Public Segmentation to Promote Preparedness
for Flood and Sediment Disasters

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Abstract

This research aims to establish a risk-communication framework on a basis of public segmentation to promote preparedness for flood and sediment disasters. Public segmentation is a process of dividing people into homogeneous subgroups based on demographic, psychological, or behavioral variables. It is important to seek for variables to execute proper public segmentation because it enables us to perform an efficient risk communication tailored to characteristics of the respective subgroups to promote preparedness for flood and sediment disasters.

This paper modeled people's preparedness behavior by applying a latent-class binary logit model framework and using demographic variables as well as psychological variables in Protection Motivation Theory (hereafter, PMT). A latent-class model inherently assumes heterogeneous people, so it is highly compatible with performing public segmentation. In addition, PMT are applied for various research fields to explain peoples' protective actions from harm, unhealthiness or risk. In a context of preparedness for disasters, some researches achieved a modeling of preparedness for disasters, but these researches does not assume heterogeneous people in terms of preparedness for disasters. These are why this paper applies a latent-class binary logit model framework and uses variables in PMT.

As results, it was revealed that past experiences were crucial variables to execute the public segmentation, but demographic variables, including gender and age, were not. In detail, it was cleared that those who had more past experiences of damage by disasters should improve threat appraisal of disasters, especially a perception of severity of damage to promote preparedness for disasters; on the other hand, those who had less past experiences of damage should improve coping appraisal of preparedness. The former result is interpreted as the fact that past experiences help to form a perception of severity of damage in cases. That is, those who had experiences on severe damages are likely to perceive higher severity of damage and prepare for disasters, but those who had experiences on minor damages are not likely to perceive and prepare. It was found to let those who had experiences on minor damages recognize a possibility of severer damages than the past experiences to promote preparedness for disasters.