Assessment of Indoor Air Quality (IAQ) In Healthcare Facilities: A Case Study at UiTM Shah Alam Health Centre

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Abstract

Indoor air quality in healthcare centers is a critical concern due to its potential impact on the health of both patients and healthcare workers. The objectives of this study are to identify physical, chemical and biological parameters of Indoor Air Quality (IAQ) in UiTM Shah Alam Health Centre and to evaluate the health symptoms experienced by the occupants. Temperature, relative humidity, concentration of suspended particulate matter (PM10) and Total Volatile Organic Compounds (TVOC) were measured using the EVM-7 and formaldehyde meter was used for assessing formaldehyde. For biological parameters, Tryptone/Tryptic Soy Agar (TSA) and Malt Extract Agar (MEA) were prepared. Bacterial and fungal plates were incubated at 37 °C and 25°C for 24-96 hours, and concentrations were calculated after 3 days. The health symptoms were assessed by designated questionnaires. All outcomes meet safety standards set by the Department of Occupational Safety and Health (DOSH) in the 2010 Industrial Code of Practice (ICOP) except for the total count of bacteria. One-way ANOVA conducted reveals that there is a statistically significant difference ($p < 0.05$) of relative humidity and temperature between sampling locations. Many workers reported work-related fatigue, headaches, dizziness, and nasal congestion. In conclusion, the consistent values in various parameters provide valuable insights into the indoor air quality dynamics at the health center. These findings emphasize the importance of regular IAQ assessments to ensure a healthy and comfortable environment for healthcare facility occupants.

Keywords: biological contaminant; indoor air; health care; health symptoms