

Disaster Preparedness among Nepalese Immigrants: Enhancing the Knowledge, Attitude and Practice Through an Educational Intervention

by

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Abstract

Background: Natural disasters have increased during the last several decades all over the world including Japan. Coping with disasters is a major challenge overall and even harder for foreigners. Hence, we aim to increase the disaster preparedness practice among immigrants targeting Nepalese residing in Japan. The objective of this study was to examine the perceived knowledge, attitude, practice, and perceived barriers of disaster preparedness among Nepalese immigrants, to develop an educational intervention in one of the most experienced disasters (earthquake) among Nepalese immigrants while residing in Japan and to identify the efficacy of that intervention.

Methods: We conducted two studies: a cross-sectional study and a quasi-experimental study among Nepalese immigrants aged 18 years or above and residing in Japan. The first study was conducted in 2021 and based on its results the second study was conducted during 2021-2022. Bivariable and multivariable logistic regression analyses were conducted to examine the factors associated with the perceived knowledge, attitude, and practice of Nepalese immigrants regarding disaster preparedness from the first online survey. And a web-based educational intervention was prepared related to earthquake preparedness for another study and generalized estimating equation model was used to examine the effect of intervention before, immediately after, two weeks after and 12 weeks after the intervention. The participants were recruited via Social Networking Sites for both studies.

Results: A total of 404 respondents were analyzed in the first study and about two-third of them were male. We found that the mean score of disaster preparedness practice was lowest compared to the knowledge and attitude scores, as evidenced by most of the participants not being prepared for disaster situations, and a limited proportion had ever taken necessary natural disaster preparedness measures. Japanese language was identified as the major barrier in assessing the knowledge, attitude and practice regarding disaster preparedness and compared

to those who didn't identify it as a barrier those who did have lower knowledge of disaster preparedness after adjusting for some socio-demographic covariates. (aOR: 0.54, 95% CI: (0.30 – 0.97)). Earthquakes were the most experienced disaster among the study population however, people did not have satisfactory level of knowledge and practice regarding the same. Hence, we conducted an intervention study among 165 Nepalese immigrants to enhance their knowledge and practice regarding earthquake preparedness. Among them the majority were male (67.88%), and the mean age of the participants was 32.78 years. There was a subsequent increment in the knowledge and practice scores in the immediate post-intervention and the follow up periods compared to the pre-intervention's scores as shown by the paired t-test ($p < 0.001$). Similar results were obtained from our generalized estimating equation models which showed that the knowledge score of earthquake preparedness was 4.01 points higher immediately after the intervention [95% CI: (2.78 to 5.2), $p\text{-value} < 0.001$] compared to before intervention, with a further increase by 7.02 points [95% CI: (5.96 to 8.09), $p\text{-value} < 0.001$] at two weeks follow up. However, the practice of earthquake preparedness increased by only 2.83 points [95% CI: (2.51 to 3.14), $p\text{-value} < 0.001$] immediately after the intervention with a similar increase at two weeks [OR: 2.49, 95% CI: (2.12 to 2.86), $p\text{-value} < 0.001$] and 12 weeks follow up period [OR: 2.62, 95% CI: (2.29 to 2.96), $p\text{-value} < 0.001$].

Conclusions: This study observed that the perceived knowledge and practices regarding natural disasters are very poor while barriers to access these are substantial among Nepalese immigrants in Japan. As Japanese language was identified as a major barrier, the availability of language translation services in every health care sector also in the government offices of Japan might encourage people to learn more about disaster preparedness. Meanwhile the educational intervention, when conducted in native language, can increase both the knowledge and practice score of earthquake preparedness among the immigrant population. Hence, having information related to earthquake preparedness in Nepali languages could potentially increase

information seeking behavior of people thus, we prepared an earthquake preparedness booklet in Nepali and distributed it among Nepalese during an event targeted for Nepali immigrants. An electronic version of such booklet in some reliable information dissemination sources like official Japanese Government websites might have a huge impact in increasing the preparedness skills of Nepalese immigrant population.

Keywords: Disaster, Preparedness, Immigrants, Nepalese, Earthquake, Japan, Intervention, Knowledge, Practice, Nepal, Education