THE PACKAGING SECTION EMPLOYEE MENTAL WORKLOADS ANALYSIS USING NASA-TLX METHODS IN CHRUNCHY PEANUTS PRODUCTION

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RESEARCH HIGHLIGHTS

This research was conducted at a food industry that processed peanuts raw materials into snacks such as crunchy peanuts. The qualities of the peanuts are divide into two levels of quality specifically, first grade and medium grade. The large amount of production that is carried out every day affected the employee's mental pressure on both packaging quality process. In this case, there are various pressures for workers, which certainly differ between packaging first grade and medium grade. Workload is the number of activities that must be completed by a person or a group of people during a certain time under normal circumstances (1). The mental workload is the difference between the workload demands of a task with a largest capacity of a person's mental burden in a motivated condition (2). So the main focus is to find out the mental workload of employees using NASA - TLX method.

Keywords: Food Industry, Ergonomic, Mental Workload, NASA-TLX

GRAPHICAL ABSTRACT

Fig. 1. First Grade Mental Workload Chart

Fig. 2. Medium Grade Mental Workload Chart

Fig. 3. Mental Workload Indicator Chart

Fig. 4. Mental Workload Category Chart

RESEARCH OBJECTIVES

The purpose of this research is to measure the level of mental workloads of employees, knowing which type of work that the mental workloads level is highest, knowing the work categories that have higher mental workload, knowing which indicators that affect the level of mental workloads of employees, and to recommend solutions in forms of improvements to reduce employee mental workloads using NASA - TLX method.

MATERIALS AND METHODS

There are several methods to measure mental workload such as, Subject Workload Assessment Technique (SWAT), National Aeronautics and Space Administration Task Load Index (NASA-TLX), Modified Cooper Harper Scaling, Multidescriptor Scale, and Rating Scale Mental Effort (RSME) (3). Of the several methods, the most widely used and proven method of providing good results is NASA-TLX (4). Therefore, the NASA-TLX method was used in this study to find the mental workload between jobs in packaging first grade employees and work on employees of medium grade packaging at the crunchy peanut production division of PT. Dua Kelinci. This mental workload study carries out on employees of crispy peanut production in packaging first grade and medium grade parts. There were 60 employees as the respondents, of which 30 employees were employees of the first grade packaging section and the remaining 30 were employees of the medium grade packaging section. The method used in this mental workload study is NASA-TLX. There are 6 indicators used in the NASA-TLX method, namely Mental demand (MD), Physical demand (PD), Temporal demand (TD), Performance (OP), Effort (EF), and frustration level (FR) (5).

RESULTS

The results of this research show that the mental workloads experienced by employees of crunchy peanuts production in both first grade and medium grade packaging sections are having high mental workloads. Work that has the highest mental workloads on both packaging first grade quality and medium grade quality is the transit process with a score of 79.2. A work group with a higher mental burden is in packaging first grade quality with a score of 60.2. The indicator that most influences the level of a mental workloads of employees of crunchy peanuts production in packaging first grade section is the effort indicator (EF) with a score of 17.2, followed with the mental demand indicator (MD) with a score of 16.4 in the medium grade packaging section.

FINDINGS

The findings of this research conclude that the mental workloads experienced by employees of crunchy peanuts production in both first grade and medium grade packaging sections are having high mental workloads. Recommendations for improvements that can made to reduce the mental workloads of employees are to increase the number of employees especially in the transit section, provide safety equipment such as free masks, create reward systems and give out promotions to the employees with excellent work performances.

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