

Association Of Indoor Air Quality (IAQ) Parameters with Sick Building Syndrome (SBS) Symptoms in Gallery and Museum in Shah Alam, Selangor

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Structured Abstract

Background: This study was conducted to evaluate the relationship between indoor air quality (IAQ) parameters with sick building syndrome (SBS) symptoms. The selected buildings are Shah Alam Gallery and Sultan Alam Shah Museum in Shah Alam, Selangor which had been operated for more than 30 years. This research underscores the significance of IAQ in ensuring a healthy and productive indoor environment, particularly in older buildings where structural aging and outdated HVAC systems can exacerbate IAQ issues. By understanding the relationship between IAQ and SBS, building owners can implement appropriate interventions to improve occupant health and productivity, ultimately contributing to a safer and more comfortable indoor space.

Methods: The research adheres to the Indoor Air Quality Industry Code of Practice (ICOP) 2010. The study implemented quantitative method which were IAQ measurements and qualitative method which was SBS questionnaires.

Results: Results indicate that while most IAQ parameters were within acceptable limits, temperature in both buildings exceeded the recommended range (23–26°C), likely due to high occupancy and heat absorption from building materials like glass. The reported SBS symptoms includes cough, headache and drowsiness in Shah Alam Gallery and cough, headache and irritated or stuffy nose in Sultan Alam Shah Museum. The results showed there are no association between indoor air quality (IAQ) parameters with sick building syndrome (SBS) symptoms in Shah Alam Gallery. However, association was found between PM₁₀ levels and eye irritation symptoms in Sultan Alam Shah Museum ($\rho = -0.419$, $p = 0.042$).

Conclusion: The study highlights the importance of maintaining optimal indoor air quality to mitigate SBS symptoms. The appropriate approach like indoor temperature management, indoor air quality maintenance and indoor air quality management strategies has been suggested to improve the indoor air quality inside both building. Appropriate approach such as additional parameter, expend research to diverse building type and investigation of behavioural and psychological impacts also recommended to future researcher

Keywords: Indoor air quality, sick building syndrome, occupants, parameter, association

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