CHAPTER FOUR
RESULTS

The previous chapter explained the methodology of this study. This chapter reports the results of the study. A total of 100 questionnaires were collected. The data was analyzed by the Statistical Package for Social Sciences (SPSS) version 15.0 to calculate the basic descriptive statistics (frequency and percentage). The results of the study are divided into five parts as follows:

4.1 General information of the respondents

4.2 The degree of awareness of the causes of Sick Building Syndrome

4.3 The degree of awareness of the symptoms of Sick Building Syndrome

4.4 The degree of awareness of the prevention of Sick Building Syndrome

4.5 The respondents' suggestions or comments

4.1 GENERAL INFORMATION OF THE RESPONDENTS

Demographic information of the respondents specified in the questionnaires including their gender, age, education, occupation, working period, discomfort experience, and background knowledge of Sick Building Syndrome is shown in Tables 4 - 10.

Table 4 shows that the proportion of gender of the samples in this study was almost the same, with 47% for males and 53% for females.

Table 4. Gender of the Respondents

Gender	Frequency	Percentage (%)
Male	47	47
Female	53	53
Total	**100**	**100.0**

Table 5 reveals the age of the respondents in the study. More than half (53%) of the respondents were aged 26-30 years, whereas only 1% was 51 years or over.

Table 5. Age of the Respondents

Age	Frequency	Percentage (%)
Under 25 years	8	8.0
26-30 years	53	53.0
31-35 years	18	18.0
36-40 years	12	12.0
41-50 years	8	8.0
51 years or over	1	1.0
Total	**100**	**100.0**

Table 6 discloses the level of education of the respondents. Many of them held a Bachelor's degree (49%), closely followed by a Master's degree (44%). Only 2% of the respondents possessed higher or other degrees and those who possessed lower than a Bachelor's degree accounted for 5%.

Table 6. Education of the Respondents

Education	Frequency	Percentage (%)
Lower than Bachelor's Degree	5	5.0
Bachelor's Degree	49	49.0
Master's Degree	44	44.0
Higher or others	2	2.0
Total	**100**	**100.0**

As reported in Table 7, the number of private employees was the highest at 95% while only 1% was governmental and 2% were equally self-employed/business owners and state enterprise employee.

Table 7. Occupation of the Respondents

Occupation	Frequency	Percentage (%)
Self-employed/Business Owner	2	2.0
Governmental	1	1.0
State Enterprise Employee	2	2.0
Private Employee	95	95.0
Total	**100**	**100.0**

Table 8 presents working period of the respondents. 34% of the respondents had worked for 4-6 years, followed by under 3 years (26%), 10 years or over (22%), and 7-9 years (18%), respectively.

Table 8. Working Period of the Respondents

Working Period	Frequency	Percentage (%)
Under 3 years	26	26.0
4-6 years	34	34.0
7-9 years	18	18.0
10 years or over	22	22.0
Total	**100**	**100.0**

Table 9 shows discomfort experience of the respondents. Nearly 100% of the respondents experienced discomfort when working long hours in buildings while only 1% did not experience such condition.

Table 9. Discomfort Experience of the Respondents

Discomfort Experience	Frequency	Percentage (%)
Yes	99	99.0
No	1	1.0
Total	**100**	**100.0**

Table 10 demonstrates background knowledge of Sick Building Syndrome. The majority (80%) of the respondents had background knowledge about Sick Building Syndrome. Those who had never heard or known about Sick Building Syndrome accounted for 20%.

Table 10. Background Knowledge of Sick Building Syndrome

Background Knowledge	Frequency	Percentage (%)
Yes	80	80.0
No	20	20.0
Total	**100**	**100.0**

4.2 THE DEGREE OF AWARENESS OF THE CAUSES OF SICK BUILDING SYNDROME

The second part of the questionnaire contained 12 questions to investigate the degree of awareness of Sick Building Syndrome's causes. Table 11 presents the frequency and percentage of the respondents' awareness of each statement pertaining to Sick Building Syndrome's causes. The results are presented as follows:

Statement 1. A lot of persons sharing work area

Nearly 50% of the respondents were aware that a lot of persons sharing a work area results in Sick Building Syndrome. It indicates that their degree of awareness was good.

Statement 2. Poor ventilation system and lack of air circulation

More than half (58%) of the respondents were aware that poor ventilation systems and a lack of air circulation contribute to Sick Building Syndrome. Nobody had no awareness. It shows that their degree of awareness was very good.

Statement 3. Room temperature too cold or too hot

The proportion of the respondents who had very good and good awareness that too cold or too hot room temperature causes Sick Building Syndrome was almost at the same number with 39% and 32%, respectively. It reveals that their degree of awareness was very good.

Statement 4. Humidity too dry or too moist

48% of the respondents had good awareness that too dry or too moist humidity produces Sick Building Syndrome, followed by 23% of those who had moderate awareness. It exhibits that their degree of awareness was good.

Statement 5. Inappropriate lighting: too bright or too dim

38% of the respondents had moderate awareness that inappropriate lighting is accountable for Sick Building Syndrome, followed by 32% of those who had good awareness while 9% had little awareness. It reveals that their degree of awareness was moderate.

Statement 6. Newly renovated or painted buildings and furniture

36% of the respondents had good awareness and 32% of them had very good awareness that newly renovated or painted buildings and furniture bring about Sick Building Syndrome. It points out that their degree of awareness was good.

Statement 7. No regular room, carpet or office material cleaning

The majority (43%) of the respondents had good awareness that no regular room, carpet or office material cleaning accounts for Sick Building Syndrome. Meanwhile, few (2%) of the respondents had little awareness. It discloses that their degree of awareness was good.

Statement 8. Working long hours in front of a computer

Nearly half (45%) of the respondents had very good awareness that working long hours in front of a computer is responsible for Sick Building Syndrome, whereas nobody was not aware. It shows that their degree of awareness was very good.

Statement 9. Working location near a photocopying machine, fax machine, or printer

A half of the respondents had very good awareness that working location near a photocopying machine, fax machine, or printer causes Sick Building Syndrome while one-fourth of the respondents had good awareness. It reveals that their degree of awareness was very good.

Statement 10. Job characteristics relating to documents or secretarial work

Most respondents (46%) had moderate awareness that job characteristics relating to documents or secretarial work results in Sick Building Syndrome. Meanwhile, 5% of them were not aware. It indicates that their degree of awareness was moderate.

Statement 11. Smoking room near working location

The proportion of the respondents who had very good and good awareness that smoking room near working location results in Sick Building Syndrome was almost at the same number; that was 35% and 32%, respectively. It presents that their degree of awareness was very good.

Statement 12. Work stress and job dissatisfaction

Half of the respondents had good awareness that work stress and job dissatisfaction lead to Sick Building Syndrome while only 1% had no awareness. It shows that their degree of awareness was good.

Table 11. The Degree of Awareness of the Causes of Sick Building Syndrome

The causes of Sick Building Syndrome	**The degree of awareness**					**Results**
	Very Good	**Good**	**Moderate**	**Little**	**No**	
	(5)	**(4)**	**(3)**	**(2)**	**(1)**	
1. A lot of persons sharing work area	11 (11%)	47 (47%)	36 (36%)	6 (6%)	0 (0%)	Good
2. Poor ventilation system and lack of air circulation	58 (58%)	34 (34%)	7 (7%)	1 (1%)	0 (0%)	Very Good
3. Room temperature too cold or too hot	39 (39%)	32 (32%)	10 (10%)	15 (15%)	4 (4%)	Very Good
4. Humidity too dry or too moist	15 (15%)	48 (48%)	23 (23%)	12 (12%)	2 (2%)	Good
5. Inappropriate lighting: too bright or too dim	21 (21%)	32 (32%)	38 (38%)	9 (9%)	0 (0%)	Moderate
6. Newly renovated or painted buildings and furniture	32 (32%)	36 (36%)	15 (15%)	17 (17%)	0 (0%)	Good
7. No regular room, carpet or office material cleaning	39 (39%)	43 (43%)	16 (16%)	2 (2%)	0 (0%)	Good
8. Working long hours in front of a computer	45 (45%)	29 (29%)	21 (21%)	5 (5%)	0 (0%)	Very Good

(table continues)

Table 11. (continued)

The causes of Sick Building Syndrome	The degree of awareness					Results
	Very Good	**Good**	**Moderate**	**Little**	**No**	
	(5)	**(4)**	**(3)**	**(2)**	**(1)**	
9. Working location near a photocopying machine, fax machine, or printer	50 (50%)	25 (25%)	16 (16%)	9 (9%)	0 (0%)	Very Good
10. Job characteristics relating to documents or secretarial work	9 (9%)	19 (19%)	46 (46%)	21 (21%)	5 (5%)	Moderate
11. Smoking room near working location	35 (35%)	32 (32%)	8 (8%)	18 (18%)	7 (7%)	Very Good
12. Work stress and job dissatisfaction	23 (23%)	50 (50%)	22 (22%)	4 (4%)	1 (1%)	Good

4.3 THE DEGREE OF AWARENESS OF THE SYMPTOMS OF SICK BUILDING SYNDROME

The third part of the questionnaire contained 20 questions. These questions were categorized into six groups concerning the groups of symptoms of Sick Building Syndrome which were eye symptoms, nasal symptoms, throat and respiratory tract symptom, skin problems, aches and pain, and other symptoms. Tables of results in this part used frequency and percentage. The results are presented as follows in Tables 12 - 17.

Table 12 reveals that a lot of respondents were aware of eye symptoms. When each symptom in the group of eye symptoms was examined, it demonstrates that the respondents had the highest degree of awareness of eye irritation (42%), followed by dry eye (37%), and burning (35%), respectively indicating that their degree of awareness was good. Meanwhile, their degree of awareness of blurred vision (33%), followed by redness (29%) was moderate.

Table12. The Degree of Awareness of the Eye Symptoms of Sick Building Syndrome

The groups of symptoms of Sick Building Syndrome	**The degree of awareness**					**Results**
	Very Good	**Good**	**Moderate**	**Little**	**No**	
	(5)	**(4)**	**(3)**	**(2)**	**(1)**	
Eye Symptoms						
Eye irritation	27 (27%)	42 (42%)	15 (15%)	15 (15%)	1 (1%)	Good
Dry eyes	30 (30%)	37 (37%)	21 (21%)	11 (11%)	1 (1%)	Good
Burning	33 (33%)	35 (35%)	23 (23%)	9 (9%)	0 (0%)	Good
Redness	13 (13%)	26 (26%)	29 (29%)	28 (28%)	4 (4%)	Moderate
Blurred vision	28 (28%)	26 (26%)	33 (33%)	13 (13%)	0 (0%)	Moderate

Table 13 shows that the respondents had good awareness of nasal symptoms. When each symptom in the group of nasal symptoms was examined, it exhibits that the respondents' degree of awareness of congestion was the highest (40%), followed by sneezing (37%), and runny nose (33%), respectively showing that their degree of awareness was good.

Table 13. The Degree of Awareness of the Nasal Symptoms of Sick Building Syndrome

The groups of symptoms of Sick Building Syndrome	The degree of awareness					Results
	Very Good	Good	Moderate	Little	No	
	(5)	(4)	(3)	(2)	(1)	
Nasal Symptoms						
Runny nose	17 (17%)	33 (33%)	32 (32%)	13 (13%)	5 (5%)	Good
Congestion	14 (14%)	40 (40%)	33 (33%)	11 (11%)	2 (2%)	Good
Sneezing	24 (24%)	37 (37%)	28 (28%)	10 (10%)	1 (1%)	Good

Table 14 presents that the respondents' degree of awareness of the throat and respiratory tract symptoms was good and moderate. When each symptom in the group of throat and respiratory tract symptoms was considered, it discloses that the respondents had the highest degree of awareness of dry throat (43%), followed by breathing difficulties (33%), indicating that their degree of awareness was good. However, their degree of awareness of sore throat (41%), followed by dry cough (36%) was moderate.

Table 14. The Degree of Awareness of the Throat and Respiratory Tract Symptoms of Sick Building Syndrome

The groups of symptoms of Sick Building Syndrome	The degree of awareness					Results
	Very Good	Good	Moderate	Little	No	
	(5)	(4)	(3)	(2)	(1)	
Throat and respiratory tract symptoms						
Dry throat	5 (5%)	43 (43%)	35 (35%)	12 (12%)	5 (5%)	Good
Dry cough	8 (8%)	34 (34%)	36 (36%)	18 (18%)	4 (4%)	Moderate
Sore throat	8 (8%)	29 (29%)	41 (41%)	16 (16%)	6 (6%)	Moderate
Breathing difficulties	16 (16%)	33 (33%)	32 (32%)	14 (14%)	5 (5%)	Good

Table 15 shows that the respondents were aware of skin problems. When each symptom in the group of skin problems was compared, it reports that the respondents' degree of awareness of dry skin was the highest (39%) demonstrating that their degree of awareness was good, whereas 37% of them had moderate awareness of itchy skin or skin rashes.

Table 15. The Degree of Awareness of Skin Problems of Sick Building Syndrome

The groups of symptoms of Sick Building Syndrome	**The degree of awareness**					**Results**
	Very Good	**Good**	**Moderate**	**Little**	**No**	
	(5)	**(4)**	**(3)**	**(2)**	**(1)**	
Skin Problems						
Dry Skin	17 (17%)	39 (39%)	27 (27%)	12 (12%)	5 (5%)	Good
Itchy skin or skin rashes	12 (12%)	18 (18%)	37 (37%)	25 (25%)	8 (8%)	Moderate

Table 16 indicates that a large proportion of the respondents had good awareness of aches and pains. When each symptom in the group of aches and pains was investigated, it shows that more than half (52%) of the respondents had good awareness of headache, followed by muscle pain (44%), and backache (39%), respectively.

Table 16. The Degree of Awareness of Aches and Pains of Sick Building Syndrome

The groups of symptoms of Sick Building Syndrome	**The degree of awareness**					**Results**
	Very Good	**Good**	**Moderate**	**Little**	**No**	
	(5)	**(4)**	**(3)**	**(2)**	**(1)**	
Aches and Pains						
Headache	36 (36%)	52 (52%)	10 (10%)	2 (2%)	0 (0%)	Good
Backache	38 (38%)	39 (39%)	16 (16%)	5 (5%)	2 (2%)	Good
Muscle Pain	32 (32%)	44 (44%)	16 (16%)	4 (4%)	4 (4%)	Good

Table 17 reports that the respondents had moderate awareness of other symptoms. The majority (46%) of the respondents had moderate awareness of lethargy, followed by nausea or dizziness (40%), and loss of concentration (36%), respectively.

Table 17. The Degree of Awareness of Other Symptoms of Sick Building Syndrome

The groups of symptoms of Sick Building Syndrome	**The degree of awareness**					**Results**
	Very Good	**Good**	**Moderate**	**Little**	**No**	
	(5)	**(4)**	**(3)**	**(2)**	**(1)**	
Other Symptoms						
Lethargy	14 (14%)	23 (23%)	46 (46%)	15 (15%)	2 (2%)	Moderate
Nausea or dizziness	19 (19%)	24 (24%)	40 (40%)	12 (12%)	5 (5%)	Moderate
Loss of concentration	21 (21%)	30 (30%)	36 (36%)	13 (13%)	0 (0%)	Moderate

4.4 THE DEGREE OF AWARENESS OF THE PREVENTION OF SICK BUILDING SYNDROME

The fourth part of the questionnaire contained 11 questions to measure the degree of awareness of Sick Building Syndrome's prevention. Table 18 reports the frequency and percentage of the respondents' awareness of each statement regarding Sick Building Syndrome's prevention. The results are demonstrated as follows:

Statement 1. Undergo a comprehensive physical exam every year

41% of the respondents had good awareness that having physical check every year can protect them from Sick Building Syndrome, and 26% of them had moderate awareness. Meanwhile, nobody had no awareness of this idea. It indicates that their degree of awareness was good.

Statement 2. Regularly exercise

The percentage of the respondents who had very good and good awareness that exercising on a regular basis helps prevent Sick Building Syndrome was very close (37% and 36%, respectively). However, nobody had no awareness of the idea of exercise. It reports that their degree of awareness was very good.

Statement 3. Always clean and dust desks, computers, and keyboards

36% of the respondents had very good awareness that regular cleaning and dusting desks, computers, and keyboards assists them to prevent Sick Building Syndrome while only 5% had little awareness of this idea. It shows that their degree of awareness was very good.

Statement 4. Adjust the sitting position appropriately

38% had very good awareness that adjusting the suitable sitting position prevents Sick Building Syndrome, followed by 30% of them having good awareness, 26% of them having moderate awareness, and 6% of them having little awareness, respectively and nobody had no awareness. It indicates that their degree of awareness was very good.

Statement 5. Use computer monitor radiation filters

38% of the respondents had good awareness that using computer monitor radiation filters helps prevent Sick Building Syndrome. In contrast, the minority (5%) of them had no awareness of this idea. It reveals that their degree of awareness was good.

Statement 6. Exercise legs, arms and hands while sitting for hours in front of a computer

The proportion of the respondents who had good and very good awareness that exercising legs, arms and hands while sitting for hours in front of a computer can prevent Sick Building Syndrome was almost the same at 39% and 38%, respectively. It discloses that their degree of awareness was good.

Statement 7. Put a plant next to a desk to release oxygen and absorb harmful pollutants and toxin from the air

29% of the respondents had moderate awareness that putting a plant next to a desk to release oxygen and absorb harmful pollutants and toxin from the air assists them to prevent Sick Building Syndrome. In contrast, 17% had little awareness and 7% had no awareness of this idea. It presents that their degree of awareness was moderate.

Statement 8. Avoid stress

36% of the respondents had good awareness that avoiding stress prevents Sick Building Syndrome. At the same time, 26% of them had very good awareness. Meanwhile, nobody had no awareness of this idea. It demonstrates that their degree of awareness was good.

Statement 9. Stay away from newly renovated areas

31% of the respondents had moderate awareness that staying away from newly renovated areas prevents Sick Building Syndrome. 28% of them had very good awareness, closely followed by 25% of them who had good awareness, whereas only 1% had no awareness. It reports that their degree of awareness was moderate.

Statement 10. Avoid smoking in office buildings

Half of the respondents had very good awareness that smoking restrictions in office buildings helps prevent Sick Building Syndrome. 34% had good awareness. Meanwhile, nobody had no awareness of this idea. It indicates that their degree of awareness was very good.

Statement 11. Demand checks of the heating, ventilating and air-conditioning system (HVAC) of the buildings

The majority (41%) of respondents had good awareness that demanding checks of HVAC system prevents Sick Building Syndrome. At the same time, equally 21% of them had moderate and little awareness while only 1% had no awareness. It presents that their degree of awareness was good.

Table 18. The Degree of Awareness of the Prevention of Sick Building Syndrome

The prevention of Sick Building Syndrome	**The degree of awareness**					**Results**
	Very Good	**Good**	**Moderate**	**Little**	**No**	
	(5)	**(4)**	**(3)**	**(2)**	**(1)**	
1. Undergo a comprehensive physical exam every year	25 (25%)	41 (41%)	26 (26%)	8 (8%)	0 (0%)	Good
2. Regularly exercise	37 (37%)	36 (36%)	13 (13%)	14 (14%)	0 (0%)	Very Good
3. Always clean and dust desks, computers, and keyboards	36 (36%)	34 (34%)	25 (25%)	5 (5%)	0 (0%)	Very Good
4. Adjust the sitting position appropriately	38 (38%)	30 (30%)	26 (26%)	6 (6%)	0 (0%)	Very Good
5. Use computer monitor radiation filters	23 (23%)	38 (38%)	22 (22%)	12 (12%)	5 (5%)	Good
6. Exercises legs, arms and hands while sitting for hours in front of a computer	38 (38%)	39 (39%)	18 (18%)	5 (5%)	0 (0%)	Good
7. Put a plant next to a desk to release oxygen and absorb harmful pollutants and toxin from the air	19 (19%)	28 (28%)	29 (29%)	17 (17%)	7 (7%)	Moderate
8. Avoid stress	26 (26%)	36 (36%)	32 (32%)	6 (6%)	0 (0%)	Good
9. Stay away from newly renovated areas	28 (28%)	25 (25%)	31 (31%)	15 (15%)	1 (1%)	Moderate
10. Avoid smoking	50 (50%)	34 (34%)	8 (8%)	8 (8%)	0 (0%)	Very Good
11. Demand checks of the heating, ventilating and air-conditioning system of the buildings	16 (16%)	41 (41%)	21 (21%)	21 (21%)	1 (1%)	Good

4.5 THE RESPONDENTS' SUGGESTIONS OR COMMENTS

This part reports the respondents' suggestions and comments. They were asked to give additional suggestions, comments, or opinions about Sick Building Syndrome which can be described as follows:

Firstly, some respondents said that they obtained information and knowledge regarding Sick Building Syndrome from various media such as TV, the Internet, newspapers, and especially from emails. They suggested that emails were an effective media tool to create and increase awareness of Sick Building Syndrome for many people because emails were more likely to be forwarded, resulting in more people to be aware of Sick Building Syndrome.

Secondly, the respondents explained that employers should provide employees with information on pollutants and their hazards to reduce a worker's health risk and they should take some practical steps to avoid unacceptable levels of indoor pollution such as eliminating tobacco smoke by establishing a smoke-free policy, improving air ventilation, limiting exposure of workers to certain specified levels of chemicals or toxin substances, and operating printers or copier machines in an area away from working locations.

Another interesting suggestion was that they would like to have a green zone at their workplaces. They thought that employers should provide a small outdoor garden full of green plants and flowers situated at each floor of the buildings in order to help refresh employees and keep them relaxed.

Finally, they proposed that an effective way to prevent indoor air pollution should begin at the design phase. A building owner, an architect or mechanical engineer should take responsibility for indoor air quality by appropriately designing the HVAC system or testing of air quality before and after occupancy.

In summary, this chapter reported the results of the respondents' degree of awareness of Sick Building Syndrome in terms of its causes, symptoms and prevention. The results were presented in tables together with a detailed explanation. The findings of the study will be summarized and discussed in the next chapter.