In recent years, the percentage of respondents who felt highly annoyed (%HA) prediction has become a critical component of environmental impact analyses for making environmental decisions regarding transportation noise. The World Health Organization (WHO) has recommended population annoyance as one of the environmental health indicators to support environmental noise policy-making and decision activity in many countries. However, WHO doesn’t recommend international consensus on how to predict annoyance responses from transportation noises. Therefore, the aim of the present study is to assess the relationship between environmental noise level and degree of annoyance in Korea. The environmental noises considered in this study were aircraft, train and road traffic noises. The studies on dose-response relationships with respect to short-term noise (event noise) and long-term noise were carried out. Short-term noise and long-term noise are divided according to exposure time of noises. Annoyance caused by short-term noise of transportation was studied to assess the relationship between event noises and subject responses. Noise events were measured using HATS to make a copy that human hears sound through both ears. The total number of respondents for analyzing the subject responses is 615. The results showed that annoyance caused by aircraft noise is higher than that of railway and road traffic noise. Besides, civil aircraft noise is higher than military one. And then, annoyance responses according to sex distinction are not different, while with increase in age and noise sensitivity annoyance responses are also increase.

Studies on community annoyance caused by long-term exposure of transportation noise were conducted in fifty-three areas around civil aircraft, railway and road traffic noise regions to accumulate social survey data for assessing the relationship between noise levels and annoyance responses in Korea. Noise measurements were carried out using airport noise monitoring systems with aircraft noise and portable precision sound level meters with other transportation noises. Social surveys were conducted to people living within nearby noise measurement points. Questionnaires were face-to-face interviews using various questions which concerned demographic factors, degree of noise annoyance, interference with daily activities and health-related symptoms. The questions of noise annoyance were answered on an 11-point numerical scale. The respondents, from 18 to 70 years of age, were randomly selected and they completed the questionnaire by themselves. The total number of respondents for the questionnaires is 1,910. The results showed that annoyance caused by transportation noise in Korea seems higher than that reported in other countries. Especially, annoyance from railway noise in Korea is much higher than that in European countries. Considering the situation of houses in Korea, Japan and Europe, it is especially expected that the annoyance caused by railway noise in this study is similar to that in Japan, but is more severe than that in European countries. The distance from railway to houses may be one of the most important causes for the difference in community annoyance between Korea and Europe. It is believed that the relationship can be used environmental noise policy-making and decision activity in the future.

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