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POTENTIAL OF SICK BUILDING ACCORDING TO PERAK TENGAH DISTRICT MOSQUE

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ABSTRACT

"Sick Building Syndrome" (SBS) pertains to instances where individuals experience health concerns inside a building, even if the cause isn't readily apparent. This problem commonly arises due to factors like inadequate ventilation, poor outdoor air quality, indoor pollutants, maintenance shortcomings, malfunctioning HVAC systems, water damage, and the activities conducted within the building. This research specifically focuses on comprehending the reasons behind SBS occurrences in mosques and formulating strategies for its mitigation. In order to accomplish this, a dual research strategy is utilized, incorporating both qualitative and quantitative methods. The researchers distributed surveys to residents of the Perak Tengah district to gather quantitative insights. Concurrently, qualitative analyses by meticulously inspecting a chosen mosque against a predefined checklist. The outcomes of this study provide insights into mosques that are more susceptible to SBS problems, facilitating the development of effective strategies to alleviate such issues in these significant religious structures.

Keywords: *Sick Building Syndrome, mosques, factor.*

INTRODUCTION

"Sick Building Syndrome" (SBS) encompasses unexplained symptoms within various structures, including workplaces, residentials, schools, and medical facilities. Skilled medical practitioners diagnose these symptoms and associated ailments. The incidence of SBS has exhibited an uptick in Malaysia. As the Oxford English Dictionary delineated, SBS is an enigmatic condition, manifesting in ailments like blocked nasal passages, irritated eyes, scratchy throat, weariness, and headaches. Passarelli's study in 2009 extensively probes into SBS and its inception within affected edifices. Noteworthy is the extension of SBS's reach to sanctified places like mosques. In these religious spaces, issues like congested ventilation, mould growth, and inadequate air quality can prompt discomfort and health afflictions, exemplified by the case study, which is Masjid Sultan Yusuff Izzudin Shah in Perak Tengah District.

LITERATURE REVIEW

Definition of sick building syndrome

Sick Building Syndrome (SBS) leads to physical and mental symptoms due to an unhealthy indoor environment. While buildings might not be the cause, airborne contaminants could be the factor (Abdul-Wahab, 2011). SBS in "sick buildings" triggers mild respiratory issues like congestion, sore throat, and fatigue (Passarelli, 2009). SBS, as per the 1989 OED, encompasses environmental conditions. Modern buildings often associate SBS with discomfort, including eye, nose, and throat irritation, dry skin, headaches, and fatigue (Wolkoff et al., 1994). Those in SBS-affected buildings might experience unexplained adverse effects (Stolwijk, 1991). Poor indoor air quality commonly contributes to SBS (Sick Building Syndrome, n.d.).

Cause of sick building syndrome

Sick building syndrome can occur due to various factors. Several factors can contribute to the development of sick building syndrome. There are several factors to consider, such as personal, building, and environmental factors. (Burge, 2004).

Personal factor

Personal factors like age, psychology, and job type contribute to Sick Building Syndrome (SBS). Research indicates that those aged 20 to 29 are more susceptible, regardless of gender. Issues like condensation, moisture, and odour are linked to pre-SBS. Airtight wooden houses show minimal SBS connection. Work stress, especially computer use, triggers SBS, worsened by dissatisfaction and poor communication. Finnish studies show women prefer more relaxed rooms but are more sensitive to temperature discomfort. Men are more comfortable adjusting thermostats. Professions influence SBS symptoms, with stimulating jobs and workplace control reducing them. Computer-related problems, eye symptoms, lighting, and integration also impact SBS (Joshi, 2008; Kare Lenvik Rostron, 2008; Building Use Studies, 1988 and 1995).

Building Factor

Building-related factors, particularly design elements like ventilation, orientation, and layout, significantly influence indoor air quality. Inadequate ventilation and lighting can lead to Sick Building Syndrome (SBS), characterized by poor airflow, pollutants, and degraded indoor air quality (IAQ). ASHRAE's updated standards recommend 15 cfm of outdoor air per person to combat ventilation issues, addressing discomfort. Building orientation and layout, including window size/type and arrangement, also contribute to SBS. (Al Momani & Ali, 2008).

Environmental factor

Sick Building Syndrome (SBS) arises from pollution, electromagnetic radiation, and biological agents. Poor air quality results from synthetic materials, electronics, and insufficient cleaning. Design flaws and negligence enable pollutant entry. Electromagnetic radiation from devices like microwaves raises cancer concerns due to faulty wiring. Stagnant humidifier water breeds allergens, causing symptoms such as fever and cough. Crowded, air-conditioned spaces amplify disease transmission risks.

Symptoms of sick building syndrome

Sick Building Syndrome (SBS) symptoms include coughing, sneezing, breathlessness, headaches, fatigue, and dizziness. Skin problems, eye irritation, nasal congestion, and difficulty concentrating are typical. SBS origins can be elusive, yet factors such as inadequate ventilation, elevated indoor pollutants, and the presence of allergens or toxins within the building might be the causes (Rostron, 2008).

Prevention of sick building syndrome

Preventing sick building syndrome involves several steps. The first step is that education and communication are vital, fostering cooperation among occupants, management, and maintenance (Heinkel, 2016). Then, using mould-resistant materials, well-ventilated basements, and considering Earth's magnetic field during construction is crucial (Joshi, 2008). Furthermore, it enhances natural air circulation by balancing ventilation and air quality for a healthy indoor environment (Heinkel, 2016).

METHODOLOGY

In this study, researchers used both qualitative methods, such as observation, and quantitative methods, like questionnaires, to delve into the reasons behind sick building syndrome in mosques. The focus was on two mosques, namely Pusat Islam UiTM Seri Iskandar and Masjid Sultan Yusuff Izzudin Shah, aiming to understand the underlying causes of this issue.

Through a comparison of these two cases, feedback from approximately 100 residents of Perak Tengah was gathered via questionnaires. However, the study encountered challenges in securing adequate responses, leading to limited cooperation for the case study. The difficulties arose from the endeavour to obtain a satisfactory number of participants willing to provide their input.

Table 1: Case Study

Case Study 1	Case Study 2
 **Figure 1: Pusat Islam UiTM Seri Iskandar**	 **Figure 2: Masjid Sultan Yusuf Izzudin Shah**
Name : Pusat Islam UiTM Seri Iskandar	Name : Masjid Sultan Yusuf Izzudin Shah

DISCUSSION

A checklist was created to assess sick building syndrome in mosques, such as windows, maintenance, air quality, lighting, and openings. Results are displayed in the table.

Table 2: Checklist of Observation

No	Specification	Space									
		Toilet		Prayer Area		Open Prayer		Wudhu		Facade	
1	Window										
	• Size • Number	/ X	/ /	/ /	X /	/ /	- -	/ /	X X	/ /	/ /
2	Maintenance	/	/	/	/	/	X	/	X	/	X
3	Air Quality	/	/	/	/		/	X	X	/	/
4	Lighting										
	Number	/	X	/	/	/	/	/	/	/	/
5	Opening										
	Size	/	/	/	X		/	/	/	-	-

Legend:

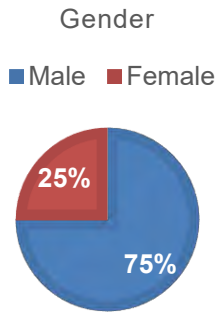
/	X	Pusat Islam
/	X	Masjid Sultan Yusuff Izzudin Shah

The checklist highlights that Masjid Sultan Yusuff Izzudin Shah does not entirely adhere to building construction regulations. There are several aspects where the mosque deviates from legal requirements, particularly in areas like wudhu and prayer spaces. These non-compliances have an impact on the functionality of these specific areas.

Masjid Sultan Yusuff Izzudin Shah	Pusat Islam UiTM Seri Iskandar
Size of Window	
 **Figure 3: Window at Prayer Area**	 **Figure 4: Window at Prayer Area**
Window (Quantity)	
 **Figure 5: Window at Wudhu Area**	 **Figure 6: Window at Wudhu Area**
Air Quality & Opening (Size)	
 **Figure 7: Prayer Area**	 **Figure 8: Prayer Area**

The figure presents clear proof from the checklist, highlighting a lack of adherence to building regulations at Masjid Sultan Yusuff Izzudin Shah. Noteworthy is that the mosque's prayer area has too small windows, allowing in too little light. Furthermore, the wudhu area's inadequate ventilation and tiny windows could lead to unpleasant odours and discomfort for those using the area.

Section 1: Demographic Survey



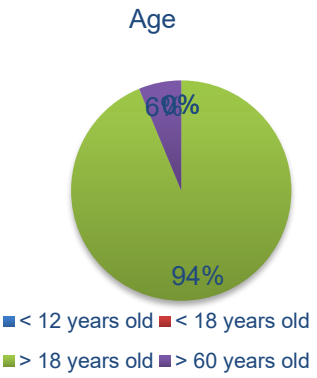


Figure 11: Chart of Gender

Figure 12: Chart of Age

The pie chart shows that 75% of the respondents are male, and 94% are in the rage of 18 to 59 years old.

Section 2: Environmental Comfort

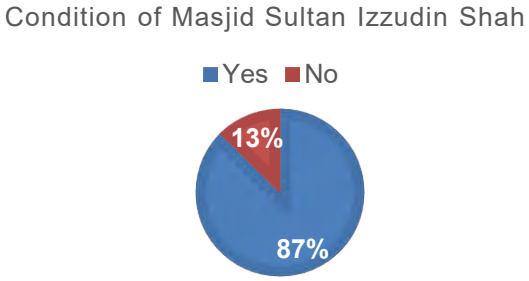


Figure 13: Chart of Condition of Masjid Sultan Yusuff Izzudin Shah

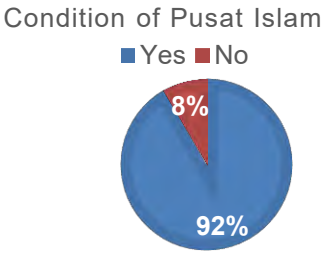


Figure 14: Chart of Condition Pusat Islam UiTM Seri Iskandar

The pie chart shows that most respondents are satisfied and comfortable at Pusat Islam UiTM Seri Iskandar. In contrast, 87% of the respondents feel unsatisfied and uncomfortable at Masjid Sultan Izzudin Shah.

Section 3: Factors of Sick Building Syndrome

Figure 15: Chart of Factors of Sick Building Syndrome at Masjid Sultan Yusuff Izzudin Shah

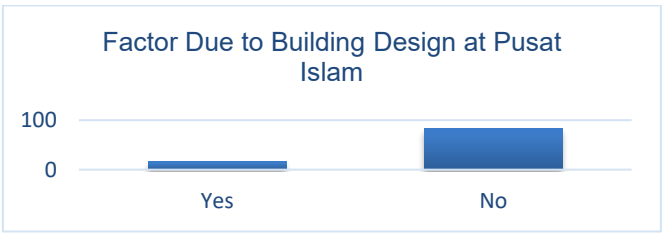


Figure 16: Chart of Factors of Sick Building Syndrome at Pusat Islam UiTM Seri Iskandar

The pie chart illustrates that most respondents attributed sick building syndrome at Masjid Sultan Izzudin Yusuff Shah to design flaws, particularly in windows and openings. Additionally, 80% felt Pusat Islam had a sound design, potentially preventing it from being a sick building.

CONCLUSION

In conclusion, after thoroughly investigating the respondents' experiences, it has been determined that Sick Building Syndrome greatly affects Masjid Sultan Yusuff Izzudin Shah, as acknowledged by residents of Perak Tengah. In order to enhance user comfort, focusing on maintenance, window replacement, and effective air quality control is crucial. Prioritizing these methods is vital to address current concerns and create a healthier and more pleasant mosque environment.

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