

CHAPTER FOUR

RESULTS

This chapter presents the results of the study and the responses collected from the 120 questionnaires completed by people who worked the nightshift. The results were analyzed and are presented in 6 parts: (1) general information of respondents; (2) respondents' opinions toward the ill-health effects; (3) respondents' opinions toward approaches used to gain effective sleep; (4) respondents' sleep behavior; (5) respondents' opinions toward nightshift duty; and (6) respondents' opinions and suggestions.

4.1 GENERAL INFORMATION

4.1.1 Gender

The majority of the respondents were female (58.3%), while 41.7% were male.

Table 1. Gender of the Respondents

Gender	Frequency	Percentage
Male	50	41.7
Female	70	58.3
Total	120	100

4.1.2 Marital status

The majority of the respondents were single (63.3%) while 34.2% were married.

Table 2. Marital Status of the Respondents

Status	Frequency	Percentage
Single	76	63.3
Married	41	34.2
Divorced	2	1.7
Separated	1	0.8
Total	120	100

4.1.3 Age

The majority of the respondents were between 21-30 years old (67.5%), while 24.2% ranged between 31 – 40 years old; 5.0% ranged between 41 – 50 years old, and 3.3% ranged between 18 – 20 years old.

Table 3. Age of the Respondents

Age range	Frequency	Percent
18 - 20	4	3.3
21 - 30	81	67.5
31 - 40	29	24.2
41 - 50	6	5.0
Total	120	100.0

4.1.4 Educational background

The majority of the respondents had graduated from secondary school (33.3%) and 24.2% of the respondents had graduated with a Bachelor's degree.

Table 4. Education of the Respondents

Education	Frequency	Percentage
Secondary	40	33.3
Bachelor's degree	29	24.2
Diploma	20	16.7
Elementary	14	11.7
Vocational	12	10.0
Respondents did not specify	4	3.3
Master's degree	1	0.8
Total	120	100.0

4.1.5 Income

The majority of the respondents earned less than 10,000 baht (48.3%), while 43.3% of the respondents earned between 10,001 - 20,000.

Table 5. Average Income of the Respondents

Salary	Frequency	Percentage
below 10,000	58	48.3
10,001 - 20,000	52	43.3
20,001 - 30,000	8	6.7
above 30,000	2	1.7
Total	120	100.0

4.1.6 Nightshift system

The majority of the respondents worked in shifts of 1-week (45.8%) and 2-week (30.8%) rotating shift systems.

Table 6. Shiftwork Systems of the Respondents Were Taking

Shiftwork system	Frequency	Percentage
Rotating every 2 days	4	3.3
Rotating every 3 days	1	0.8
Rotating every 4 days	1	0.8
Rotating every 7 days	1	0.8
Rotating every 15 days	1	0.8
Rotating every 1 week	55	45.8
Rotating every 2 weeks	37	30.8
Rotating every 3 weeks	1	0.8
Rotating every 4 weeks	1	0.8
Rotating every 5 weeks	1	0.8
Rotating every 1 month	12	10.0
Permanent nightshift	5	4.2
Total	120	100.0

4.1.7 Training courses attended

Most of the respondents (55.8%) had not attended courses on how to take care of themselves when working the nightshift, while 44.2% had attended courses. Regarding the respondents who had attended training courses, most of them (47.2%) had attended 2 times, with 41.5% attending only once. The respondents who had attended training courses were employees worked in factories or as a nurse.

Table 7. Respondents Who Had Attended Training Courses on How to Take Care of Themselves While Working the Nightshift

Training courses attended	Frequency	Percentage
No	67	55.8
Yes	53	44.2
Total	120	100.0

Table 8. Frequency of the Respondents Who Attended Courses on How to Take Care of Themselves While Working the Nightshift

Time(s) of training courses attended	Frequency	Percentage
1	22	41.5
2	25	47.2
3	5	9.4
6	1	1.9
Total	53	100.0

4.2 OPINIONS TOWARD ILL-HEALTH EFFECTS

The data presented in this part were collected from respondents' opinions toward the ill-health effects caused by working the nightshift. The results in this part show that most of the respondents agreed that the most significant negative health effect caused by working the nightshift was fatigue (78.3%), while 60.8% of respondents agreed that working the nightshift increased the risk of digestive disorders, 56.7% agreed that working the nightshift increased the risk of neurological disorders, 55.8% agreed that working the nightshift increased the risk of sleep disorders, and 54.2% agreed that working the nightshift increased the risk of gastrointestinal disorders. However, 46.7% of respondents disagreed that working the nightshift increased stress, 45.8% disagreed that working the nightshift increased the risk of cancer and menstrual disorders, 44.2% disagreed that working the nightshift increased the risk of metabolic disorders, and 43.3% disagreed that working the nightshift increased the risk of heart problems.

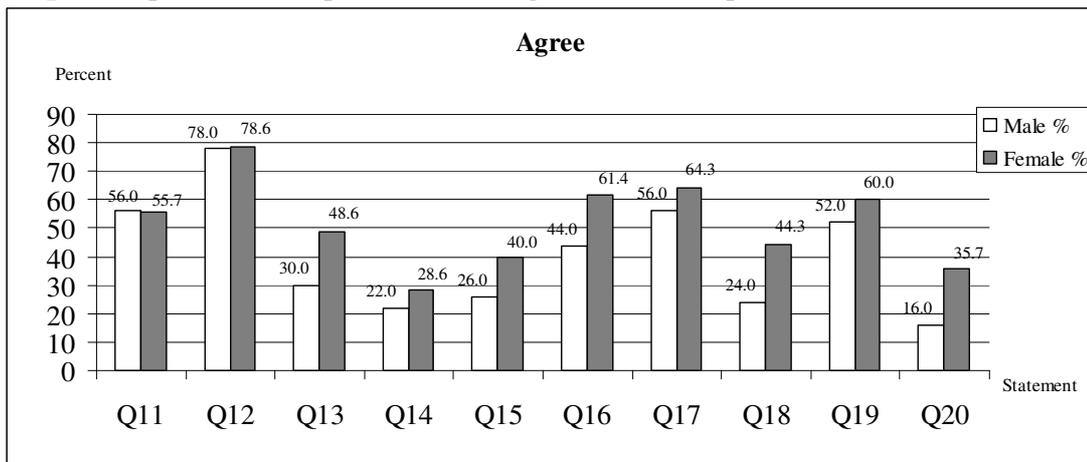
Table 9. Respondents' Opinions toward the Ill-Health Effects

Working on the nightshift duty will increase ...	Disagree		Neutral		Agree		Total	
	fq	%	fq	%	fq	%	fq	%
11 risk of sleep disorders, such as insomnia, narcolepsy, sleep apnea, circadian rhythm sleep disorders, and shift lag syndrome	38	31.7	15	12.5	67	55.8	120	100
12 fatigue	22	18.3	4	3.3	94	78.3	120	100
13 stress	56	46.7	15	12.5	49	40.8	120	100
14 risk of cancer	55	45.8	34	28.3	31	25.8	120	100
15 risk of heart problems, such as cardiovascular disorders; ischemic heart disease, coronary artery disease, and hypertension	52	43.3	27	22.5	41	34.2	120	100
16 risk of gastrointestinal disorder, such as constipation, colitis, gastroenteritis, gastritis, peptic ulcers, intestinal diseases, and peritonitis	47	39.2	8	6.7	65	54.2	120	100
17 risk of digestive disorders, such as indigestion, heartburn, stomach discomfort, frequent stomach aches, and esophageal diseases	39	32.5	8	6.7	73	60.8	120	100
18 risk of metabolic disorders	53	44.2	24	20.0	43	35.8	120	100

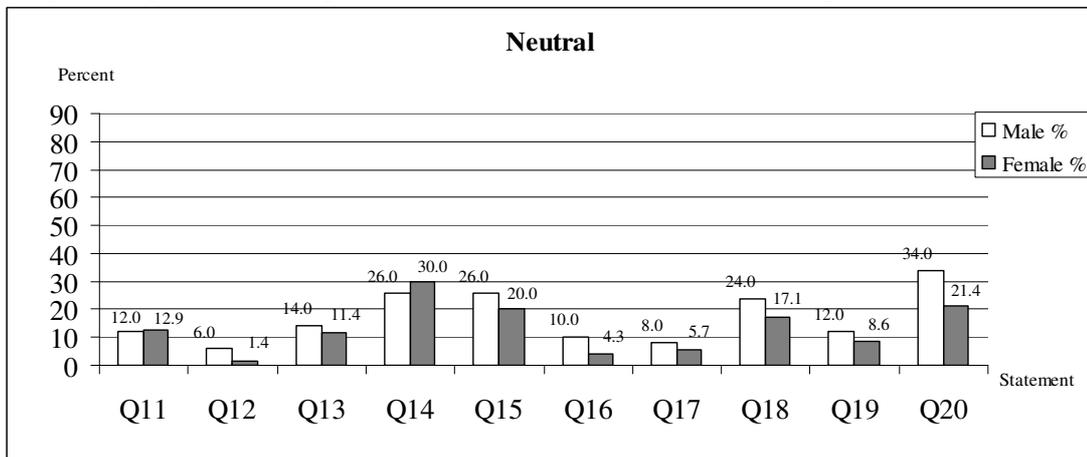
19	risk of neurological disorders, such as headaches, migraines, and epilepsy	40	33.3	12	10.0	68	56.7	120	100
20	risk of menstrual disorders	55	45.8	32	26.7	33	27.5	120	100

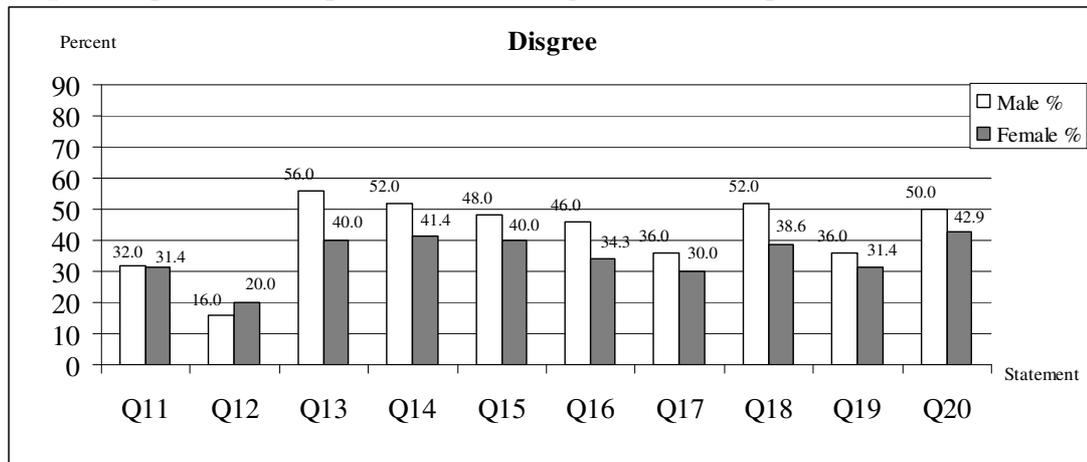
To evaluate the relationship between gender and the opinions toward the ill-health effects caused by working the nightshift, the graphs shown below are presented by percentage based on the number of the respondents in each gender, with the respondents consisting of 70 women and 50 men. As shown in Graph 1, women were the majority who agreed with the questions in this part except for the item on the risk of sleep disorders (Q11), where a larger percentage of men agreed than women. 56.0% of 50 men agreed that working the nightshift increased the risk of sleep disorders, while only 55.7% of 70 women agreed with this item. However, as shown in Graph 3, only on the item of fatigue (Q12) did more women disagree than men (20.0% of 70 women and 16.0% of 50 men).

Graph 1. Opinions of respondents who agreed with the questions.



Graph 2. Opinions of respondents who remained neutral to the questions.



Graph 3. Opinions of respondents who disagreed with the questions.

4.3 OPINIONS TOWARD APPROACHES TO GAIN EFFECTIVE SLEEP

The results in this part show that the majority of the respondents (76.7%) agreed that doing exercise every day was a good approach to gain effective sleep when they worked the nightshift.

4.3.1 Gaining effective sleep by getting bright light at night

The majority of the respondents, which were 51.7%, disagreed that getting bright light at night while working the nightshift would help regulate their sleep-wake cycle and gain effective sleep, while 24.2% agreed that getting bright light at night would help.

4.3.2 Gaining effective sleep by avoiding exposure to sunlight

The majority of the respondents (46.7%) believed that being exposed to sunlight before going to bed would help them gain effective sleep, while 38.3% agreed that being exposed to sunlight before going to bed would make it harder to fall asleep.

4.3.3 Gaining effective sleep by sleeping in a dark and cool room

The majority of the respondents (56.7%) agreed that sleeping in a dark and cool room would help them gain effective sleep, while 40% of the respondent disagreed.

4.3.4 Gaining effective sleep by wearing ear plugs and eye pads

The majority of the respondents (48.3%) disagreed that sleeping with ear plugs and eye pads on would help them gain effective sleep, while 32.5% of the respondents agreed.

4.3.5 Gaining effective sleep by taking a 45-minute nap during the night

The majority of the respondents (72.5%) agreed that taking a 45-minute nap during the night would help them gain effective sleep, while 15.8% of the respondents disagreed.

4.3.6 Gaining effective sleep by doing exercise every day

The majority of the respondents (76.7%) agreed that doing exercise every day would help them gain effective sleep, while 14.2% of the respondents disagreed.

4.3.7 Gaining effective sleep by drinking beer

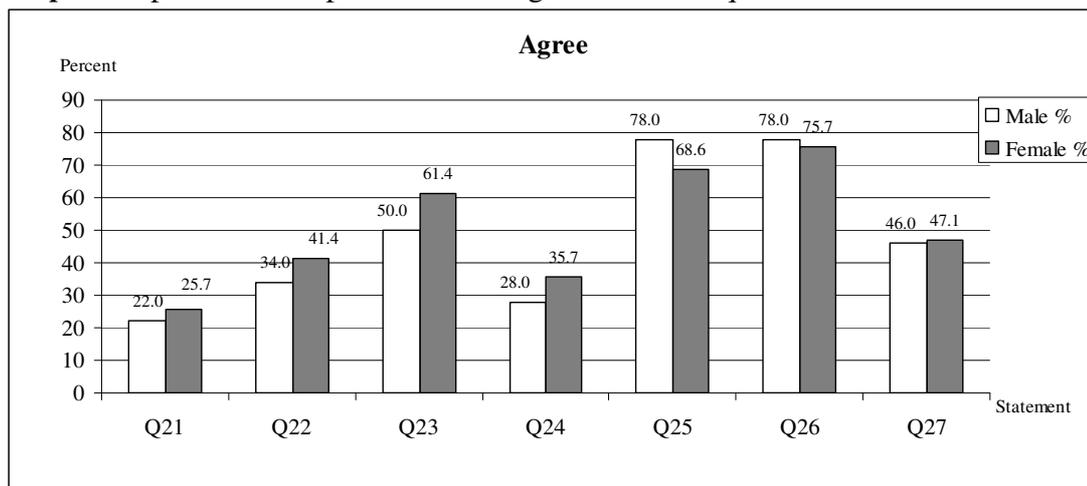
The majority of the respondents (46.7%) thought that beer would not help them gain effective sleep, while 28.3% of the respondents agreed that beer helped them sleep better.

Table 10. Respondents' Opinions toward Approaches to Gain Effective Sleep

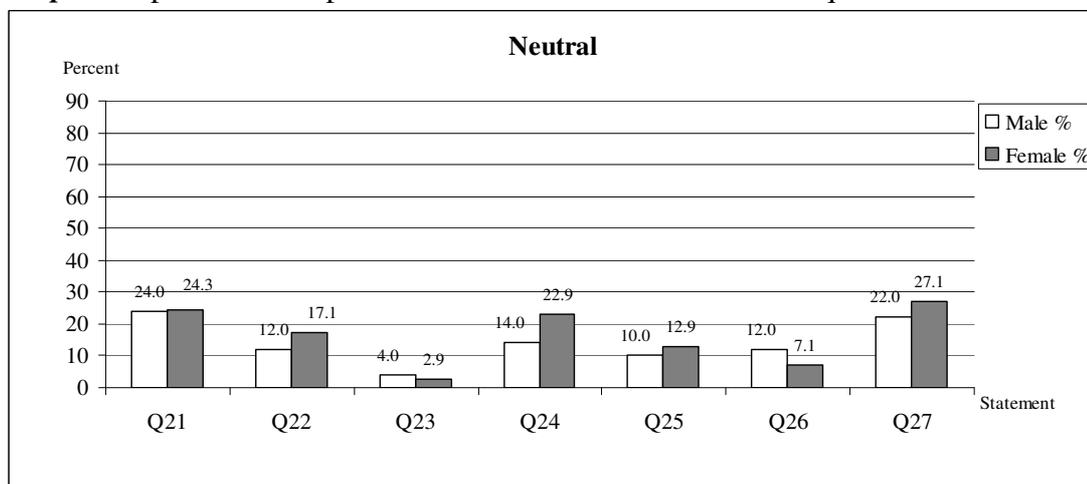
Approaches to gain effective sleep	Disagree		Neutral		Agree		Total	
	Fq.	%	Fq.	%	Fq.	%	Fq.	%
21 Exposure to bright light at night helps you to regulate the sleep-wake cycle.	62	51.7	29	24.2	29	24.2	120	100
22 Being exposed to sunlight before going to bed will make it harder to fall asleep.	56	46.7	18	15.0	46	38.3	120	100
23 Sleeping in a dark and cool room helps you sleep better.	48	40.0	4	3.3	68	56.7	120	100
24 Ear plugs and eye pads help you gain effective sleep.	58	48.3	23	19.2	39	32.5	120	100
25 Taking a 45-minute nap during the night helps you sleep better during the day.	19	15.8	14	11.7	87	72.5	120	100
26 Doing exercise every day helps you sleep deeper.	17	14.2	11	9.2	92	76.7	120	100
27 Beer helps you gain good sleep.	56	46.7	30	25.0	34	28.3	120	100

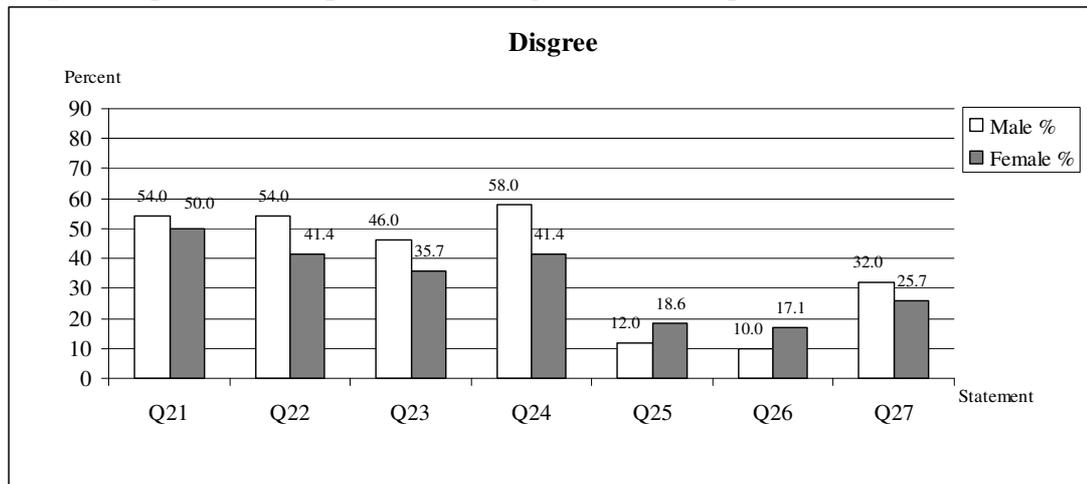
To evaluate the relationship between gender and the opinions toward the approaches used to gain effective sleep, the graphs shown below are presented by percentage based on the number of the respondents in each gender, with the respondents consisting of 70 women and 50 men. As shown in Graph 4, more women agreed with the questions in this part. However, on the item of taking a 45-minute nap and doing exercise, a larger percentage of men disagreed with these two items (78.0% of 50 men for both items). In contrast as shown in Graph 6, more men who disagreed with the questions in this part. On the item of taking a 45-minute nap and doing exercise, a larger percentage of women agreed with these two items (18.6% and 17.1% of 70 women, respectively).

Graph 4. Opinions of respondents who agreed with the questions.



Graph 5. Opinions of respondents who remained neutral to the questions.



Graph 6. Opinions of respondents who agreed with the questions.

4.4 SLEEP BEHAVIOR

The results in this part shows the respondents' sleep behavior when they worked the nightshift.

4.4.1 Sleep problems when working the nightshift

It was interesting that most of the respondents (55.8%) did not experience sleep problems when they worked the nightshift.

Table 11. Sleep Problems of the Respondents

Experiencing sleep problems	Frequency	Percentage
Yes	53	44.2
No	67	55.8
Total	120	100.0

4.4.2 Behavior of going to bed at the same time

The results for this item show that 80% of the respondents did not go to bed at the same time every day when they worked the nightshift.

Table 12. Behavior of Going to Bed of the Respondents

Going to bed at the same time	Frequency	Percentage
Yes	24	20
No	96	80
Total	120	100

4.4.3 Behavior of watching TV or using the computer before going to bed

The results for this item show that 79.2% of the respondents watched TV or used the computer before they went to bed.

Table 13. Behavior of Watching TV or Using the Computer before Going to Bed

Watching TV or using the computer before going to bed	Frequency	Percentage
Yes	95	79.2
No	25	20.8
Total	120	100.0

4.4.4 Behavior of sleeping in on the weekends

The results for this item show that 70.8% of the respondents slept more on weekends than they slept normally when they went to work.

Table 14. Behavior of Sleeping in on the Weekends

Sleeping in on the weekends	Frequency	Percentage
Yes	85	70.8
No	35	29.2
Total	120	100.0

4.4.5 Hours of sleep when working the nightshift

The results for this item show that when working the nightshift, on average, 46.7% of the respondents slept about 6 hours a day.

Table 15. Hours of Sleep of the Respondents

Hours of sleep	Frequency	Percentage
2	2	1.7
3	1	0.8
4	4	3.3
5	18	15.0
6	56	46.7
7	21	17.5
8	17	14.2
Not specified	1	0.8
Total	120	100.0

4.5 OPINIONS TOWARD NIGHTSHIFT DUTY

4.5.1 Reasons for choosing to work the nightshift

The results for this item show that 107 persons out of the 120 respondents had to work the nightshift because it was part of the job responsibilities, while 26 persons

worked the nightshift because they earned more money, 3 persons mentioned the nighttime atmosphere, and only 2 persons worked the nightshift because they received more benefits.

Table 16. Reasons for Choosing to Work the Nightshift

Preference	Frequency (from the answers checked)	Percentage (from the answers checked)
Part of the job responsibilities	107	89.2
More money	26	21.7
Atmosphere	3	2.5
More benefits	2	1.7

4.5.2 Negative effects of working the nightshift

The result for this item show that 68 persons out of the 120 respondents thought that working the nightshift increased health problems, while 53 persons agreed that time for social activities were different from others, and 16 persons expressed that working the nightshift disrupted their family relationships.

Table 17. Negative Effects of Working the Nightshift

Negative affects of working nightshift	Frequency (from the answers checked)	Percentage (from the answers checked)
increases health problems	68	56.7
time for social activates is different from others	53	44.2
disrupts family relationships	16	13.3

4.6 RESPONDENTS' OPINIONS AND SUGGESTIONS

4.6.1 Positive and negative points of working the nightshift

Most of the respondents felt that the biggest benefit of working the nightshift was that they could do their personal business during the daytime without having to take leave. Some expressed that it was more convenient to go to work because there was less traffic. The negative side of working on the nightshift concerned their health and the time being different to others. The table below presents the summary of respondents' own opinions regarding the positive and negative points of working the nightshift.

Table 18. Positive and Negative Points of Working the Nightshift Given by Respondents

Positive Points	Negative Points
<ul style="list-style-type: none"> ▪ Able to do other business in the daytime without taking leave. ▪ Able to concentrate on work more than working in daytime because fewer people are around. ▪ Going to work more convenient because of less traffic. ▪ Working atmosphere is more peaceful. ▪ Receive more benefits and incomes. ▪ Get more holidays. 	<ul style="list-style-type: none"> ▪ Health problems like digestive disorders. ▪ Lack of sleep. ▪ Body system cannot adjust well when rotating shifts. ▪ Have different meal times. ▪ Have to sleep at the different time to others, so it was sometimes very noisy. ▪ Unable to socialize with others. ▪ Feel sleepy when working. ▪ Get moody easily.

4.6.2 Ill-health effects people working the nightshift encountered

People who gave their opinions admitted that working the nightshift was more exhausting than working the dayshift because they could not gain good sleep. Some also expressed that they felt weaker and got sick more easily than when working the dayshift. Listed below are the ill-health effects respondents experienced when working the nightshift.

- | | |
|------------------------|------------------------------|
| ▪ Fatigue | ▪ Not feeling relaxed |
| ▪ Sleep problems | ▪ Feeling weak |
| ▪ Stress | ▪ Getting sick easily |
| ▪ Migraines | ▪ Thinking illogically |
| ▪ Headaches | ▪ Weight loss |
| ▪ Digestive disorders | ▪ Allergies |
| ▪ Gastritis | ▪ Eye problems |
| ▪ Constipation | ▪ Excretory system disorders |
| ▪ Respiratory problems | |

4.6.3 Approaches used to gain effective sleep when working the nightshift

Most of the respondents thought that drinking warm milk or water helped them sleep better. Taking a nap was a good approach for others, while some people thought that not taking a nap and allowing their body to feel very exhausted helped them fall asleep easily when getting home. Interestingly, some people made themselves fall asleep by drinking beer, playing games, and watching TV. Listed below are the approaches respondents used in order to gain effective sleep when they worked the nightshift.

- Drinking warm milk
- Drinking warm water
- Taking a nap
- Praying with rosary
- Doing meditation
- Doing exercise
- Sleeping with a cloth covering eyes
- Sleeping in a dark and cool room
- Turning off cell phone
- Taking a bath before going to bed
- Taking sleeping pills
- Sleeping in a quiet environment
- Having some food before going to bed
- Listening to instrumental music
- Reading books
- Not taking a nap, allowing the body to become very exhausted
- Drinking beer
- Playing games
- Watching TV