

## Indoor Air Quality and Sick Building Syndrome (SBS) among staff in two different private higher learning institution settings in Kuala Lumpur and Selangor

### ABSTRACT

Purpose of this study is to determine the relationship between Indoor Air Quality (IAQ) and Sick Building Syndrome (SBS) among staff in two different settings of Private Higher Learning Institutions in Kuala Lumpur and Selangor. The differences in building setting which are retrofitting and purposed-built building may have different IAQ levels and ventilation system efficiency as well as different in number of reported SBS. 120 respondents consist of male and female administrative staff from Building A and B were participated in this cross sectional comparative study. SBS symptoms measured using validated questionnaire from modified IAQ and Work Environment Symptom Survey while IAQ parameters measured using IAQ devices. Result shows that symptoms of SBS which is stuffy or irritated nose (OR=2.99, 95% CI=1.14-7.88) and fatigue, unusual tiredness or drowsiness (OR=2.58, 95% CI=1.12-5.97) shows a significant association in Building A and B. Besides, there was no significant association between the reported SBS with level of IAQ in Building A and B, however Building A shows an insignificant OR with increasing risk of developing SBS among staff office. After controlling the confounder, there was no significant association between reported SBS with indoor air pollutant in Building A, however result shows an increase risk with insignificant OR of developing SBS when exposed to CO<sub>2</sub> (OR=1.92, 95% CI=0.49-7.46), temperature (OR=1.54, 95% CI=0.38-6.19), bacteria (OR=1.72, 95% CI=0.46-6.42) and fungi (OR=1.72, 95% CI=0.46-6.42). While for Building B, there is a significant increased risk of developing SBS when exposed to CO<sub>2</sub> (OR=1.67, 95% CI=0.42-5.79), temperature (OR=1.49, 95% CI=0.07-32.36) and bacteria (OR=1.29, 95% CI=0.42-3.99). As a conclusion, purposed-built building is more suitable for the construction of college compared to retrofitting building since retrofitting building showed higher levels of pollutants which exceed the permissible limit. Thus, a proper maintenance of ventilation systems and good housekeeping should be practiced as well as control the source of IAP in the office.

**Keyword:** Indoor air quality (IAQ); Sick building syndrome (SBS); Indoor air pollutant (IAP); Retrofitting and purposed-built building