

JOB STRESS AND EFFECT TO SLEEP QUALITY AMONG POLICE OFFICERS IN MUEANG DISTRICT, PHRAE PROVINCE, THAILAND

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Abstract

Purpose The paper aims to: estimate the prevalence of poor sleep and determine the relationship among demographic characteristic data, characteristics of police, covariate factors or behavioral factors, job stress, and sleep quality.

Methods This study was cross-sectional study which approached 244 Thai police in Mueang District, Phrae Province, Thailand. By systemic random sampling technique. Data were collected by self-administrative questionnaire to find demographic data, covariate factors, behavior factors, job characteristics, job stress, and sleep quality during working as a police officer.

Findings The findings highlight that mechanism of sleep, sleep quality, job stress, and police officer. Ever have an

estimate 96.7% mentioned that they had a poor sleep quality and 3.3% had a good sleep quality. Police who have low stress or normal were assessed good sleep quality 100 people (71.9%) and poor sleep quality 39 people (28.1%). While who have high stress 38 (36.2%) were assessed good sleep quality and 67 police (63.8%) as poor sleep quality. Job stress was associated with sleep quality (p -value=0.000)

Originality/value The paper presents general data, covariate factors, characteristics of police and police job stress among police officers in Mueang district, Phare province, Thailand. It also provides the associations of sleep quality.

Keywords: mechanism of sleep, sleep quality, job stress, and police officer

Introduction

Sleep is an important tool that help the body to restore, refresh and maintain the body system. It helps the body to slow down the function after exhausted during day time. Sleep is a condition of body and mind that relax for a several hours at night time with the eyes close and the whole body is immobile posture. The recommend length of sleep is around 7-8 hours for most of the people, but sometime different age group need different sleep length.

Sleep can be divided into 2 basic types 1) Rapid eye movement (REM) and 2) Non-Rapid eye movement (non-REM) and in non-REM consist of 3 stages. When the sleep cycle starts it will be non-REM, the first stage in non-REM occur only 5-10 minutes at this stage the person can be awake easily. The second stage of non-REM the body temperature will drop, and the heart rate is slower, most of the people spend 50% of their sleep at this stage (Washington, 2011). Last stage of non-REM is the deep sleep, it is considering to the "Restorative Stage".

Recent studies show that people performance is better when they have a good quality of sleep. They learn thing better and can memorize faster. Having an enough quality of sleep can prevent you from having a mental health, physical health and quality of life problems. Your brain will work better with a good quality of sleep. Sleep can help to improve human

being skill in learning thing or even in making a decision. Lack of sleep may cause people to be mood swing, sad, depressed or even lack of motivation. Thus, sleep quality is an important tool for being healthy (Smith, 2015).

Many researches study about sleep problem with shift workers, but have few studies focused on the association between job stress and sleep quality. The study in both US and some European countries showed high job demands, low job control (Theroell et al., 1998; Cahill & Landsbergis, 1996), low social support (Landsbergis, 1998; Pelfrene et al., 2002), and dissatisfaction at work are associated with sleep problems. A bad atmosphere at work and low-level interest of job such as workload, too heavy work, unfinished work (Jacquinet-Saload et al., 1993) have also proposed as factors of poor sleep quality.

Police are the stress occupation because the pressure from job, shift work, personal problem, and they have to face up to violence situation and police easy to reach the weapon or gun. Thus, police always run away from the problem by suicide. The following data from Royal Thai Police in 2016 had been found that the police had committed suicide 279 persons. The data in 2008-2015, police had committed suicide 260 persons. From the estimate 8 years ago, police had committed suicide 33 persons/year and 14 / 100,000 persons but in 2007, only 6 / 100,000

persons. Suppression is the most of police's division that have depression and poor sleep quality because pressure from their job. Thus, Thai police have increasing suicide more than other occupation about 2 times (Royal Thai Police, 2016).

The sample of this study is police in Mueang District, Phrae Province because Provincial Police Region 5 or the northern part of Thailand have the highest rate of police committed suicide (Department of Psychiatry and Drug Dependence, Police General Hospital, 2560) and Phrae Province are supervised by Provincial Police Region 5. Mostly the police here tend to have highly stressful with their duty and many conditions of their work. Moreover, Mueang district have a big population group of police and have many police station that somehow it can be the representative of police in local area as a whole.

In Thailand, the prevalence of poor sleep quality among adult group or middle age is 40% (Department of Mental, 2013). One study had shown that daytime workers sleep quality was affect by psychological job stress factors such as interpersonal conflicts with fellow employees, job satisfaction and social support have affect to sleep quality and risk to insomnia (A.Nakata, 2004). However, few studies have been investigated effect of job stress, social support, and sleep quality among Thai police officer. Therefore, this study aims to investigate the associate between job stress, social support with the sleep quality among police officers in Phrae province, Thailand.

Methods

The cross-sectional descriptive survey was conducted in Meuang District, Phare province, Thailand. Simple random sampling was started from four police station. The study population consisted of police who are 20-60 years old. Police who have underlying diseases or health problem condition and was not willing to fulfill the questionnaire or participate was excluded.

First, the researcher will send the letter to inform each office that the research will come to collect the data from their officers. And will ask for the name list of the police in each office. Then the researcher can do a simple random sampling to select a subject. After that the researcher asked to inform the participant and ask what is the field of their work about. Then the researcher will wait until the participants finish filling the self-report questionnaire and return to the researcher.

Structural questionnaire to determine demographic characteristics, police job stress, and sleep quality was modified from PSQI (Thai version), PSQI was an effective instrument to assess sleep quality in both general population and patients. PSQI consisted of ten main items to evaluate seven components include sleep quality, sleep latency, sleep duration, habitual sleep efficacy, sleep disturbances, sleep medication use, and daytime dysfunction over the last month. Sum score of all components will be calculated as sleep quality. Questionnaire was submitted to three experts for content validity testing

which IOC score. Pilot-tested was performed in 30 police officer in Phrae province, Thailand who were not included in the final survey. Reliability value was calculated by using Coefficient Cronbach's alpha that was 0.71.

Data collection was conducted by self-administrative questionnaire under supervision of researcher. All the participants were informed about purpose of the survey and data were collected after having received participants informed verbal consent.

Statistical analysis was performed using SPSS window software program

version 22.0 (licensed for Chulalongkorn University). Descriptive statistics for continuous variables and categorical variables were used to describe the population characteristics. Pearson's Chi-square and Fisher exact test were used to determine association between variables and p-value less than 0.05 was considered significant. Ethical approval was obtained from the Ethics Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University.

Result

Table 1 Socio-demographic characteristics of 244 police officers

Socio-demographic	Frequency	Percentage
Sex		
Male	205	84
Female	39	16
Age (years)		
20-40	45	18.4
41-60	199	81.6
(Mean \pm SD) = 47.16 \pm 8.68		
Min = 21, Max = 60		
Education		
High school	64	26.2
Diploma	21	8.6
Bachelor	132	54.1
Higher than bachelor	27	11.1
Marital status		
Single	32	13.1
Married	184	75.4

Divorce	22	9.0
Widow	6	2.5
Monthly income (Bath)		
<10,000	2	0.8
10,001-20,000	22	9.0
20,001-30,000	108	44.3
>30,000	112	45.9
Left over money (Bath)		
0-10,000	189	77.5
>10,001	55	22.5
	(Mean \pm SD) = 10851.76 \pm 8324.56	
	Min = 0, Max = 50,000	
Left over status (Bath)		
Enough	156	63.9
Not enough	88	36.1
Overtime		
No	152	60.5
Yes	92	39.5
Overtime (day/week)		
No	152	62.3
1-2	46	18.9
3-4	31	12.7
5-7	15	6.1
Overtime (hour/day)		
No	152	62.3
<3	42	17.2
3-6	21	8.6
6-8	17	7.0
>8	12	4.9
Part-time		
No	169	69.3
Yes	75	30.7

2 Behavioral characteristics related to sleep quality of participants (N=244)

Behavioral demographic	Frequency	Percentage
Energy Drink		
No	164	67.2
Yes	80	32.7
Energy Drink Frequency		
No	164	67.2
Every day	9	3.7
2-3 day/time	34	13.9
1 week/time	37	15.2
Energy Drink Quantity (bottle)		
No	164	67.2
1-2 bottle	68	27.9
3-4 bottle	12	4.9
Caffeine drink		
No	47	18.1
Yes	197	81.9
Caffeine drink frequency		
No	47	19.3
Every day	141	57.8
2-3 day/time	34	13.9
1 week/time	22	9.0
Caffeine drink time		
No	47	19.3
Morning	142	58.2
Afternoon	46	18.9
Evening	2	0.8
Night	7	2.9
Caffeine drink quantity (glass)		
0 glass	46	18.9
1 glass	174	71.3

2 glass	17	7.0
3 glass	7	2.9
Type of caffeine drink		
No	46	18.9
Tea	24	9.8
Coffee	172	70.5
Sparkling water	2	0.8
Smoking		
No	199	81.6
Yes	45	18.4
Smoking frequency		
No	199	81.6
1-2 day	4	1.6
Less than 1 week	6	2.5
Often but not everyday	16	6.6
Everyday	19	7.8
Smoking quantity (roll)		
0	201	82.4
1	2	0.8
2-5	16	6.6
6-10	5	2.0
11-20	8	3.3
More than 20	12	4.9
Alcohol		
No	63	25.8
Occasionally	159	65.2
Often	22	9.0
Alcohol frequency		
No	64	26.2
1-2 day	60	24.2
Less than 1 week	52	21.3
Often but not everyday	66	27.0
Everyday	2	0.8

Alcohol quantity (glass)		
0	72	29.5
1	39	16
2-5	70	28.7
6-10	26	10.7
More than 10	37	15.2
Exercise		
No	41	16.8
Yes	203	83.2
Exercise (day/time)		
No	41	16.8
1-2	69	28.3
3-4	102	41.8
5-7	32	13.1
Exercise (minute/day)		
No	41	16.8
Less than 30	52	21.3
More than 30	151	61.9

The data in table 2 showed the covariate factor that effect to sleep quality of 244 police, found that almost of participant don't drink energy drink (67.2%) but drink energy drink (32.7%). The frequency of energy drink, almost of participant's drink energy drink 1 week/time was about 15.2% , followed by drink energy drink 2 -3 day/time (13.9%), and drink every day (3.7%). For quantity of energy drink, most of the participant drink energy drink 1-2 bottle/time (27.9%) and drink energy drink 3-4 bottle/time (4.9%). In caffeine drink part, most of participant drink caffeine was about 81.9% and don't drink caffeine was about 18.1%. For the frequency of caffeine drinks, majority if

participants drink caffeine drink every day was 57.8%, followed by drink caffeine 2-3 day/time (13.9%), and drink caffeine 1 week/time (9%). The quantity of caffeine drink, most of participants drink 1 glass/day (71.3%), drink 2 glass/day (7%), drink 3 glass/day (2.9%). For the time to drink caffeine drink that almost participants drink in morning (58.2%), followed by drink in afternoon (18.9%), drink in night (2.6%), and drink in evening (0.8%). Type of caffeine drink, almost of participant's drink coffee (70.5%), drink tea was about 9.8%, and drink sparkling water was 0.8% . In smoking behavior part, majority of participants don't smoke 81.6% and smoke was 18.4% . The frequency of smoke, most of them smoke

every day was about 7.8% , Often smoke but not every day (6.6%), smoke less than 1 week (2.5%), and smoke 1-2 day/week (1.6%). The quantity of smoke, most of participants smoke 2-5 smoke/day (6.6%), followed by smoke more than 20 smoke/day (4.9%), smoke 11-20 smoke/day (3.3%), smoke 6-10 smoke/day (2%), and smoke 1 smoke/day (0.8%). Alcohol drinking behavior part, most of participants occasionally drink alcohol was 65.2% , often drink alcohol was about 9% , and don't drink alcohol was 25.8% . The frequency of alcohol drinking that showed almost of participant often drink alcohol but not every day was about 27%, followed by drink alcohol 1-2 days

(24.2%), drink alcohol less than 1 week (21.3%), and drink alcohol every day (0.8%). The quantity of alcohol drinking, most of participant drink 2-5 glass was 28.7% , drink alcohol 1 glass (16%), drink alcohol more than 10 glass (15.2%), and drink alcohol 6-10 glass (10.7%). In exercise part, showed result almost participants exercise was 83.2% and don't exercise was 16.8%. The frequency of exercise of participants, majority of them exercise 3-4 day/week (41.8%), exercise 1-2 day/week (28.3%), exercise 5-7 day/week (13.1%). Most of participants exercise more than 30 minute/day (61.9%) and less than 30 minute/day (21.3%).

Table 3 Characteristics of police officers (N=244)

Characteristics of police	Frequency	Percentage
Work place		
Phrae Provincial Police	65	26.6
Mueang Phrae Police	111	45.5
Station		
Huay Mha Police Station	30	12.3
Chor Hair Police Station	38	15.6
Characteristics of police		
Suppression	118	48.4
Investigation	34	13.9
Inquiry	34	13.9
Traffic	8	3.3
Administration	50	20.5
Position of job		
Squad leader	133	54.5
Sub-inspector	94	38.5
Inspector	13	5.3
Deputy superintendent	4	1.6

Table 3 showed characteristics of police officers. Each of the participant came from the difference office, division, and position most of participant are from Mueang Phrae Police Station (45.5%). Follow by Phrae Provincial Police (26.6%), Chor Hair Police Station (15.6%), and Huay Mha Police Station (12.3%). The characteristics of police divide by 4 part consist of suppression,

investigation, inquiry and administration. The most of participant are suppression division was about 48.4%, follow by administration (20.5%), investigation and inquiry division (13.9%), and traffic division (3.3%). For the position of police, almost of participant are squad leader was about 54.5%, 38.5% are sub-inspector, inspector (5.3%) and deputy superintendent (1.6%).

Table4 Police job stress from The Operational Police Stress Questionnaire (PSQ-Op) (N=244)

Job stress	Frequency	Percentage
Normal/ low stress	139	57
High stress	105	43

The data in table 4 showed the result from the operational police job stress, most of participant have normal or

low stress from their job was about 57% and have high stress from job was 43% .

Overall sleep quality

Table 5 Overall sleep quality of police (N=244)

Sleep quality	Number	Percent
Good	8	3.3
Poor	236	96.7

Part 5 is about the sleep quality assessment. An estimate 96.7% mentioned

that they had a poor sleep quality and 3.3% had a good sleep quality.

Table 6 Association between sociodemographic demographic and sleep quality among police (N=244)

Demographic	Total	Sleep quality				P-value
		Good		Poor		
		N	%	N	%	
Gender						.709a
Male	205	117	57.1	88	42.9	
Female	39	21	53.8	18	46.2	
Age						.130a
20-40 years old	45	30	66.7	15	33.3	
41-60 years old	199	108	54.3	91	45.7	
Education						.601a
Bachelor's degree or lower	217	124	57.1	93	42.9	
Higher than bachelor's degree	27	14	51.9	13	48.1	
Marital status						.562a
Unmarried	60	32	53.3	28	46.7	
Married	184	106	57.6	78	42.4	
Monthly income						.031a
<10,000-30,000	132	83	62.9	49	37.1	
>30,001	112	55	49.1	57	50.9	
Left over money						.229a
0-10,000	189	103	54.5	86	45.5	
>10,000	55	35	63.6	20	36.4	
Left over status						.009a
Enough	156	98	62.8	58	37.2	
Not enough	88	40	45.5	48	54.5	

a Chi-square test, b Fisher's exact test, c Mann-Whitney U test

Table 7 Association between covariate factors and sleep quality among police (N=244)

Demographic	Total	Sleep quality				P-value
		Good		Poor		
		N	%	N	%	
Over time						.089a
No	152	90	59.2	62	40.8	
Yes	92	45	48.9	47	51.1	
Over time (day/week)						.394a
No	152	90	59.2	62	40.8	
1-2 days	46	26	56.5	20	43.5	
>2 days	46	22	47.8	24	52.2	
Over time (hours/day)						.521a
No	152	90	59.2	62	40.8	
<3 hours	42	21	50	21	50	
≥3 hours	50	27	54	23	46	
Part time						.216a
No	169	100	59.2	69	40.8	
Yes	75	38	50.7	37	49.3	
Energy drink						.008a
No	164	103	62.4	62	37.6	
Yes	80	35	44.3	44	55.7	
Energy drink (frequency)						.030a
No	164	102	62.2	62	37.8	
>3 day/time	9	3	33.3	6	66.7	
1 week/time	71	33	46.5	38	53.5	
Energy drink (quantity)						.037a
No	164	102	62.2	62	37.8	
1-2 bottle	68	30	44.1	38	55.9	
3-4 bottle	12	6	50	6	50	

Caffeine drink						.088a
No	49	33	67.3	16	32.7	
Yes	195	105	53.8	90	46.2	
Caffeine drink (frequency)						.016a
No	47	32	68.1	15	31.9	
Every day	141	83	58.9	58	41.1	
≥3 day/time	56	23	41.1	33	58.9	
Caffeine drink (Time to drink)						.011a
No	46	31	67.1	15	32.6	
Morning	143	85	59.2	58	40.8	
Evening	55	22	40	33	60	
Caffeine drink (quantity)						.236a
No	46	31	67.4	15	32.6	
1 cup	174	95	54.6	79	45.4	
≥2 cup	24	12	50	12	50	
Caffeine drink (type)						.059a
No	46	31	67.4	15	32.6	
Coffee	172	97	56.4	75	43.6	
Tea	26	10	38.5	16	61.5	
Smoking						.013a
No	199	120	60.3	79	39.7	
Yes	45	18	40	27	60	
Smoking (frequency)						.018a
No	199	119	59.8	80	40.2	
Often	26	14	53.8	12	46.2	
Every day	99	5	26.3	14	73.7	
Smoking (quantity)						.012a
No	201	120	60.3	81	39.7	

1-10 smoke	23	13	55.2	10	44.8	
≥10 smoke	20	5	56.6	15	43.4	
Alcohol consumption						.485a
No	63	38	60.3	25	39.7	
Yes	181	100	55.2	81	44.8	
Alcohol (frequency)						.004a
No	64	39	60.9	25	39.1	
≤7 day 1	112	72	64.3	40	35.7	
Often 7 or 7 days	68	27	39.7	41	60.3	
Alcohol (quantity)						.130a
No	72	45	62.5	27	37.5	
1-5 glass	109	64	58.7	45	41.3	
>5 glass	63	29	46	34	54	
Exercise						.004a
No	41	23	56.1	18	43.9	
Yes	203	115	56.7	88	43.3	
Exercise (minute/day)						.532a
No	41	23	56.1	18	43.9	
Less than 30 minutes	52	26	50	26	50	
More than 30 minutes	151	89	58.9	62	41.1	
Exercise (day/week)						.473a
No	41	23	56.1	18	43.9	
1-2 day/week	69	35	50.7	34	49.3	
>2 day/week	134	80	59.7	54	40.3	

a Chi-square test, b Fisher's exact test, c Mann-Whitney U test

The covariate factor and sleep quality that showed result from table 17. Among participants 244 people that showed almost of participant don't do over time work was 152 (62.2%) and do the overtime work 92 (37.7%). There were police that do over time 1-2 days/week have good sleep quality about 56.4% and have poor sleep quality about 43.5%. Police who do over time more than 2 days that have good sleep quality was about 47.8% and have poor sleep quality was 52.2%. There were police that do over time work 3 hours or more than 3 hours have good sleep quality was about 54% and have poor sleep quality was 46%. Police do over time work less than 3 hours have good sleep quality was

about 50% and have poor sleep quality 50%. However, over time work was not associated to sleep quality. The majority of participants don't do part time work was about 169 (96.2%), 100 police (52%) was assessed to good sleep quality but 69 police (40.8%) was assessed to poor sleep quality. There were 75 (30.7%) do part time work, 38 police (50.7%) was assessed to good sleep quality but had 37 police (49.3%) was assessed to poor sleep quality. Part time work was not associated with sleep quality. For energy drink, there were 164 participants don't drink energy drink but there were 80 participants drink energy drink.

Table 8 Association between characteristics of police and sleep quality among police (N=244)

Demographic	Total	Sleep quality				P-value
		Good		Poor		
		N	%	N	%	
Work place						.000a
Phrae Provincial	176	87	49.4	89	50.6	
Police station						
Phare Police	68	51	75	17	25	

a Chi-square test, b Fisher's exact test, c Mann-Whitney U test

Table 9 Association between covariate factors and sleep quality among police (N=244)

Job stress	Total	Sleep quality				P-value
		Good		Poor		
		N	%	N	%	
Normal/ Low stress	139	100	71.9	39	28.1	.000a
High stress	105	38	36.2	67	63.8	

a Chi-square test, b Fisher's exact test, c Mann-Whitney U test

Table 10 Adjusted odd ratio of characteristics and poor sleep quality (N=224)

Variable	Crude odds ratio	95% CI		Adjusted odds ratio	95% CI		P-value
		Lower	Upper		Lower	Upper	
Monthly Income (Bath)							
<10,000-30,000	0.57	0.34	0.95	1.86	1.01	3.42	0.045
>30,000	1.00						
Left over money status							
Enough	1.00						
Not enough	2.03	1.19	3.45	1.71	0.91	3.22	0.094
Work place							
Phrae Provincial Police	1.00						
Phrae Police Station	0.33	0.17	0.61	3.68	1.80	7.53	0.000
Characteristics of police							
Suppression or detective division	0.52	0.31	0.87	4.87	0.26	0.91	0.023
Other division	1.00						

Energy drink							
No	1.00						
Yes	2.09	1.21	3.60	1.96	1.32	3.71	0.040
Smoking							
No	1.00						
Yes	2.28	1.18	4.41	3.21	1.45	7.10	0.004
Job stress							
Normal/ Low stress	1.00						
High stress	4.52	2.63	7.79	4.16	2.261	7.666	0.000

Table 1 0 shows the Adjusted Odd Ratio (AOR). In multivariable adjusted model, monthly income, left over money status, work place, characteristics of police, energy drink, smoking, and job stress were statistically significant associated to poor sleep quality at p-value < 0.05.

Conclusion

The study found that 96.7 percent of police in Mueang District, Phrae Province, Thailand had reported poor sleep quality with PSQI score ≥ 8 . Our study found that poor sleep quality was associated with, monthly income, left over money status, work place, characteristics of police, energy drink, smoking, and job stress. Therefore, public health strategic development by promoting for health behavior to prevent health effects and chronic diseases and engagement social participation or counselling to prevent depression among police and office workers are essential.

Recommendation

This study reported the risk factor to poor sleep quality but did not present the logical reasoning. Therefore, the further study should in-depth interview to support the significantly factor as Mixed-method study.

This study was cross-sectional study design, which limits the confirmation of result temporality. The further research should be conducted as the long-term monitoring intervention to examine the risk factor and solving sleep disorder.

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