



## Precipitating Factor of Sick Building Syndrom Symptom in Employees at the Faculty of Medicine Islamic State University of Syarif Hidayatullah Jakarta, Indonesia

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### ABSTRACT

In 2011, 30% of all buildings in the world had employees who were dissatisfied with their jobs. Building sickness syndrome is a collection of symptoms experienced by construction workers, including headaches, fatigue, eye irritation, difficulty concentrating, and respiratory system disorders (dry throat, itching, coughing). This study aims to identify factors associated with building sickness syndrome symptoms in employees at the Faculty of Medicine, Islamic State Of Syarif Hidayatullah Jakarta. The research method used was quantitative analytic with a cross-sectional approach using primary and secondary data, and it was conducted with a total sampling technique of 40 employees. A questionnaire was used to collect data. According to the study's findings, among respondents who experienced symptoms of building sickness syndrome, there were 11 respondents with poor psychosocial conditions (68.8%) compared to 6 respondents with good psychosocial conditions (25%). Statistical tests revealed a significant correlation between psychosocial conditions and symptoms of building sickness syndrome (p-value = 0.006: 0.05), but no correlation between years of service (p-value = 0.131), smoking behavior (p-value = 0.922), gender (p-value = 0.601), and history of disease/allergy (p-value = 0.201). According to the findings of this study, employees who smoke during working hours, including in the workplace, will face harsh penalties in the form of fines

**Keywords:**

Symptoms of building sickness syndrome, Psychosocial Conditions, Years of Service, Smoking Behavior, Gender, History of Disease / Allergy.

**Introduction**

According to the World Health Organization (WHO), 30% of all buildings in the world have employees who have complaints about working in buildings (Latief, 2011 in Ikmala, 2019). According to the Occupational Safety and Health Administration (OSHA), inadequate ventilation (52%), contamination sources indoors (16%) and outdoors (10%), the presence of microbes (5%), contaminated materials from building materials (4%), and others (13%) all contribute to poor indoor air quality (OSHA, 2011).

Temperatures should not exceed 26°C for men and 24°C for women, according to the National Institute for Occupational Safety and Health (NIOSH). Some sources recommend a dry temperature of 22°C-26°C and a wet temperature of 21°C-24°C for the working environment. The ideal temperature for working conditions is between 23°C and 28°C. A temperature of 20°C to 26°C is appropriate for the work environment (Ramlah, 2018). According to the Head of the National Population Agency (BAKNAS), 2.7 million people died from air pollution and 2.2 million died from indoor air pollution (Laila, 2011).

Salsabila Triana Dwiputri conducted SBS research at the PT Pelita Air Service Building Pondok Cabe, South Tangerang in 2016. The findings revealed that 22 respondents (71.0 percent) with a history of atopy had complaints of building sickness syndrome, while 33 respondents (43.5 percent) did not. He has a history of atopy and suffers from building sickness syndrome. The results of statistical tests revealed that  $p$  value = 0.020, implying that there is a significant relationship between a history of atopy and complaints of building sickness syndrome.

Nur Najmi Laila conducted SBS research in 2011 at the Rectorate Building of UIN Syarif Hidayatullah Jakarta, and the results revealed that as many as 21 respondents (35 percent) had building sickness syndrome complaints. According to the findings of a preliminary study, 70% of ten employees experience dizziness and

50% of ten employees experience watery eyes, both of which are symptoms of building sickness syndrome. As a result, the researchers decided to conduct a study titled "Factors Related to Building sickness syndrome in Employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta."

**Methods**

The research method used is quantitative analysis. Analytical research is focused on explaining a situation or situation. A cross-sectional research design is one in which a cause or risk and effect variable or cases that occur in the object of research are measured or collected at the same time (Notoatmodjo, 2014). This study's population consisted of 40 employees totaling 8 academic employees, 11 general and financial administration employees, 6 office boy employees, 2 driver employees, 1 waitress employee, 10 laboratory employees, and 2 security guards. This study used a total sampling technique of 40 employees from the Faculty of Medicine at the State Islamic University of Syarif Hidayatullah Jakarta. Primary and secondary data were used in the study, and data was collected online. The method used is to distribute questionnaires to respondents via a Google form.

**Result****A. Univariate Analysis****1. Characteristics of Respondents' Years of Service**

According to the study's findings, more than half of the respondents (22 in total) had worked for more than ten years (55.0%).

**2. Characteristics of Respondents' Smoking Behavior**

According to the study's findings, a small proportion of respondents (as many as 6 respondents (15.0%) smoked occasionally, while more than half of

respondents (as many as 27 respondents) never smoked (67.5%).

**3. Characteristics of Respondents' Psychosocial Conditions**

According to the study's findings, more than half of the respondents (24 in total) had good psychosocial conditions (60.0%).

**4. Description of Respondents' Gender Characteristics**

According to the study's findings, more than half of the respondents (24 in total) were male (60.0%).

**5. Disease History / Allergy Characteristics of Respondents**

According to the study's findings, almost all respondents (32 in total) have no history of disease or allergy (80.0%).

**6. Symptom Descriptions of Respondents Building Sickness Syndrome**

According to the study's findings, more than half of the respondents did not experience symptoms of building

No	Smoking Behavior	Symptoms of Building Sickness Syndrome				Total	p-value
		Yes		No			
		N	%	N	%		
1	Often	13	14,3	67	85,7	70	0,922
2	Sometimes	17	16,7	53	83,3	70	
3	Never	31	11,1	24	88,9	70	

sickness syndrome, and as many as 23 respondents did (57.5%).

**B. Bivariate Analysis**

**1. The Years of Service associated with Symptoms of Building Sickness Syndrome in Faculty of Medicine Employees at the State Islamic**

**University of Syarif Hidayatullah Jakarta.**

No	Years of Services	Symptoms of Building Sickness Syndrome				Total	p-value
		Yes		No			
		N	%	N	%		
1	> 10 years	7	31,8	15	68,2	22	0,131
2	≤ 10 years	10	55,6	8	44,4	18	

Source : Primary Data 2022

The study's findings revealed that among respondents who experienced symptoms of building sickness syndrome, there were as many as 10 respondents (55.6%) with a working period of less than 10 years compared to respondents with a working period of more than 10 years. According to the study's findings, among respondents who experienced symptoms of building sickness syndrome, there were more respondents with a working period of less than 10 years as many as 10 respondents (55.6%) compared to respondents with a working period of more than 10 years as many as 7 respondents (31.8%).

There are 15 respondents (68.2%) who have worked for more than 10 years and 8 respondents (44.4%) who have worked for less than 10 years among those who do not experience symptoms of building sickness syndrome.

**2. Smoking Behavior Associated with Symptoms of Building Sickness Syndrome in Employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta**

Source : Primary Data 2022

According to the study's findings, respondents with symptoms of building sickness syndrome include 3 respondents (11.1%) who have never smoked, 1 respondent (16.7%) who

smokes occasionally, and 1 respondent who smokes frequently ( 14.3%). There were more respondents who had never smoked (88.9%) than those who

No	Gender	Symptoms of Building Sickness Syndrome				Total		p-value
		Yes		No		N	%	
		N	%	N	%			
1	Male	1	45,	1	54,	2	10	0,601
		1	8	3	2	4	0	
2	Female	6	37,	1	62,	1	10	
			5	0	5	6	0	

smoked frequently (5%) among those who did not experience symptoms of building sickness syndrome (83.3%).

**3. Psychosocial Conditions Associated With Symptoms of Building Sickness Syndrome in Employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.**

Source : Primary Data 2022

According to the study's findings, among respondents who experience symptoms of building sickness syndrome, there are 11 respondents with poor psychosocial conditions (68.8%) compared to 6 respondents with good psychosocial conditions (25%). There were 18 respondents (75%) with good psychosocial conditions compared to 5 respondents with poor psychosocial conditions among those who did not experience symptoms of building sickness syndrome (31.2%).

**4. Gender Associated with Symptoms of Building Sickness Syndrome in Employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.**

Source : Primary Data 2022

According to the study's findings, there are more respondents with poor psychosocial conditions (68.8%) than respondents with good psychosocial conditions (six respondents) (25%). There were 18 respondents with good psychosocial conditions (75%) compared to 5 respondents with poor psychosocial conditions among those who did not experience symptoms of building sickness syndrome (31.2%)

**5. History of Diseases / Allergies Associated With Symptoms of Building Sickness Syndrome in Employees at the Faculty of Medicine State Islamic University Of Syarif Hidayatullah Jakarta**

No	Psychosocial Conditions	Symptoms of Building Sickness Syndrome				Total		p-value
		Yes		No		N	%	
		N	%	N	%			
1	Bad	1	68,	5	31,	1	10	0,006
		1	8	2	6	0		
2	Good	6	25	1	75	2	10	
				8	4	0		

No	History of Diseases / Allergies	Symptoms of Building Sickness Syndrome				Total		p-value
		Yes		No		N	%	
		N	%	N	%			
1	Yes	5	62,5	3	37,5	8	100	0,201
2	No	1	37,5	2	62,5	3	100	

Source : Primary Data 2022

According to the study's findings, among respondents who experienced symptoms of building sickness syndrome, there were as many as 12 respondents (37.5%) who did not have a history of disease/allergy compared to 5 respondents who did not have a history of disease/allergy (62.5%). There were 20 respondents (62.5%) who did not have a history of disease/allergy compared to 3 respondents who did have a history of disease/allergy in respondents who did not experience symptoms of building sickness syndrome (37.5%).

**Discussion**

**1. The Years of Service associated with Symptoms of Building Sickness Syndrome in Faculty of Medicine Employees at the State Islamic University of Syarif Hidayatullah Jakarta.**

According to table 4.7, respondents with a working period of less than 10 years outnumber respondents with a working period of more than 10 years by as many as 10 (55.6 percent) compared to respondents with a working period of more than 10 years by as many as 7 (55.6 percent). 31.8 percent. There are 15 respondents (68.2 percent) who have worked for more than

10 years and 8 respondents (44.4 percent) who have worked for less than 10 years among those who do not experience symptoms of building sickness syndrome.

The results of statistical tests conducted using the chi-square test between years of service and symptoms of building sickness syndrome have a P-Value value of 0.131 (P-Value > 0.05), indicating that there is no relationship between the two variables. Then H0 is accepted and Ha is rejected, indicating that there is no association between years of service and symptoms of building sickness syndrome in employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.

This study concurs with Asri et al's 2019 study, "The Work Environment associated with Symptoms of Building Sickness Syndrome in Indonesia Health Insurance (BPJS) Depok Employees," which didn't find any correlation between length of service and symptoms of building sickness syndrome with a P-Value of 1,000 (P. -value > 0.05). This study didn't find any correlation between length of service and symptoms of building sickness syndrome in Indonesia Health Insurance (BPJS) Depok employees.

**2. Smoking Behavior Associated with Symptoms of Building Sickness Syndrome in Employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta**

According to table 4.8, there are more respondents who have never smoked as many as 3 respondents (11.1%) compared to occasionally smoking behavior as many as 1 respondent (16.7%) and frequently smokes. 1 person responded (14,3%). There were more respondents who had never smoked (88.9%) than those who smoked frequently (5 respondents) among those who did not experience symptoms of building sickness syndrome (83.3%).

The results of statistical tests using the chi-square test between smoking behavior variables and symptoms of building sickness syndrome obtained a P-Value

value of 0.922 (P-Value > 0.05), which means that there is no relationship between smoking behavior and symptoms of building sickness syndrome, so  $H_0$  is accepted and  $H_a$  is rejected, which means that there is no relationship between smoking behavior and symptoms of building sickness syndrome in employees at the Faculty of Medicine, Syarif Hidayatullah State Islamic University Jakarta.

This study is in line with research conducted by Ilma et al in 2019 entitled "The Work Environment Factors associated with Individual Factors to the Incidence of Building sickness syndrome in Employees at Office Building X Bogor City" which shows that there is no relationship between smoking habits and the incidence of building sickness syndrome. with a P-Value value of 0.325 (P-Value > 0.05). According to the findings of this study, there is no correlation between smoking habits and the occurrence of building sickness syndrome in employees at the X Office Building in Bogor City.

### **3. The Psychosocial Conditions Associated With Symptoms of building sickness syndrome in Employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.**

Based on table 4.9, it shows that among respondents who experience symptoms of building sickness syndrome, there are more respondents with poor psychosocial conditions as many as 11 respondents (68.8%) compared to respondents with good psychosocial conditions as many as 6 respondents (25%). In respondents who did not experience symptoms of building sickness syndrome, there were more respondents with good psychosocial conditions as many as 18 respondents (75%) compared to 5 respondents with poor psychosocial conditions (31.2%)

The results of statistical tests that have been carried out using the chi-square test between the variables of psychosocial conditions and symptoms of building sickness syndrome obtained a P-Value value of 0.006 (P-Value <0.05), which

means that there is a significant relationship between psychosocial conditions and symptoms of building sickness syndrome., then  $H_0$  is rejected and  $H_a$  is accepted which means there is a relationship between psychosocial conditions and symptoms of building sickness syndrome in employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.

This research is in line with research conducted by Asri et al in 2019 entitled "The Relationship of the Work Environment With Building sickness syndrome Symptoms in BPJS Health Depok Employees" shows that there is a relationship between psychosocial conditions and symptoms of building sickness syndrome with a P-Value value of 0.025 (P- value < 0.05). The results of this study indicate that there is a significant relationship between psychosocial conditions and symptoms of building sickness syndrome in Indonesia Health Insurance (BPJS)Depok employees.

### **4. The Gender associated with Symptoms of building sickness syndrome in Employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.**

Based on table 4.10 shows that among respondents who experience symptoms of building sickness syndrome, there are more respondents with male sex as many as 11 respondents (45.8%) compared to respondents with female sex as many as 6 respondents (37.5%). . In respondents who did not experience symptoms of building sickness syndrome, there were more male respondents as many as 13 respondents (54.2%) compared to female sex as many as 10 respondents (62.5%).

The results of statistical tests that have been carried out using the chi-square between sex and symptoms of building sickness syndrome obtained a P-Value value of 0.601 (P-Value > 0.05), which means that there is no relationship between gender and symptoms of building sickness syndrome, then  $H_0$  is accepted. and  $H_a$  is

rejected, which means that there is no relationship between gender and symptoms of building sickness syndrome in employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.

This study is in line with research conducted by Dwiputri 2016 entitled "Analysis of Determinants of Building sickness syndrome (SBS) Complaints in PT Pelita Air Service Building Workers" shows that there is no relationship between gender and complaints of building sickness syndrome with a P-Value value of 0.198 which it means  $P\text{-Value} > 0.05$ . The results of this study indicate that there is no relationship between gender and complaints of building sickness syndrome in PT Pelita Air Service building workers.

#### 5. The History of Diseases / Allergies Associated with Symptoms of building sickness syndrome in Employees at the Faculty of Medicine State Islamic University Of Syarif Hidayatullah Jakarta.

Based on table 4.11, it shows that among respondents who experience symptoms of building sickness syndrome, there are more respondents who do not have a history of disease/allergy as many as 12 respondents (37.5%) compared to respondents who do not have a history of disease/allergy as many as 5 respondents (62, 5%). In respondents who did not experience symptoms of building sickness syndrome, there were more respondents who did not have a history of disease/allergy as many as 20 respondents (62.5%) compared to respondents who had a history of disease/allergy as many as 3 respondents (37.5%).

The results of statistical tests carried out using the chi-square test between a history of disease/allergy and symptoms of building sickness syndrome obtained a P-Value value of 0.201 ( $P\text{-Value} > 0.05$ ), which means that there is no relationship between a history of disease/allergy and sick building symptoms. syndrome, then  $H_0$  is

accepted and  $H_a$  is rejected, which means there is no relationship between a history of disease/allergy and symptoms of building sickness syndrome in employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta.

This study is in line with research conducted by Dwiputri 2016 entitled "Analysis of Determinants of Building sickness syndrome (SBS) Complaints in PT Pelita Air Service Building Workers" shows that there is no relationship between a history of illness and complaints of building sickness syndrome with a P-Value value of 0.362 which is it means  $P\text{-Value} > 0.05$ . The results of this study indicate that there is no significant correlation between history of illness and complaints of building sickness syndrome in PT Pelita Air Service building workers.

#### Conclusion

- a. More than half of the respondents had a working period of more than 10 years, as many as 22 respondents (55.0%), a small proportion of respondents occasionally smoked, as many as 6 respondents (15.0%), while more than half of respondents never smoked, as many as 27 respondents (67,5%), more than half respondents have good psychosocial conditions, as many as 24 respondents (60.0%), more than half are male, as many as 24 respondents (60.0%) (57.5%). There is no correlation between years of service and symptoms of building sickness syndrome in employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta, with a P-Value of 0.131 ( $P\text{-Value} > 0.05$ ).
- b. There is no correlation between smoking behavior and symptoms of building sickness syndrome in employees at the Faculty of Medicine State Islamic University Of Syarif Hidayatullah Jakarta, with a P-Value value of 0.922 ( $P\text{-Value} > 0.05$ ).
- c. There is a correlation between psychosocial conditions and symptoms of building sickness syndrome in employees at the Faculty of Medicine, State Islamic University

- Of Syarif Hidayatullah Jakarta, with a P-Value of 0.006 (P Value > 0.05).
- d. There is no correlation between gender and symptoms of building sickness syndrome in employees at the Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta, with a P-Value of 0.601 (P-Value > 0.05).
  - e. There is no relationship history of allergies/diseases with symptoms of building sickness syndrome in employees at the Faculty of Medicine State Islamic University Of Syarif Hidayatullah Jakarta by obtaining a P-Value of 0.201 (P-Value > 0.05).

### Suggestion

- a. **For Faculty of Medicine, State Islamic University Of Syarif Hidayatullah Jakarta**  
It advised there is a strict penalties in the form of fines will be imposed on employees who smoke during working hours, including in the workplace. Other things are also expected to every day maintain a healthy body condition and do relaxation stretches and look at the green (cool ones) when symptoms of building sickness syndrome appear. In addition, it is expected to improve better relations between employees and superiors as well as between employees themselves which can be done by eating together during breaks or discussing together while there is free time.
- b. **For STIKes Widya Dharma Husada**  
It advised that the findings of this study will be used as learning materials or materials about building sickness syndrome for employees, as well as to add to the library's knowledge and references.

### c. For The Next Researcher

It advised that further researchers can examine other factors related to building sickness syndrome in employees, such as physical quality (work climate, ventilation, carpets, radiation, computers and photocopiers), chemical quality (dust, VOCs, pesticides, cigarette smoke, air fresheners). ), biological quality (microbiology) and individual (age).

### References

1. T.S. Dwiputri. 2016. Analysis of Determinants of Building Sickness Syndrome (SBS) Complaints in PT Pelita Air Service Building Workers Thesis. Jakarta UIN Syarif Hidayatullah
2. R. Ikmala, 2019. The Influence of Individual Characteristics, Antibodies, and Work Environment on Building Sickness Syndrome (SBS). Thesis. East Java University of Jember
3. Laila, N. N. Factors Associated with Building Sickness Syndrome (SBS) Complaints in Employees at the Rectorate Building in Syarif Hidayatullah Jakarta in 2011., Jakarta.
4. Methodology of Health Research, Notoatmodjo, 2014. Rineka Cipta PT, Jakarta
5. Indoor Air Quality in Commercial and Institutional Buildings, OSHA, 2011. USA, OSHA 3430-04.
6. Ramlah In 2018, the Center for Hyperkes and KK Disnakertrans DKI Jakarta conducted an indoor air quality analysis (temperature, humidity, and ventilation rate). [thesis]. Advanced Indonesian College of Health Sciences, Jakarta (ID).