The Effect of Physical Environment Comfort towards Employee's Well-Being: A Case Study at Malaysia Technical University

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ABSTRACT – This research aims to study the effect of physical environment comfort towards employee's well-being and to identify the most significant health problem faced by the employees related to sick building syndrome (SBS) symptoms at one of the technical university in Malaysia. The research focused on faculty buildings consist of administrative office, lecture rooms, and common rooms. The study measured four main well-being symptoms; ophthalmic, respiratory, psychological and dermal. The findings revealed ophthalmic symptoms are the highest syndrome with three major symptoms experienced by the employees were the strained eye or tired eye (36.7%), headache (25%), and light-headedness (25%). The correlation analysis indicated the physical environment comfort of lighting and visual factors not significantly affect employee's well-being, while the noise factor negatively significant to employee's well-being. The findings highlighted that the physical work environment does not affect employee's well-being. The study also proved that the establishment of DOSH committee at the university level does affect the overall percentage of employee's well-being.

1. RESEARCH BACKGROUND

In general, employees spend 80-90% of their time indoors and previous studies have supported that the range of comfort and health-related effects are linked to the SBS and building design [1]. Hence, conducive working environment reinforces employee's well-being, and enable them to exert high efforts in doing their tasks with the higher motivation that is necessary to higher productivity levels [2]. Besides achieving the productivity level and healthy well-being, the organization is responsible for providing a conducive and appropriate infrastructure to the employees [3]. One of the key strategies that can be used to improve productivity is the assurance of comfortable working environment and well-being of their employees [4]. A case study at three public universities in Malaysia revealed that physical environment comfort affects the employee's performance especially in the aspect of temperature, lighting and visual. Additionally these factors significant correlate with health issues thus result in poor performance of employees [6]. A research studied among office workers in Malaysian university indicates that the office workers face weekly SBS symptoms in terms of dermal, mucosal and general sick due to office environment at several university departments [10]. Additionally, Ang and Fared [11] reported that several office buildings in Malaysia such as in consultant company, trading company, design company, aviation ticketing, and private institution show 30% of productivity drop. The major low productivity among employees is due to poor environment. The workplace in the majority of the industry is unsafe and unhealthy where it contains poorly designed workstations, unsuitable furniture, lack of ventilation, inappropriate lighting, excessive noise, insufficient safety measures in fire emergencies and lack of personal protective equipment [12]. In the context on this study, although all the faculties of the selected university have been audited internally, yet the involved building of this study only meet four stars of the Occupational safety and health (OSH) requirement in 2017. This shows that there is still a level of measurement that the faculty still does not meet.

2. METHODOLOGY

The study employed quantitative approach using survey method. One technical university has been selected as the scope of the study. Four main buildings were selected encompasses administrative office, lecture hall, laboratory and common rooms. The respondents are randomly selected from a total number of 108 staff. The respondents are among the assistant engineer, academicians, clerk and other administrative officers. This study incorporates three main factors related to the physical environment; lighting, noise and visual/ spatial arrangement. The lighting and noise measurement were adopted from [13] while visual/spatial arrangement was adopted from [13] and [14]. The study employed measurement of Sick Building Syndrome (SBS) to measure employee's well-being. The research adopted measurement developed by Norhidayah et al. [16]. The study incorporated four main sick syndromes; ophthalmic, respiratory, psychological and dermal. The instrument has undergone pilot test phase for reliability analysis. The instrument developed achieved reliability values from 0.68 to 0.838 which deemed acceptable. The study employed descriptive and correlation analyses to answer the research questions.

3. RESULT AND DISCUSSION

Based the frequency analysis, the three major well-being symptoms experienced by the employees were the strained eye or tired eye (36.7%), headache (25%), and light-headedness (25%). While, the least sickness symptoms experienced by the employees are asthma (wheezing) (80%), difficulty to breath (81.7%), dry and sore throat (51.7%), irritability and nervousness (65.9%). The results of this study align with the findings reported by Lim et al. [10] and Nur Fadilah and Juliana [17].

Correlation analysis proved that lighting factor is insignificantly correlated with employee's well-being with Pearson correlation coefficient of r=0.184. Similar results for

visual factor also shows insignificant correlation with employee's well-being (correlation coefficient of r=0.031). Findings from [18] highlighted that whilst lighting factor alone was unlikely to have a strong effect on performance. Furthermore, based from the general perspective/impression of the office lighting level, 63.3% of the respondents responded that the lighting is bright and the light reflection does not disturb their daily work (53.3%). The result also evidence that the visual concern which includes material arrangement, material storage, toilet cleanness, and visual office room area does not impact staff sickness since the majority of the faculties have implied quality improvement tools such as 5S and 3R. Meanwhile, noise factor shows the significant negative correlation to the employee's well-being with Pearson correlation coefficient of r= -0.310* (p=.016>0.05). The study shows contradict result from the previous study because most of the laboratory involved in the study does not categorize as machinery labs. Machine generated noise contribute only 6.7% together with the air-conditioning ventilation noise. The source of noise is mainly from the human conversations (43.4%) and door closing/opening (31.7%).

4. CONCLUSIONS

As a conclusion, this research has achieved two main objectives. The first objective is to identify the most significant health problem faced by the employees specifically related to SBS symptoms. The three major SBS symptoms experienced were a strained eye or tired eye (36.7%), headache (25%), and light-headedness (25%). The research outcome highlighted that the employees at the selected university often facing ophthalmic symptoms. The second objective of this research is to determine the correlation between physical environments (noise, lighting and visual) towards employee's well-being. The results indicated the physical environment comfort of lighting and visual factors does not reflect the correlation towards employee's well-being, while the physical factor of noise negatively correlated to well-being with a significant value less than 0.05.

The overall of this research shows that although the employee's experienced several sickness symptoms in their workplace, however, these health issues have minimal correlation with the physical environment comforts. The findings also show that organization with proper OSH structure and conduct regular internal audits can reduce the rate of accidents or illness at work. Future studies should incorporate other factors such as dust, air quality and humidity with a larger sample size. The researcher might also use mix methods and comparative study to gain in-depth results.

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