

## A Study on the Comparison of Burnout Syndrome, Among Medical Doctors in the Restive Areas and Non-Restive Areas of the South Thailand Insurgency

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### Abstract:

**Objective:** This study aims to compare burnout syndrome as well as the associated factors among doctors, who work at, secondary and tertiary-care hospitals either: in the restive areas of Thailand's southern insurgency, and the non-restive areas of nearby provinces.

**Material and Methods:** This was a cross-sectional designed study, which was conducted in order to survey all doctors, who worked at hospitals, located in lower, southern Thailand from; January to April 2018. The questionnaire used; The Maslach Burnout Inventory (MBI) Thai version questionnaire. The data was analyzed by descriptive statistics. The factors associated with burnout syndrome were analyzed by using chi-square test and logistic regression.

**Results:** The total number of participants were; 245 medical doctors. Fifty-eight percent of them were females, whilst 42.0% were males, and most of them were single (50.2%). The mean age of the participants was; 35.9 years, and 30.2% of them worked more than 40 hours per week. The total prevalence of Burnout syndrome among them was; 99.6%, with the highest score found to be in the emotional exhaustion section. There were no differences in burnout syndrome between, those who worked in restive areas and those who worked in non-restive areas of Thailand's southern insurgency, grade point average (GPA), perceived sleep/rest quality and perceived work stress were related to emotional exhaustion, while types of specialty, work hour/week and family relationships were associated with depersonalization. The sample size was not adequate for the personal accomplishment part analysis.

**Conclusion:** Almost all medical doctors, who worked at either secondary or tertiary-care hospitals in the lower, southern areas of Thailand, suffered from burnout, only 1 physician did not. The factors associated to burnout syndrome are; work hours per week, GPA, type of specialty, perception of sleeping/rest quality, perception of having stress from work and family relationships.

**Keywords:** burnout, medical doctor, south Thailand insurgency

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## Introduction

The terminology of “burnout” was firstly used to describe the syndrome of exhaustion observed among mental health or human service professionals.<sup>1,2</sup> It is a pathological syndrome that comprises of the condition of emotional exhaustion (EE), depersonalization (DP) and a decreased sense of personal accomplishment (PA).<sup>3</sup> Burnout may be related to work overloading and involved in emotionally demanding contacts with recipients, such as; clients and patients.<sup>2,3</sup>

To date, both the mental and physical health of medical health practitioners are of concern, due to the hard working, nature of their professions, which may in turn, lead to “burnout syndrome” and mental maladaptation, with an emphasis on physician’s morbidity. A review of existing studies indicated that the rates of mortality from; vascular disease, cirrhosis of the liver and traffic accidents were three times higher among physicians than the general population.<sup>4</sup> Regarding the psychological modules, a previous. qualitative study found that some professionals showed emotional mismanagement due to the lack of a subjective recognition of affective experiences. Therefore, they considered themselves as inadequate for the performance of their work and values. At the same time, they were busy with helping others, but unable to remind themselves to ask for help.<sup>2</sup>

As we know, individuals suffering from burnout syndrome (BS) fail to adapt due to exhaustion, and the depletion of psychological resources needed to cope with the demands required while working with people. These causes an imbalance between excessive work demands and limited coping resources, that may lead to patients experiencing higher risk-adjusted 30-day mortality, and a failure-to-rescue rate.<sup>5-7</sup> Nurses are more likely to experience burnout and job dissatisfaction.<sup>8</sup> In 2016, according to Thailand’s Medical Council database, the

number of active doctors stood at; 53,190, whereas the population was approximately 65,125,000.<sup>9</sup> In 2014, the data showed that the average proportion of population per one doctor was 1,377, however half of all the nation’s doctors worked in Bangkok. Therefore, the real proportion of population per one doctor in other provinces is much higher than that present in Bangkok, and this might cause work overload and exhaustion.<sup>10</sup>

In 2011, a study showed that nearly half of Thai psychiatrists (44.7%) reported a moderate-to-high level of EE, whereas most of them had a low level of DP (82.9%) and a high level of PA (79.0%). These imply that there is a high burnout level in terms of EE among Thai psychiatrists, but only a few of them neglected or mistreated their patients. Furthermore, most of them still felt that they were capable of doing their jobs efficiently.<sup>11</sup>

In Thailand, since 2004, the insurgency in the South of Thailand along with the unrest caused by political conflict, has manifested itself as continuous and escalating violence in the 3 provinces of Pattani, Yala and Narathiwat (known in the Thai media as the 3 southern border provinces or SBP) as well as in some parts of the neighboring, Songkhla province. From 2004 to 2014, 14,701 incidents of violence have been officially reported. As a consequence, 6,297 people have been killed, with another 11,375 being injured in total.<sup>12</sup> Because of this, the continuous insurgency is presented as a chronic, life threatening condition that may produce insecure feelings and burnout among physicians, who work in the 3 SBP hospitals. Previous studies, however, of BS have been limited to only psychiatrists. Therefore, the research on the prevalence, associating factors and association between BS, the level of violence in restive areas among medical doctors, who work in government hospitals in the 3 SBP and the other 4 southern provinces of Thailand, may be helpful in the development of psychological support systems for public health organizations within this region.

### Objective

1. To assess the prevalence of BS and associated factors among doctors, at secondary and tertiary-care hospitals in the lower, southern areas of Thailand.

2. To compare BS between the restive areas afflicted by insurgency, and the non-restive nearby areas in the south of Thailand.

## Material and Methods

### Ethical consideration

This study was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University (REC: 60-262-03-1).

### Study design

A cross-sectional study was conducted in order to survey the data of all medical doctors working at the hospitals in the 3 SBP of; Narathiwat, Pattani, Yala, and 4 other provinces in the lower, southern areas of Thailand, such as: Songkhla, Satun, Trang and Phatthalung, from January to April 2018.

### Population

All medical doctors working at the hospitals in the 3 SBP, and 4 other provinces in the lower, south of Thailand. The estimated size of our target population was at least 320 medical doctors.

According to the Ministry of Public Health records, there are 1,285 physicians on duty.<sup>13</sup>

$$n = \frac{N}{1 + Ne^2}$$

n=Target population in this study

N=Population

e=allowable error 5.0% (0.05 in equation)<sup>14</sup>

### Inclusion and exclusion criteria

Inclusion criterion included: medical doctors, who have worked more than 1 year at either secondary, or tertiary hospitals of the 3 SBP, and 4 other provinces of the lower, south Thailand, 2018.

Exclusion criterion included; medical doctors who did not work at the hospital during the data collection period, or doctors who could not complete the questionnaire, or were not comfortable with participation in the study.

### Methodology

The researchers asked the Public Health Ministry to address, and contact the relevant people at each secondary and tertiary-care hospitals in the lower south of Thailand. Therefore, we advocated for permission from the directors of each hospital. The research assistants, who worked as human resource officers at each of the secondary and tertiary-care hospital in lower southern Thailand, were asked to help us administer all of the sealed envelopes of the questionnaires to every medical doctor employed, at their institution, at that time. Consensus to participate in the study had to be individually agreed upon, and it was made clear that it was not a part of their routine work.

### Instruments

The questionnaire comprised of 3 parts:

1. Demographic characteristics included; age, religious preference, hometown, parental marriage status, income, and underlying diseases.

2. Personal information and details regarding their medical career (18 questions approved by 3 Experts.)

3. The Maslach Burnout Inventory (MBI) Thai version questionnaire, comprised of 3 parts

3.1 EE (Cronbach's alpha coefficient=0.9): never (score=0) to every day (score=6)

3.2 DP (Cronbach's alpha coefficient=0.7): never (score=0) to every day (score=6)

3.3 PA (Cronbach's alpha coefficient=0.7): every day (score=0) to never (score=6)<sup>15,16</sup> (Table 1)

### Statistical analysis

All questionnaires were checked for completeness. All data were performed using the R software package and were analyzed in order to describe the behavior of the sample, using the descriptive statistic method. The results were presented as; frequency, percentage, average and standard deviation. The associated factors of BS were analyzed using logistic regression.

## Results

### Demographic data

The total number of medical doctors participating in this study was; 245. Among the participants, there were 142 females (58.0%) and 103 males (42.0%). The mean age was 35.9±9.5 years, with the mean cumulative GPA being 3.1±0.4. Most of the participants were Buddhist (80.0%), single (50.2%) and having been doctors at a tertiary care hospital was 0–4 years (46.9%). The mean duration of working at a tertiary care hospital was 7.9±8.3 years, and the mean amount of working hours per week was 63.0±26.4. Among the participants, they perceived

adequate, or inadequate resting in nearly all equal data (48.6% and 49.0% respectively), and also reported the type of stressors from working were; too high a work load (38.0%), pressure from limited resources (24.4%), an inappropriate income (11.3%), job discordance from their own life style (5.2%), and having problems with patients (5.2%) (Table 2).

### Prevalence and comparison of BS between restive and non-restive areas of Thailand's southern insurgency

Only 1 person had a zero score for all 3 parts of BS. Therefore the prevalence of BS among medical doctors in lower, southern Thailand was 99.6%. BS comprised of conditions of EE, DP and decreased sense of PA. According to this survey, 42.1% and 36.3% of the participants had a low, or high a level of EE, with 62.0% of the participants having a low level of DP, whereas 96.7% of participants had a high level of PA. The mean score of EE, DP and PA were 22.2±13.1, 6.5±5.9, 11.2±8.0 respectively. The gender proportion of high EE was 36.9% in the males and 35.9% in the females (Table 3). However, when comparing within working areas, we found there was no significant difference of burnout syndrome among medical doctors, who either worked between restive areas afflicted by insurgency, or non-restive areas of nearby provinces in southern Thailand (Table 4).

**Table 1** Interpretation of The Maslach Burnout Inventory Thai version questionnaire

Experience of burnout	Item	Level		
		Low	Moderate	High
Emotional exhaustion	Item 1, 2, 3, 6, 8, 13, 14, 16, 20	0–16	17–26	Up from 27
Depersonalization	Item 5, 10, 11, 15, 22	0–6	7–12	Up from 13
Personal accomplishment	Item 4, 7, 9, 12, 17, 18, 19, 21	Up from 39	32–38	0–31

**Table 2** Demographic characteristics (n=245)

Demographic characteristics	Number (%)
Gender	
Male	103 (42.0)
Female	142 (58.0)
Hometown	
Songkhla	52 (21.2)
3 southern border provinces	89 (36.3)
Other southern provinces	72 (29.4)
Others	31 (12.7)
No answer	1 (0.4)
Religion	
Buddhism	196 (80.0)
Islam	44 (18.0)
Christianity	2 (0.8)
Others (no religion)	3 (1.2)
Marital status	
Single	123 (50.2)
Married/couple	115 (46.9)
Divorced/widow	3 (1.2)
No answer	4 (1.6)
Cumulative GPA	
<3.0	59 (24.1)
3.0–4.0	162 (66.1)
No answer	24 (9.8)
Hospital location	
Trang	58 (23.7)
Narathiwat	50 (20.4)
Hatyai	41 (16.7)
Pattani	31 (12.7)
Yala	27 (11.0)
Songkhla	21 (8.6)
Satun	17 (6.9)
Duration of work (year)	
0–4	63 (25.7)
5–10	59 (24.1)
>10	119 (48.6)
No answer	4 (1.6)

**Table 2** (continued)

Demographic characteristics	Number (%)
Specialty	
Major specialty	
Pediatric	25 (10.2)
Orthopedist	12 (4.9)
Surgeon	25 (10.2)
Gynecologist and obstetrician	21 (8.6)
Medicine	20 (8.2)
Minor specialty	
Ophthalmologist	12 (4.9)
Psychiatrist	9 (3.6)
Oto–rhino–laryngologist	13 (5.3)
Radiologist	4 (1.6)
Anesthesiologist	19 (7.8)
Emergency medicine physician	4 (1.6)
Family physician	19 (7.8)
General practitioner	57 (23.3)
Other	5 (2.0)
Work hour (per week)	
≤40	74 (30.2)
41–60	62 (25.3)
61–80	36 (14.7)
>80	55 (22.4)
No answer	18 (7.3)
Perceived quality of resting or sleeping	
Adequate	119 (48.6)
Not adequate	120 (49.0)
Not sure	1 (0.4)
No answer	5 (2.0)
Perceived work stress	
No	30 (12.2)
Yes	213 (86.9)
No answer	2 (0.8)
Type of stress from working (n=213)	
Too much work load	81 (38.0)
Pressure from limited resource	52 (24.4)
Inappropriate income	24 (11.3)
Job discord from life style	11 (5.2)

Table 2 (continued)

Demographic characteristics	Number (%)
Having problems with patients: be sued	11 (5.2)
Having problems with medical teams	9 (4.2)
Other	23 (10.8)
No answer	2 (0.9)
History of physical illness	
No	183 (74.7)
Yes	59 (24.1)
No answer	3 (1.2)
History of psychiatric illness	
No	236 (98.3)
Yes	4 (1.6)
No answer	5 (2.0)
Family relationship	
Excellent	98 (40.0)
Good	119 (48.6)
Fair	26 (10.6)
No answer	2 (0.8)
Initial reasons of working in the hospital	
Near home	135 (55.1)
Reimbursement education fund	39 (15.9)
Follow couple or family	20 (8.2)
Have a chance for study programming	15 (6.1)
Others	33 (13.5)
No answer	3 (1.2)

GPA=grade point average

### Associated factors related to burnout syndrome

We compared between the groups of only EE and DP, because of a lack in the sample size within the PA groups. Variables with p-values, calculated from the univariate analysis that were lower than 0.2 were included in the multivariate analysis (Table 5). The results showed that, there were statistically significant associated factors related to burnout syndrome.

Cumulative GPA, type of specialist, perceived adequate, or inadequate resting and stress-perception from working were related to EE (p-value<0.05). Additionally, cumulative GPA, type of specialist, amount of working hours per week, perception of resting and family relationship were related to DP (p-value<0.05) (Table 5).

After analyzing and adjusting, doctors who had a higher cumulative GPA were at a 3.6 higher risk of EE, when compared with doctors who had lower cumulative GPA [95% confidence interval (CI)=1.6–8.0]. While the minor specialist doctors had a 2.6 greater chance of EE, when compared with doctors who were major specialist doctors (95% CI=1.3–5.2). However the doctor, who perceived inadequate resting or sleeping and having stressors from working, had an 8.4 and 5.9 greater risk of EE, when compared with doctors who perceived adequate resting and having no stressors related to working (95% CI=4.0–17.7 and 95% CI=1.6–22.5 respectively) (Table 6).

The doctors who had a higher cumulative GPA had a 3.1 greater risk of DP, when compared with doctors who had a lower cumulative GPA (95% CI=1.3–7.2), and the minor specialist doctors had a 3.1 greater risk of DP, when compared with doctors who were major specialist doctors (95% CI=1.5–6.3). Doctors, who worked 41–60 and 61–80 hours per week, had a 4.3 and 6.1 greater risk of DP, when compared with doctors who worked less than 40 hours per week (95% CI=1.6–11.9 and 95% CI=1.9–19.3 respectively), whilst the doctors who worked more than 80 hours per week had a 3.3 greater risk of DP, when compared with doctors who worked less than 40 hours per week (95% CI=1.2–9.5). In addition to this, doctors who perceived inadequate resting, or sleeping as well as having fair family relationships had a 2.6 and 3.3 greater risk of DP, when compared with the doctors who perceived adequate resting and having excellent family relationships (95% CI=1.3–5.5 and 95% CI=1.1–10.1 respectively) (Table 6).

**Table 3** Experience of burnout syndrome (n=245)

Experience of burnout	Number (%)	Male (%) (n=103)	Female (%) (n=142)
Emotional exhaustion			
Low (0-16)	103 (42.1)	55 (53.4)	48 (33.8)
Moderate (17-26)	52 (21.2)	10 (9.7)	42 (29.6)
High (up from 27)	89 (36.3)	38 (36.9)	51 (35.9)
No answer	1 (0.4)	0 (0.0)	1 (0.7)
Depersonalization			
Low (0-6)	152 (62.0)	61 (59.2)	91 (64.1)
Moderate (7-12)	51 (20.8)	23 (22.3)	28 (19.7)
High (up from 13)	41 (16.7)	19 (18.4)	22 (15.5)
No answer	1 (0.4)	0 (0.0)	1 (0.7)
Personal Accomplishment			
Low (up from 39)	1 (0.4)	1 (1.0)	0 (0.0)
Moderate (32-38)	4 (1.6)	2 (1.9)	2 (1.4)
High (0-31)	237 (96.7)	98 (95.1)	139 (97.9)
No answer	3 (1.2)	2 (1.9)	1 (0.7)

**Table 4** Experience of burnout syndrome categorized by working area (n=245)

Experience of burnout	Non-restive (%) (n=137)	Restive (%) (n=108)	Chi-squared P-value
Emotional exhaustion			0.167
Low (0-16)	60 (44.1)	43 (39.8)	
Moderate (17-26)	23 (16.9)	29 (26.9)	
High (up from 27)	53 (39.0)	36 (33.3)	
Depersonalization			0.901
Low (0-6)	86 (63.2)	66 (61.1)	
Moderate (7-12)	27 (19.9)	24 (22.2)	
High (up from 13)	23 (16.9)	18 (16.7)	
Personal accomplishment			0.794 <sup>a</sup>
Low (up from 39)	1 (0.7)	0 (0.0)	
Moderate (32-38)	3 (2.2)	1 (0.9)	
High (0-31)	131 (97.0)	106 (99.1)	

<sup>a</sup>p-value from Fisher's exact test

**Table 5** Results of univariate analysis: association between demographic variables and burnout syndrome: emotional exhaustion and depersonalization (n=244)

Demographic characteristics	Emotional exhaustion		Chi-squared P-value	Depersonalization		Chi-squared P-value
	Low (%) (n=103)	Moderate/ high (%) (n=141)		Low (%) (n=152)	Moderate/ high (%) (n=92)	
Gender			0.004			0.476
Male	55 (53.4)	48 (34.0)		61 (40.1)	42 (45.7)	
Female	48 (46.6)	93 (66.0)		91 (59.9)	50 (54.3)	
Age (year)			<0.001			<0.001
<30	16 (15.7)	55 (39.0)		23 (15.2)	48 (52.2)	
30-40	50 (49.0)	60 (42.6)		79 (52.3)	31 (33.7)	
41-60	36 (35.3)	26 (18.4)		49 (32.5)	13 (14.1)	
Hometown			0.798			0.820
Songkhla	21 (20.4)	31 (22.1)		35 (23.0)	17 (18.7)	
3 southern border provinces	35 (34.0)	54 (38.6)		55 (36.2)	34 (37.4)	
Other southern provinces	33 (32.0)	38 (27.1)		42 (27.6)	29 (31.9)	
Other provinces	14 (13.6)	17 (12.1)		20 (13.2)	11 (12.1)	
Religion			0.217			0.515
Buddhism	78 (75.7)	117 (83.0)		119 (78.3)	76 (82.6)	
Islam/Christianity	25 (24.3)	24 (17.0)		33 (21.7)	16 (17.4)	
Marital status			0.005			<0.001
Single/divorced/widow	42 (41.2)	83 (60.1)		61 (40.7)	64 (71.1)	
Married/couple	60 (58.8)	55 (39.9)		89 (59.3)	26 (28.9)	
GPA			<0.001			0.002
<3.0	37 (40.2)	22 (17.1)		46 (34.3)	13 (14.9)	
3.0-4.0	55 (59.8)	107 (82.9)		88 (65.7)	74 (85.1)	
Duration of work (year)			0.003			<0.001
0-4	15 (14.9)	48 (34.3)		19 (12.8)	44 (47.8)	
5-10	28 (27.7)	31 (22.1)		42 (28.2)	17 (18.5)	
>10	58 (57.4)	61 (43.6)		88 (59.1)	31 (33.7)	



Table 5 (continued)

Demographic characteristics	Emotional exhaustion		Chi-squared P-value	Depersonalization		Chi-squared P-value
	Low (%) (n=103)	Moderate/ high (%) (n=141)		Low (%) (n=152)	Moderate/ high (%) (n=92)	
Duration of working at second/tertiary care hospital (year)			0.002			<0.001
0-4	40 (39.6)	75 (53.6)		56 (37.6)	59 (64.1)	
5-10	21 (20.8)	38 (27.1)		40 (26.8)	19 (20.7)	
>10	40 (39.6)	27 (19.3)		53 (35.6)	14 (15.2)	
Specialty			<0.001			<0.001
Major	67 (65.0)	54 (38.3)		90 (59.2)	31 (33.7)	
Minor	36 (35.0)	87 (61.7)		62 (40.8)	61 (66.3)	
Work hour (per week)			<0.001			<0.001
≤40	45 (46.4)	29 (22.3)		61 (42.7)	13 (15.5)	
41-60	31 (32.0)	31 (23.8)		39 (27.3)	23 (27.4)	
61-80	8 (8.2)	28 (21.5)		15 (10.5)	21 (25.0)	
>80	13 (13.4)	42 (32.3)		28 (19.6)	27 (32.1)	
Perceived quality of resting or sleeping			<0.001			<0.001
Adequate	78 (76.5)	41 (30.1)		91 (60.3)	28 (32.2)	
Not adequate	24 (23.5)	95 (69.9)		60 (39.7)	59 (67.8)	
Perceived work stress			<0.001			0.002
No	27 (26.2)	3 (2.2)		27 (17.8)	3 (3.3)	
Yes	76 (73.8)	136 (97.8)		125 (82.2)	87 (96.7)	
Family relationship			0.381			0.023
Excellent	45 (43.7)	53 (38.1)		63 (41.4)	35 (38.9)	
Good	50 (48.5)	68 (48.9)		79 (52.0)	39 (43.3)	
Fair	8 (7.8)	18 (12.9)		10 (6.6)	16 (17.8)	

GPA=grade point average

**Table 6** Factors associated with emotional exhaustion and depersonalization (n=202)

Factors	Emotional exhaustion			Depersonalization		
	Crude OR (95% CI)	Adjusted OR (95% CI)	P-value LR-test	Crude OR (95% CI)	Adjusted OR (95% CI)	P-value LR-test
GPA						
<3.0	1	1	<0.001	1	1	0.006
3.0-4.0	2.9 (1.6-5.5)	3.6 (1.7-8.0)		2.8 (1.4-5.8)	3.1 (1.3-7.2)	
Type of specialist			0.007			0.001
Major	1	1		1	1	
Minor	2.6 (1.5-4.7)	2.6 (1.3-5.2)		2.8 (1.6-5.1)	3.1 (1.5-6.3)	
Perceived quality of resting or sleeping			<0.001			0.009
Adequate	1	1		1	1	
Not adequate	9.8 (5.1-19.1)	8.4 (4.0-17.7)		3.8 (2.1-7.0)	2.6 (1.3-5.5)	
Perceived work stress			0.003			-
No	1	1		-	-	
Yes	13.1 (3.8-45.3)	5.9 (1.6-22.5)		-	-	
Amount of working hour (per week)			-			0.005
≤40	-	-		1	1	
41-60	-	-		3.1 (1.3-7.5)	4.3 (1.6-11.9)	
61-80	-	-		10.3 (3.7-28.6)	6.1 (1.9-19.3)	
>80	-	-		5.5 (2.2-13.3)	3.3 (1.2-9.5)	
Family relationship			-			0.039
Excellent	-	-		1	1	
Good	-	-		0.9 (0.5-1.8)	0.8 (0.4-1.7)	
Fair	-	-		3.2 (1.3-8.2)	3.3 (1.1-10.1)	

OR=odds ratio, CI=confidence interval, LR=likelihood ratio, GPA=grade point average

## Discussion

To our knowledge within this decade, this study is the first study of BS among non-specific physicians in Thailand. The results of the study would be helpful when applied to the current health system, because it shows a prevalence of 99.6% BS, among Thai medical doctors. This being very high, so this data supports that reform in the National Health Service in Thailand is needed in order to improve the quality of life of physicians, as it seems to be urgently necessary.<sup>17</sup>

According to this survey, there was a high to moderate burnout level of EE among Thai physicians (57.5%), but only a few of them neglected or mistreated their patients. Most of them still indicated that they were still very capable of doing their jobs efficiently. The data seems to be not too different from a previous study in Switzerland, with most of the Swiss cancer doctors also suffering from burnout (80.0%), which was demonstrated in the section of DP.<sup>18</sup> The reasons of these outcomes may be the nature of people who choose to be medical doctors themselves. Another possible cause may be the influence from medical training programs and professionalism curriculums of respective medical schools, which mainly focuses on “patients”. Although the doctors feel too tired, physicians couldn’t abandon or neglect their patients. That means the medical training programs sometimes overlooks the physician’s personal quality of life. For long term recognition, the effectiveness of patients’ care and safety, by Thai physicians, who are burntout should be made aware of, as a high cumulative GPA appeared as a factor to increase the risk of burnout syndrome in this study. Some reasons for these result may be; a sense of unsuccessful, inadequate, or being failed due to limited resource. Thus, medical training curriculums should not only focus on how effective medical students do in class

rooms, but be more about; humanistic and embracement, self-compassionate, coping skills of EE and stress management.<sup>19</sup>

Regarding the associated factors of BS, the data from this survey, concerning workload (>40 hours/week), was associated to the risk of DP section. Whereas, the previous study found workload (>50 hours/week) was significantly associated with an increased risk of BS. The survey showed that the practitioners had a 2 times higher risk for EE, and 2.7 times higher risk for DP. However, the mean work-hour per week of Thai doctors was 63.0 hours, with a fixed income, this number would be considered as illegal in some countries, but not in Thailand.<sup>20</sup> Even though it seems to be not related to the same parts of BS, an overloaded work-hour, per week, were definitely associated to BS among physicians, and it is therefore, logically related to others associated factors that were found, such as: stress from work and the perception of sleep/rest quality. Good family relationships seemed to be a protective factor, which appeared to be practical, as most of them pointed out that they chose their workplaces nearby home. Minor ward specialists showed a higher score of BS than major specialists. One reason of these outcomes, among minor specialists, may be the results of unprepared life-style for the work load, after residency training. Even though their wards were called “minor”, it didn’t mean they had a lower work load than those in a “major” ward, due to the non-proportion ratio of doctors and patients. Thus, their jobs discorded from their life style. For these reasons, policy makers and stake-holders of health-public in Thailand should be aware of health-cover prouder work loads and work-hour estimations, as they may be significant keys for quality of life, for both health care providers, and inevitably Thai patients.<sup>21</sup>

### Limitation

This study was designed to be cross-sectional, and used self-reporting for assessment. Therefore, the data could not be used for summing up as to what the cause and effects were for BS, among Thai medical doctors in lower, southern Thailand. In addition, the study was quantitative, and the sample size was limited to only medical doctors in lower, southern Thailand. Thus, it is too soon to generalize nation-wide. Hence, further studies on this topic, should use a more qualitative method, and cover more areas within Thailand, in so saving a multi-center study should be conducted.

### Conclusion

Almost all medical doctors, who worked at either secondary or tertiary-care hospitals, in the lower, southern areas of Thailand suffered from burnout, only 1 physician did not. No difference was found between those who work in the restive areas and non-restive areas of Thailand's southern insurgency areas. The factors associated to BS are; work hours per week, GPA, type of specialty, perception of sleeping/rest quality, perception of having stress from work and family relationships.

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