

Relationship of Total Suspended Particulate Dust Levels, Personal Protective Equipment, and Individual Characteristics with Breathing Respiratory Complaints at Benowo Landfill Surabaya

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ABSTRACT

A landfill can have an impact on environmental quality such as air pollution from dust and gas produced from the anaerobic decomposition process, especially if waste disposal uses an open dumping system¹. The results of the preliminary study showed that scavengers in the final processing of garbage had not used PPE (Personal Protective Equipment) such as masks and did not use hand protectors. Many health complaints felt by them are low back pain and headache. This research was observational, the study design used was a cross-sectional study design. The location of the study was carried out at the Surabaya Benowo waste landfill, the sample in the study was scavengers of women who worked at the Surabaya Benowo waste landfill aged 15-64 years. The method of measuring TSP (Total Suspended Particulate) dust using laboratory tests with gravimetric methods, data on the use of PPE mask and respiratory complaints were obtained through questionnaires. Statistical tests were used to see strong relationships using Kendall's tau-b with a significance value of $\alpha = 0.05$. The results of the air quality test in the form of TSP dust content at the work site of the scavengers showed the results of 0.0972 mg/Nm³ which meant that TSP dust levels did not exceed environmental quality standards. Of the 37 scavenger respondents, 13 people (24%) experienced moderate respiratory complaints and 24 people (65%) experienced mild respiratory complaints. Characteristics of individual scavengers associated with respiratory complaints were cigarette exposure (Sig = 0.025) and disease history (Sig = 0.00). There was no significant relationship between the use of PPE with respiratory complaints suffered by scavengers at Benowo landfill Surabaya.

Keywords: TSP Dust, Respiratory Complaints, Individual Characteristics.

Introduction

The landfill is a place where waste reaches is the last stage in its management from the start in the source, collection, transfer or transportation, processing to disposal.

Open dumping landfill will be a source of income for local residents, especially for people who do not have jobs and choose to become scavengers at the final processing of garbage.

The landfill can have an impact on environmental quality and scavenger such as air pollution from dust and gas produced from the anaerobic decomposition process, especially if waste disposal uses an open dumping system¹.

Air pollution is pollution inside and outside the room either by chemical agents, physics, or biology that changes the natural characteristics of an environment².

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