UNIVERSITI TEKNOLOGI MARA

LUNG VENTILATORY CAPACITY AND RESPIRATORY SYMPTOMS AMONG CEMENT WORKERS AT BUKIT AMAN CONSTRUCTION PROJECT SITE

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Abstract

The present cross-sectional study was aimed at assessing the lung ventilatory capacity and respiratory symptoms among cement workers as a consequence of cement dust exposure at Bukit Aman construction project site. A Modified American Thoracic Society Questionnaire (ATS – DLD – 78-A) was used to gain the information on health history and respiratory symptoms of exposed and control groups of respondent. Cement dust concentration at workplace was measured using Air Sampling Pump (Model *GilAir-5/program – tri-mode air sampler*) with filter 10 micron. Lung ventilatory test was carried out on thirty respondents from each exposed group and non exposed group respectively with using Chest Graph Spirometer Model HI-101. Forced vital capacity (FVC%) and forced expiratory volume in 1 second (FEV1%) was measured. Results found that the concentration of cement dust at workplace was 0.0535 mg/m^3. Lung ventilatory capacity found that mean FVC% predicted of exposed (73.2±13.48) and control (82.7%±6.57). FEV1% predicted were 74.93±14.2(exposed) and 83.3±5.3(control). Respiratory symptoms among exposed respondent were from coughing (53.3%), sore throat (33.3%), phlegm (20%), breathlessness (13.3%) and runny nose (6%). In conclusion, lung ventilatory was lower in FCV% and FEV1% among exposed group than control group. Due to cement dust exposure, respiratory symptoms were significant in exposed group. It is recommended that Personal Protective Equipment should provided and engineering measures be adopted to reduce the dust level in the workplace, together with health monitoring of exposed employees.

Key: Cement dust exposure, lung ventilatory capacity, respiratory symptoms.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Construction workers are at risk of exposure to various health hazards that can result in injury, illness, permanent disability, or even death. The construction workers may be exposed to various health hazards including:

- Chemical Hazards
- Physical Hazards
- Biological Hazards
- Ergonomic Hazards

At construction sites, they maybe exposed to a variety of types of hazardous chemicals and particles. Chemicals can exist in the form of dusts, fumes, fibers (solids), liquids, mists, gases or vapors. The widely and commonly chemical used in building construction are such cement, plaster, paint and solvent. The main routes of hazardous chemical or particles are via inhalation. Prolong exposure to such hazardous chemical can lead to health problems such respiratory irritation, lung cancer, asthma, and other lung diseases.

There are several risk factors to be considered related the health risk among construction workers:

- constantly changing job site environments and conditions
- multiple contractors and subcontractors
- high turnover; unskilled laborers
- constantly changing relationships with other work groups