandary^{2*}

¹Graduate School of Science and Engineering, Ehime University, 3 Bunkyo-cho, Matsuyama, Ehime 790-8577, Japan

Email: tatulatalyan@gmail.com

²Department of Environmental Design, Faculty of Collaborative Regional Innovation, Ehime University, 3 Bunkyo-cho, Matsuyama, Ehime 790-8577, Japan

Email: netra@ehime-u.ac.jp

*Correspondence: netra@ehime-u.ac.jp

Survey Instrument

The full list of survey items used in the study includes six demographic questions, 34 preparedness-related items, and one open-ended question. The item numbering starts from Q2 because Q1 was a consent item and not included in the analysis.

Section 1: Demographic Information

2. Gender:

- Male
- Female
- Non-binary
- Prefer not to say

3. Age:

- 18-22
- 23-27
- 28-32
- 33-37
- 38 and above

4. Country of Origin

5. Have you experienced an earthquake before coming to Japan?

- Yes
- No

6. Length of Stay in Japan:

- Less than 1 year
- 1-2 years
- More than 2 years

7. Level of Study:

- Undergraduate
- Master
- Doctorate (PhD)
- Other

Section 2: Education and Awareness

8. How would you rate the level of earthquake preparedness education (e.g., school programs, community training) you received in your home country? (If you selected 'No education,' please skip Question 9 and proceed directly to Question 10.)

- No education – I have not received any training or information related to earthquake preparedness.
- Minimal education – I received some basic information (e.g., a single session or informal advice).
- Moderate education – I participated in occasional lessons or community programs but did not receive in-depth training.
- Comprehensive education – I received structured and detailed guidance on preparedness actions.
- Extensive education – I had regular, in-depth training, including practical exercises and comprehensive materials.

9. Which of the following topics were covered in your earthquake preparedness education? (If you selected “No education” in Question 8, please skip this question and proceed directly to Question 10.)

- Essential emergency supplies (food, water, first aid, flashlight, etc.)
- Evacuation routes and nearest designated shelters
- Protective actions (Drop, Cover, and Hold techniques)
- Earthquake drills and response simulations
- Emergency communication plans (e.g., contacting family, using emergency apps)
- Mental health and psychological coping strategies
- Other

10. Have you participated in any earthquake preparedness educational programs (e.g., workshops, lectures) offered by your university or local community in Japan?

- Never participated - I have not participated in any earthquake preparedness training
- Minimal participation - I have only attended a one-time lecture or received basic information
- Moderate participation - I have attended multiple educational sessions, but without hands-on practice
- Hands-on participation - I have participated in hands-on earthquake preparedness drills or simulations at least once

- Regular participation - I regularly engage in earthquake preparedness programs, including hands-on drills

11. Are you aware of the location of the nearest evacuation point or shelter near your residence in Japan?

- Yes
- No
- I'm not sure

12. Are you familiar with the Earthquake Early Warning alarm alert in Japan?

- Yes
- No

13. Do you feel you have sufficient access to earthquake preparedness resources (e.g., government websites, university materials, guides, apps, support services) in Japan?

- Yes – I feel well-informed.
- Somewhat – I have access to some resources but not enough.
- No – I feel I lack adequate resources.

14. How confident are you in your understanding of earthquake preparedness measures (e.g., evacuation procedures, safety actions)?

- Not confident at all - I do not understand what actions to take during an earthquake.
- Slightly confident - I have a basic understanding but feel uncertain about the details or how to apply them effectively.
- Neutral - I have some understanding of preparedness measures but do not feel distinctly confident or unsure.
- Confident - I understand most of the key measures and feel capable of taking appropriate actions.
- Very confident - I fully understand all necessary measures and feel completely prepared to respond effectively.

Section 3: Practical Preparedness

15. How adequately have you prepared essential emergency supplies (e.g., water, non-perishable food, first aid kit, flashlight, emergency radio, portable phone charger) at your residence in Japan? (If you selected "Not prepared at all," please skip Question 16 and proceed directly to Question 17.)

- Not prepared at all - I have no emergency supplies and have not planned or considered obtaining them.
- Slightly prepared - I have minimal emergency supplies, but they are insufficient for a real emergency situation.
- Moderately prepared - I have some essential supplies, although several critical items or quantities are still missing.

- Well-prepared - I have most essential emergency supplies, including adequate food, water, first aid materials, and communication tools, but minor gaps remain.
- Completely prepared - I have assembled a comprehensive emergency kit with all necessary items, regularly maintained and sufficient for extended emergencies.

16. How often do you check and update your emergency supplies (e.g., water, food, first aid kit) to ensure they are usable in an earthquake? (If you selected “Not prepared at all” in Question 15, please skip this question and proceed directly to Question 17.)

- I do not have any emergency supplies
- I have supplies but have not checked or updated them.
- Once a year
- Every 6 months
- More frequently than every 6 months

17. If you have not fully prepared for an earthquake, what are the main challenges or barriers you face? (Select all that apply)

- Lack of time to prepare
- Too expensive (cost of emergency kits, supplies)
- Don't know what to do (lack of information/training)
- Don't think it's necessary (low perceived risk)
- Lack of motivation to prepare
- I have already taken all necessary preparedness actions
- Other

18. Do you have a physical copy of emergency contact numbers (e.g., local emergency services, embassy, family) stored in your emergency kit or wallet

- Yes
- No

19. To what extent do you ensure heavy items are placed on lower shelves or secured to minimize risk during an earthquake?

- Not at all - I have never thought about doing this.
- Aware but not acted - I am aware of this measure but have not taken any action yet.
- Partially completed - I have rearranged some items, but many risks remain.
- Mostly completed - I have placed or secured most heavy items, though minor improvements are still needed.
- Fully completed - All heavy items are consistently placed securely or fully secured.

20. How effectively have you secured heavy furniture or objects (e.g., bookshelves, cabinets, appliances) to prevent them from falling during an earthquake?

- Never considered - I have not considered securing furniture at all.
- Considered but not done - I have considered securing furniture, but have not started yet.
- Partially completed - I have secured some furniture, but significant risks remain.
- Mostly completed - Most heavy furniture is secured, with only minor adjustments needed.

- Fully completed - All heavy furniture is completely and consistently secured.

21. Have you practiced or walked the route to your nearest evacuation point in Japan?

- I am not aware of the nearest evacuation point.
- I am aware of the evacuation point but have not planned or practiced the route yet.
- I have not practiced yet, but I plan to do this soon.
- I have practiced or walked the evacuation route at least once.
- I regularly practice or walk the evacuation route.

22. Have you participated in any earthquake preparedness practical drills (e.g., evacuation simulations) in Japan?

- I am not aware of any earthquake preparedness drills.
- I am aware but have not considered participating.
- I have considered participating but have not done so yet.
- I have participated in a preparedness drill at least once.
- I regularly participate in earthquake preparedness drills.

Section 4: Behavioral Preparedness

23. Have you discussed earthquake preparedness with friends, family, or classmates to align your actions during an emergency?

- I have never discussed it with anyone.
- I have discussed it once or twice.
- I discuss it occasionally.
- I frequently discuss it.
- I regularly and actively discuss it.

24. How often do you review and update your personal emergency contact list or communication plan for an earthquake?

- Never - I do not have an emergency contact list or plan.
- Rarely - I have emergency contacts but never update them.
- Sometimes - I have reviewed or updated them once in a while.
- Often - I check and update emergency contacts at least once a year.
- Always - I regularly review, update, and ensure my emergency plan is current.

25. Have you practiced protective actions (e.g., drop, cover, and hold) in preparation for an earthquake?

- Never - I have never practiced and do not intend to practice.
- Not yet - I have not practiced yet but plan to in the future.
- Rarely - I have practiced once or twice but need more practice to feel confident.
- Sometimes - I have practiced multiple times but still feel I need improvement.
- Regularly - I have practiced multiple times and feel confident in my actions.

26. When entering unfamiliar indoor environments (e.g., schools, offices, malls), do you routinely identify and mentally note the locations of emergency exits and earthquake-safe zones?

- Never - I do not make any effort to identify emergency exits or safe zones.
- Rarely - I occasionally notice emergency exits or safe zones, but it is not a regular habit.
- Sometimes - I sometimes identify emergency exits or safe zones, depending on the situation or environment.
- Often - I usually make an effort to identify emergency exits or safe zones in most unfamiliar indoor environments.
- Always - I always identify and mentally note the locations of emergency exits and safe zones as soon as I enter an unfamiliar indoor environment.

27. How motivated are you to improve your earthquake preparedness in the next six months?

- Not motivated at all – I have no interest or intention to improve my preparedness.
- Slightly motivated – I have some interest but improving preparedness is not a priority.
- Moderately motivated – I feel motivated but require additional support or resources to take action.
- Highly motivated – I am actively planning steps to improve my preparedness.
- Extremely motivated – I am fully committed and consistently working on improving my preparedness.

28. If you have taken steps to improve your earthquake preparedness in the past six months, which of the following actions have you completed?" (Select all that apply) Please select all actions that apply. If you have not taken any preparedness steps, select the last option.

- Read articles or guides on earthquake preparedness
- Watched videos on earthquake preparedness
- Attended an educational session, workshop, or seminar on earthquake safety
- Created or updated a personal emergency plan
- Checked or updated emergency supplies (e.g., food, water, first aid kit)
- Practiced protective actions (e.g., Drop, Cover, Hold)
- Identified evacuation routes and safe zones in my area
- Participated in an earthquake preparedness drill
- No, I have not taken any preparedness steps in the past six months

Section 5: Perceived Earthquake Risk & Emotional Response

29. How concerned are you about the risk of a major earthquake occurring while you are in Japan?

- Not concerned at all - I rarely think about earthquakes and do not feel worried.
- Slightly concerned - I am aware of the risk but do not feel anxious.

- Moderately concerned - I sometimes worry about earthquakes, but it does not affect my daily life.
- Very concerned - I frequently think about earthquakes and feel somewhat anxious.
- Extremely concerned - I feel highly anxious and think about earthquake risks often.

30. How likely do you think you are to personally experience a major earthquake while living in Japan?

- Very Unlikely - I do not believe I will experience a major earthquake while in Japan.
- Unlikely - A major earthquake is possible, but I do not consider it likely.
- Neutral - I am unsure about the likelihood of experiencing a major earthquake.
- Likely - I believe I am somewhat likely to experience a major earthquake while in Japan.
- Very Likely - I strongly believe I will experience a major earthquake while in Japan.

31. How do you emotionally react when you experience an earthquake or feel shaking?

- I remain completely calm - I do not feel nervous or anxious during an earthquake
- I feel slightly uneasy - I notice it but can control my emotions easily.
- I feel moderately anxious - I experience some nervousness or discomfort.
- I feel highly anxious - I struggle to stay calm and may feel panic.
- I feel extremely distressed - I panic, freeze, or experience physical symptoms like a racing heart
- I have never experienced an earthquake - I do not know how I would react.

32. How has living in Japan influenced your emotional readiness for earthquakes?

- Significantly decreased – My emotional readiness has worsened significantly due to heightened anxiety or challenges.
- Somewhat decreased – I feel less emotionally ready because I've become more aware of the risks or face new challenges.
- No change – Living in Japan has not affected my emotional readiness; I feel the same as before.
- Somewhat improved – I have gained some knowledge or experience, boosting my readiness slightly.
- Significantly improved – My confidence has significantly increased due to exposure, education, and preparedness efforts in Japan.

33. When you hear about earthquakes in other regions, how does it affect your emotional state?

- No effect - It does not affect me emotionally.
- Slight effect - I acknowledge it, but do not feel anxious.
- Moderate effect - I feel somewhat uneasy but can manage.
- Strong effect - I feel quite anxious and worried.
- Very strong effect - I feel extremely anxious and distressed.

34. To what extent do concerns about earthquakes interfere with your ability to concentrate on daily activities such as studying, working, or socializing?

- Not at all - Earthquake concerns never affect my ability to focus.
- Slightly - I occasionally think about earthquakes, but they do not distract me.
- Moderately - I sometimes get distracted by earthquake concerns during daily activities.
- Often - I frequently struggle to focus because of earthquake concerns.
- Very often - My focus is significantly affected by earthquake concerns.

35. What strategies do you use to manage earthquake-related anxiety? (Check all that apply)

- Deep breathing or relaxation techniques
- Mental rehearsal of preparedness actions (imagining what to do during an earthquake)
- Seeking information and reassurance from official sources (e.g., university, government websites, experts)
- Talking with friends, family, or support groups
- Engaging in preparedness activities (e.g., checking emergency supplies, reviewing evacuation plans)
- Distracting myself with other activities (e.g., music, movies, hobbies)
- I do not use any strategies
- Other

Section 6: Confidence in Managing Earthquake Situations

36. How confident are you in your ability to use emergency resources effectively (e.g., first aid, fire extinguishers, emergency kits) during an earthquake?

- Not confident at all - I would not know how to use emergency resources.
- Slightly confident - I might figure it out but could struggle under pressure.
- Moderately confident - I know how to use some resources but not all.
- Very confident - I can effectively use most emergency resources.
- Extremely confident - I am fully prepared to use all available emergency tools without hesitation.

37. How confident are you in your ability to take the correct actions when you hear the Earthquake Early Warning (EEW) alarm in Japan?

- Not confident at all – I would likely panic or freeze when hearing the alarm.
- Slightly confident – I might respond, but I’m unsure if I’d take the correct actions.
- Moderately confident – I feel somewhat capable but may hesitate under stress.
- Very confident – I am fairly sure I can respond appropriately in most situations.
- Extremely confident – I feel fully prepared and capable of responding correctly.

38. How confident are you in your ability to recall and follow preparedness measures during a sudden earthquake?

- Not confident at all - I would struggle to remember what to do.
- Slightly confident - I know some basic steps but may forget under stress.
- Moderately confident - I can recall most actions but might hesitate.

- Very confident - I am sure I can follow preparedness steps effectively.
- Extremely confident - I can quickly and correctly apply preparedness measures without

39. How confident are you in your ability to navigate your way to safety if an earthquake occurs in an unfamiliar place (e.g., a shopping mall, train station, or campus building)?

- Not confident at all - I would feel lost and unsure of where to go.
- Slightly confident - I might struggle but could eventually find a way.
- Moderately confident - I could find a safe route but might need time.
- Very confident - I am sure I could quickly find a safe evacuation path.
- Extremely confident - I would immediately know how to escape safely.

40. How confident are you in your ability to manage sudden fear or panic if an earthquake occurs?

- Not confident at all - I would panic and struggle to manage my fear.
- Slightly confident - I might experience significant fear but could regain control.
- Moderately confident - I would feel nervous but could manage my emotions.
- Very confident - I believe I can control my fear and act appropriately.
- Extremely confident - I feel fully capable of staying calm and focused.

41. How confident are you in your ability to support and reassure others (e.g., friends, roommates, classmates) during an earthquake?

- Not confident at all - I would not be able to support others emotionally or practically.
- Slightly confident - I might try to help, but I would struggle to manage my own emotions.
- Moderately confident - I could provide some support but might feel overwhelmed myself.
- Very confident - I believe I could stay calm and reassure others.
- Extremely confident - I feel fully capable of keeping others calm and providing effective support.

42. Do you have any additional comments, feedback, or suggestions regarding earthquake preparedness in Japan? Your input is valuable and will help enhance earthquake preparedness strategies for international students.