

Hearing impairment and contributing factors among fertilizer factory workers

Abstract

INTRODUCTION: Hearing impairment remains the main occupational health problem in the manufacturing industry, and its contributing factors have not been well controlled.

METHODS: Unmatched case control and comparative studies were carried out among fertilizer factory workers in Sarawak with the aim of determining contributing factors for hearing impairment. Respondents consisted of 49 cases that were diagnosed from 2005 to 2008 with 98 controls from the same work places. Chi-square test and Mann-Whitney test were used in a univariate analysis to determine the association between hearing impairment and the contributing risks being studied.

RESULTS: The results of the univariate analysis showed that hearing impairment was significantly ($p < 0.05$) associated with older age, lower education level, high smoking dose, high occupational daily noise dose, longer duration of service, infrequent used of hearing protection device (HPD), and low perception of sound on HPD usage. Multivariate logistic regression of hearing impairment after controlling for age found the following five variables: occupational daily noise dose $\geq 50\%$ (OR 3.48, 95% CI 1.36-8.89), ≥ 15 years of services (OR 2.92, 95% CI 1.16-7.33), infrequent use of HPD (OR 2.79, 95% CI 1.15-6.77), low perception of sound on HPD (POR 2.77, 95% CI 1.09-6.97), and smoking more than 20 packs per year (OR 4.71, 95% CI 1.13-19.68).

DISCUSSION: In conclusion, high occupational noise exposure level, longer duration of service, low perception of sound on HPD, infrequent used of HPD, and smoking more than 20 packs per year were the contributing factors to hearing impairment, and appropriate intervention measures should be proposed and taken into considerations.