INVESTIGATING COMMUNITY HEALTH EFFECTS OF BIOAEROSOL POLLUTION IN HO CHI MINH MEGACITY, VIETNAM

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Abstract

This study assessed the effects of bioaerosol pollution on community health across six urban and residential communities located in Ho Chi Minh megacity, Vietnam. A questionnaire survey was performed on 300 respondents to record health complaints from exposure to bioaerosols. The health symptoms (i.e. flu and cough) were highest in those items with means equal to 6.518 (SD=2.5068) and 6.555 (SD=2.6696), whereas the lowest item was "chest tightness" with mean equal to 3.334 (SD = 2.7001). The results showed that the questionnaire retained good internal consistency with Cronbach's alpha was 0.613. Using principle component analysis, we have identified 12 questions related to health complaints that could be grouped into five main clusters: PC_1 named "nose symptoms"; PC_2 named "throat (respiratory symptoms)"; PC_3 named "fever symptoms"; PC_4 named "flu (flu-like symptoms)"; and PC_5 named "cough symptoms", respectively. The results indicated the potential effects of bioaerosols on human health, with the PCs have accounted for 63.2 percent of the overall total variance and with eigenvalues equal to 1.502 >1. Using multiple linear regression models, this study found that latent factors (i.e. daily habit, living environment, and medical history) such as duration from last pain, residential duration, duration staying at home, home time, distance to street can explain the effect of bioaerosols on health symptoms at the 0.05 significance level. The findings are helpful and significant reference for urban planning, policy making and the community health protection in Ho Chi Minh megacity.

Key words: bioaerosol, effect, health symptoms, Ho Chi Minh megacity, Vietnam

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