

Working Postures Analysis for Cashiers in A Highway Toll Station

李開偉

Industrial Engineering and System Management

Management

kai@chu.edu.tw

Abstract

The movements of collecting cash and tickets for cashiers in highway toll stations are highly repetitive.

This research investigated the working postures of the cashiers using OWAS method in Young-May Toll Station

in Taiwan. Action Category 3 (AC3) postures were found in the head/neck postures for cashiers in small car lane.

The same level of working pastures were also discovered in head/heck and arm postures for cashiers in Truck/Bus horizontal distance between the toll station and the lane to reduce the unnatural working postures were recommended.

Keywords: posture analysis, OWAS, highway toll station, cashier

1 Introduction

Work-related musculoskeletal disorders (MSDs) are common among workers in workplaces. Identification of the risk factors associated with MSD is essential so that ergonomic intervention may be applied. Analysis of working postures has been one of the major approaches to identify the MSD risks. Examples of working posture analysis were common in workplaces such as construction sites, farms, hospitals, garages, and so on. But working posture analysis for highway toll station cashiers, if any, was rare. This article describes our experience of analyzing the working postures of the cashiers in a highway toll station in northern Taiwan.

The OWAS method was based on the concept of work-sampling[1], which provided the frequency of each posture and time spent in it. The basic OWAS coded the postures of the back, arms, and legs. This three-code

OWAS has been used in studying the working postures of steel workers and stock workers[1]. In addition to the three body segments mentioned, head/neck and load/effort were added later which extended the posture code to four or five digits. Four digits OWAS code (including load/effort) has been used in analyzing the postures of construction workers[3-5], farmers[6] and nursing personnel[7]. Five digits OWAS were used in investigating the postures of garage workers[7] and nursing personnel[8]. The working postures were classified as AC1, AC2, AC3, or AC4, according to the harmfulness of the postures. AC1 indicated normal postures. AC2, AC3, and AC4 noted slightly harmful, distinctly harmful, and extremely harmful postures, lane. The postures of other body segment/lane combinations could all be categorized as either AC1 or AC2. These results were consistent with the information obtained from interviews with the cashiers. The presence of AC3 working postures implied the need of improvement of working space and/or job design. The redesign of both the vertical and horizon

Keyword : posture analysis, OWAS, highway toll station, cashier