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THE EXISTENCE OF SICK BUILDING SYNDROME AT UITM SERI ISKANDAR COLLEGE

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ABSTRACT

This study looks at whether public university colleges are aware of the presence of sick building syndrome in their everyday lives and are prepared to prevent it in order to establish a healthier environment. The aims of this research are to raise awareness about sick building syndrome and give recommendations that students may simply implement. Many students are concerned about the long-term effects of being in an unhealthy facility. The objective of this research is to analyse the factor of sick building syndrome occurrence and to recommend preventive measures that can be applied by student. Furthermore, using a questionnaire and scientific measurement as data collection methods, both objectives of analysing the factor of sick building syndrome occurrence and recommending preventative measures for sick buildings may be met. Moreover, based on the questionnaire that has been answer by student and scientific measurement that has been carried, it shown that important to be aware of the danger of sick building syndrome in daily life. As an outcome of this research, the recommendation that have been develop for this research are, the ventilation and air distribution rates will be increased, dust will be controlled, and a campaign and event for sick building syndrome will be held.

 ***Keywords**: Sick, building, syndrome, Awareness, college*

LITERATURE REVIEW

Sick Building Syndrome

Sick Building Syndrome (SBS) is a phenomenon in which persons who work or live in a building that experience sickness symptoms and becoming infected with serious condition from the structure. The breakouts may or may not be the direct result of poor or ineffective cleaning. Staff concerns in contemporary structures with mis planned building aerodynamics, faults in the construction material or assembly process, and poor maintenance have also been used to explain SBS. Certain symptoms seem to worsen with the amount of time individuals spend in the building, typically diminishing or even vanishing when people leave. (Bhandari, 2020)

SBS is frequently used interchangeably with "building-related symptoms," which focuses on the symptoms of patients rather than a "sick" building. According to a World Health Organization (WHO) assessment from 1984, up to 30% of new and rebuilt buildings globally may be exposed to complaints about poor indoor air quality. Other causes include contaminants produced by outgassing of certain types of building materials, volatile organic compounds (VOC), improper exhaust ventilation of ozone (a by-product of some office machinery), light industrial chemicals used within, and a lack of adequate fresh-air intake/air filtration. (WHO).

Figure 1: Sick Building Syndrome Factor

PROBLEM STATEMENT

Many students are concerned about the long-term consequences of staying in a sick building. There are no studies that conclusively show a relationship between staying in a sick environment and persistent medical disorders. The symptoms and indicators of sick building syndrome should subside immediately after leaving the building (Wang et al., 2022)

The problem here is, how many students aware that they are experiencing sick building syndrome? Does it affect their daily routine?

Factor of sick building syndrome

There are several hypotheses on what causes sick building syndrome. Inadequate ventilation, chemical pollutants from indoor sources, and chemical contaminants from outdoor sources are often mentioned reasons. (Family health international, 2017)

- One of the most often claimed causes is a lack of ventilation. Prior to the 1970s energy crisis, most buildings were not as hermetically sealed and cycled air more often. Buildings were made more energy efficient after the energy crisis by closing up spots where air flowed into or out of the structure. Furthermore, airflow in many buildings was reduced from 15 cubic feet per minute to 5 cubic feet per minute.

- Inside the structure, common chemical pollutants include paint, adhesives, carpets, cleaning agents, and upholstered furniture. These substances have the potential to release volatile organic molecules (VOCs).

- Exhaust from motor vehicles and other industrial operations in the region are examples of common chemical pollutants found outside the structure.

Symptoms of sick building syndrome

People who spend a long time in buildings with poor IAQ may experience a variety of symptoms and even diseases, depending on the strength of the pollutant sources. The term "sick buildings" refers to these troublesome structures. SBS is thought to cause a wide range of personal symptoms when exposed to indoor environmental source(s); however, the actual cause of the symptoms is unknown. SBS can be caused by a single factor or by a combination of several causes. (Tran et al., 2020).

The symptoms and complaints identified by WHO in the context of SBS are:

- irritation of the eyes, nose, and throat
- neurotoxic or general health problems
- skin irritation
- nonspecific hypersensitivity reactions,
- odours and taste sensation

Guidelines of sick building syndrome

Sick building syndrome (SBS) is a result of poor indoor air quality (IAQ), which can have an impact on human health and performance. Sick building syndrome (SBS) is a complication that can arise alongside general, mucosal, and skin symptoms such as headache, weariness, and irritation in the upper respiratory tract, throat, eyes, nose, hands, and/or facial skin among building inhabitants. (Hosseini et al., 2020)

Indoor environmental quality (IEQ) relates to the health of persons who inhabit a building's indoor environments. Lighting, air quality, and moist conditions are examples

of IEQ variables. Workers may express worry about symptoms or diseases caused by building exposures. (Sulaiman et al., 2013)

As stated in Table 1 is Benchmark IEQ Element of Academic Buildings (Sulaiman, Yusoff, & Kamaruddin, 2013)

Table 1: Benchmark IEQ Element of Academic Buildings (Sulaiman, Yusoff, & Kamaruddin, 2013)

IEQ Measurement Elements	Reading Standard Set
Temperature	23 – 26 °C
Relative humidity	55 – 70 %
Sound	50 – 70 dB
Light	300 - 500 Lux
Air Movement	0.15 - 0.50 m/s
The concentration of CO_2	Below 1000 ppm

RESEARCH METHODOLOGY

The research will be carried out at UiTM Seri Iskandar college which is Kolej Pasir Salak which is Block Damar 1 and Block Damar 2 meanwhile for Kolej Cempaka Sari which is Block Bakawali 1 and Bakawali 2. The survey will be conducted for student that stay at Kolej Pasir Salak and Kolej Cempaka Sari between 18 to 30 years old.

Sampling/ Case Study

There will be up to 60 respondents for each respected residential selective college at UITM Seri Iskandar altogether, both males and females, selected randomly to be the sample in this study. The respondents were UiTM Seri Iskandar students. They ranged between 18 years old and above. For all overall collected respondent is 60 respondents for all selective block in Kolej Pasir Salak and Kolej Cempaka Sari.

Research limitation

This research is limited to selective block in Kolej Pasir Salak which is Damar 1 and Damar 2 meanwhile for Kolej Cempaka Sari is Block Bakawali 1 and Bakawali 2.

Research Instrument

The questionnaire develops based on respected Literature Review of past research to address the study's objectives. The questionnaire has three sections relevant to the requirements for achieving the study's objectives. Section 1 examined the respondents' backgrounds which is demographic section. Section 2 included questions aimed to collect information on the symptoms of Sick Building Syndrome that experience by the student. Section 3 included questions regarding the factor of sick building syndrome occurrence. Sections 2 and 3 had multiple-choice and short answer.

DATA ANALYSIS AND DISCUSSION

The quantitative data collection was conducted using questionnaires via Google Form where it was distributed to students who staying at college UiTM Seri Iskandar. Total of 60 respondents are recorded in this questionnaire. The questionnaire pursued responses to questions about Sick Building Syndrome and Factor of Sick Building Syndrome occurrence.

Table 2: Demographic

Questions	Multiple Choice Answer	Percentage (%)	Number of Respondent (60 respondent)
Gender	Male	47.5	29
	Female	52.5	31
Age	18-20	23.3	14
	21-23	66.7	40
	23-25	10	6
Student Residential College	Kolej Cempaka Sari	46.7	28
	Kolej Pasir Salak	53.3	32
College Block	Bakawali 1	25	15
	Bakawali 2	28.3	17
	Damar 1	25	15
	Damar 2	21.7	13
Duration of time staying in the room	1-2 months	15	9
	3-4 months	70	42

	More than 6 months	15	9

Table 3: Factors That Contribute to SBS

Findings	Multiple Choice Answer	Percentage (%)
Air circulation happen in room	Every Day	70
	Once in three days	26.7
	Never	3.3
Condensation of moisture	Yes	68.3
	No	31.7
Condensation of moisture from cooking utensils	Everyday	31.7
	Once in three days	33.3
	Once a week	35
Visible mould growth in the room	Yes	36.7
	No	63.3

Table 3 shown the average factor of Sick Building Syndrome occurrence between the range age 18-20, 21-23 and 23- above for both gender male and female. In addition, based on all these stages of research the first objectives have been successfully proved based on the stages of research. As for example, the table shown that 70% of respondents open their window every day. That mean 42 number of students open their window every day so that they can get fresh air. In addition, 26.75% respondents that consist of 16 students only open their window once in three days. Last but not least, 2 students never open their window that contribute 3.25% to the percentage. Moreover, the table shown that 68.3% of respondents which consist of 41 number of students doesn't dry their washed clothes in the room. Meanwhile 31.7% of respondents which consist of 19 numbers of students dry their washed clothes in the room. Next, the table shown that 35% of respondents which is 21 number of students use water heater or

portable cooker once a week only. The second highest percentage is 33.3% of respondent which consist of 20 number of students use the water heater and portable cooker once in three days only meanwhile, the lowest one goes to 31.7% which consist of 19 number of students use water heater and portable cooker every day in their room. Last but not least, the table shown that 36.7% of respondents which consist of 22 number of students had identify mould growth in their room. In addition, 63.3% of respondents which consist of 38 number of students doesn't identify the existing of the mould growth in their room.

RECOMMENDATION

With all of the difficulties covered before, this subtopic will offer some solutions to assist all students in enhancing the IEQ of their rooms in order to reduce the possibility of SBS.

- Increase the ventilation and air dispersion rates.

  Every day, students should open their windows as much as possible to enhance the amount of fresh air in their rooms. If there are significant contaminants, the air may need to be evacuated straight to the outdoors.

- Students must perform frequent cleaning.

  To avoid dust and mould formation, students should sweep, wipe the floor, and clean all furniture on a regular basis.

- Run campaigns and events about how to prevent SBS, the dangers of SBS, the signs of SBS, and the effects of SBS on humans.

  They can also create informational posters and post them on all official college social media. Students must also take the initiative to join the program and share the relevant information with their friends.

CONCLUSION

Finally, this study proposed that the hostel might be built with less pollution for better indoor environmental quality (IEQ). The frequency of SBS was also evaluated between two hostels, male and female, and no significant connection was found. Furthermore, ventilation and the buildup of potential pollutants within the interior environment are important indicators of sick building syndromes. This study proposed that more research be conducted to investigate the additional multifactorial etiologist of SBS, such as psychological, ergonomics of the study, stress level, user satisfaction, organizational hierarchy, and other environmental factors.

In addition, SBS is assumed to be caused by three factors: indoor air quality, physical comfort, and psychological well-being. Moisture accumulation (dampness) control, which leads to Mold development and the presence of bacteria and viruses, as well as

dust mites and other creatures and microbiological issues. Water penetration through a building's exterior or condensation on cold surfaces on the building's interior may both promote and sustain microbial development. (Kesihatan et al., 2013)

Last but not least, SBS is experienced symptoms such as a headache, eye discomfort, lethargy, difficulty breathing, or skin itchy after entering a building. The symptoms indicated will, ironically, disappear a few hours after leaving the premises. The World Health Organization (WHO, 2008) defined Sick Building Syndrome (SBS) as a condition in which a person in the building has symptoms and discomfort without clear cause. According to research, poor indoor environmental quality (IEQ) contributes to SBS. (Yunan, 2013)

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nar

Setuju.

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