ภาวะเหนื่อยล้าและภาวะซึมเศร้าในนักศึกษาแพทย์ ในโรงเรียนแพทย์เอกชนแห่งหนึ่ง

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Burnout and Depression among Medical Students in a Private Medical College in Thailand: A Cross Sectional Study

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Background: Multiple factors, such as academic standards and the study environment, impact students' motivation and performance, potentially leading to stress, burnout, and depression. **Objective:** In this study, we aimed to determine the prevalence of burnout and depression in medical students in a private medical school in Thailand. **Methods:** This cross-sectional study was designed to evaluate the prevalence of burnout and depression and their associated factors among students in a private medical college. Burnout (emotional exhaustion, depersonalization, and personal accomplishment) and depression were measured with Maslach Burnout Inventory (MBI) Thai version and Patient Health Questionnaire-9 (PHQ9). **Results:** 322 (89.4%) medical students participated in the survey. The results indicated that 28.1% of medical students had high levels of emotional exhaustion, 24.8% felt a high degree of depersonalization, and 2.2% had low levels of a sense of personal accomplishment. Emotional exhaustion was associated with college years, reasons for studying medicine, and perceived competitiveness in the class. Depersonalization was associated with age, college year, and perceived competition rate in the classroom. A sense of personal accomplishment was associated with age, religion, type of accommodation, and college admission method. The prevalence of depression was 18.6%, and its associated factors were financial status, the reason for enrolling for a medical degree, and perceived competition rate. **Conclusion:** Almost 30% of participants had high levels of emotional exhaustion and depersonalization, while 2.2% had feelings of low personal accomplishment, and 18.6% were found to have depression.

Keywords: Stress, Burnout, Depression, Medical students

บทคัดย่อ

ภูมิหลัง: ปัจจัยหลายประการ อาทิ มาตรฐานทางการศึกษาและสิ่งแวดล้อมในการเรียนมีผลกระทบต่อแรงจูงใจและประสิทธิภาพของนักศึกษาแพทย์ ซึ่งอาจนำไปสู่ความเครียดความเหนื่อยล้าและภาวะซึมเศร้าได้ **วัตถุประสงค์:** เพื่อศึกษาความชุกและปัจจัยที่สัมพันธ์กับการเกิดภาวะเหนื่อยล้าและภาวะซึมเศร้าในนักศึกษาแพทย์ในโรงเรียนแพทย์เอกชนแห่งหนึ่ง **วิธีการศึกษา:** เป็นการศึกษาเชิงพรรณนาแบบภาคตัดขวาง โดยใช้แบบวัดภาวะความเหนื่อยล้าในการทำงาน ฉบับภาษาไทย และแบบสอบถาม Patient health questionnaire (PHQ-9) **ผลการศึกษา:** นักศึกษาแพทย์ 322 ราย (89.4%) ตอบแบบสอบถามครบถ้วน พบความอ่อนล้าทางอารมณ์ในระดับสูงร้อยละ 28.1 ด้านการลดความเป็นบุคคลในระดับสูงร้อยละ 24.8 ด้านความสำเร็จส่วนบุคคล ในระดับต่ำร้อยละ 2.2 ความอ่อนล้าทางอารมณ์สัมพันธ์กับ

ชั้นปี สาเหตุที่เข้าเรียนแพทย์ การแข่งขันใน ชั้นเรียนการลดความเป็นบุคคลสัมพันธ์กับอายุ ชั้นปี การแข่งขันในชั้นเรียน ความสำเร็จส่วนบุคคล สัมพันธ์กับอายุศาสนา ที่อยู่อาศัย และระบบที่เข้าศึกษา ความชุกของภาวะซึมเศร้าพบร้อยละ 18.6 สัมพันธ์กับสถานภาพทางการเงิน สาเหตุที่เข้าเรียนแพทย์และการแข่งขันในชั้นเรียน **สรุป:** พบความอ่อนล้าทางอารมณ์ในระดับสูงและการลดความเป็นบุคคลในระดับสูงในระดับเกือบถึงร้อยละ 30 พบความสำเร็จส่วนบุคคล พบในระดับต่ำร้อยละ 2.2 พบภาวะซึมเศร้าร้อยละ 18.6

คำสำคัญ: ความเครียด, ภาวะเหนื่อยล้า, ภาวะซึมเศร้า นักศึกษาแพทย์

Introduction

Doctors are held in high esteem; however, this profession entails many sacrifices in life. Medical education is the first step towards fulfilling career objectives and developing personal growth, and premedical academic performance has been found to strongly predict the final achievement in medical school[1]. Once students enroll in a medical institute, they encounter various stressors, such as academic pressure, high workload, financial problems, sleep deprivation, and mistreatment[2]. Mental energy is a crucial factor in their motivation to cope with the demanding work schedules and find their own value in being a doctor. Too much pressure over a long period of time can result in chronic stress and lead to burnout[3].

Burnout is a prevalent syndrome among physicians, and it adversely affects the quality of patient care and the quantity of medical errors[4]. In the United States, medical students have a greater prevalence of high emotional exhaustion, depersonalization, and burnout than their peers in other fields[5]. Burnout is also found to be associated with self-reported unprofessional conduct and lower altruistic professional values[6]; furthermore, it is found to be related to serious thoughts of dropping out of college[7]. Medical students are also more prone to exhibiting symptoms of depression and experiencing higher levels of fatigue[8].

Depression in medical students can cause performance deterioration[9] and can have adverse professional consequences such as lower quality of life, reduced empathy, and lack of professionalism[10]. Moreover, burnout and depression have been associated with cynicism and emotional exhaustion, and burnout has also been identified in students who were at high risk of depression[8].

The medical education system in Thailand is performance-driven, and all medical students are required to pass 3-step national examinations in order to acquire their license. A previous study in a private medical school reported a significantly higher prevalence of anxiety and depression in early college-year students[11]. This is the first study aiming at identifying the prevalence of burnout and depression in a private medical college in Thailand.

Materials and Methods

Study design and participants

A cross-sectional study was conducted at a private college of medicine in Bangkok, Thailand. Computer-generated random sampling was employed to enrol 60 medical students from each college year in the study. The target sample size of participants was determined by using infinite population proportion formulae with a prevalence of 26%[12]. To allow subgroup analysis, sample sizes should include a supplementary 10%; therefore, the required sample size was at least 300 participants.

This study included 360 medical students from all college years. Data were collected between October and December 2019, and a confidentiality disclaimer was administered by the research assistant. Each student completed a questionnaire, including socio-demographic data, Patient Health Questionnaire-9 (PHQ9), and Maslach Burnout Inventory (MBI) Thai version. Socio-demographic data included sex, age, religion, type of accommodation, financial status, health status, previously treated mental health issues, and perceived sufficiency of the counseling system. Educational factors included the admission system, reasons for enrolling for a medical degree, college year, relationship with classmates, perceived competition rate in the classroom, and Grade Point Average (GPA).

Maslach Burnout Inventory (MBI) Thai version was utilized to identify burnout. The gold standard for the assessment of burnout assesses three aspects of the condition: emotional exhaustion (EE) 9 items; depersonalization (DP) 5 items; and personal accomplishment (PA) 8 items. MBI has a high level of internal consistency (Cronbach's alpha) of 0.92 for EE, 0.66 for DP, and 0.65 for PA. Degrees of each aspect were categorized as low ≤18, moderate 19–26, and high ≥ 27 for EE; low ≤6, moderate 6–9, and high ≥10 for DP; and low ≥40, moderate 34–39, and high ≤33 for PA[13].

The Thai version of the Patient Health Questionnaire-9 (PHQ-9) was used to screen for depression and to assess its severity. Patients are asked about symptoms of depression in the previous two-week period. Scores for each item range from 0 (not at all), to 1 (several days), 2 (more than half of the days), and 3 (nearly every day). The summed scores range from 0–27, and cut-off scores of nine or higher are taken as positive screening for depression. PHQ-9 had internal consistency (Cronbach's alpha) = 0.79 and at the cut-off score ≥ 9, the sensitivity was 0.84 and specificity 0.77[14].

The questionnaire was completed anonymously with an individual identification code. Written informed consent was obtained, and the research was approved by the Hospital's Research Ethics Committee (Protocol number 114/2562).

Statistical analysis

Data analysis was conducted with SPSS version 22.0. Categorical and continuous data were reported as percent and mean±SD or median, respectively. Intercorrelations between burnout, depression, and variables were assessed by chi-square test/ Fisher exact test, and multiple regression analysis. P-values of less than .05 were considered statistically significant.

Results

Sociodemographic profile

322 out of 360 (89.4%) participants completed the questionnaires. More than half of the subjects (65.5%) were female, and their mean age±SD was 22±7.3 years old. Most participants (84.9%) were Buddhist, 39.9% lived in rental accommodation, those with savings constituted 64.5% of participants, and 70.2% had no underlying disease. There are two main types of methods of admission to this private medical college: direct examinations by the college itself; or by the Thai national medical colleges system. Students who were accepted by the second round of direct examination by the college accounted for 41.4% of participants, those admitted by the Thai national medical college system were 39.9%. In contrast, direct examination by the college for international schools, first-round direct examination by the college, and other methods were responsible for 11.5%, 6.3%, and 1% of admissions, respectively. The majority (76.3%) studied medicine in this college of their own volition, and 42.1% had a cumulative GPA of 3.50-4.00. Most participants (67.4%) described the competition rate in the class as average. The vast majority (85.7%) had no previous psychiatric history, and 67.1% reported that the college mental health counseling service was satisfactory. (Table 1).

Table 1. Socio-demographics and educational factors

Variable	n	%
Sex		
Female	211	65.5
Male	111	34.5
Religion		
Buddhism	288	89.4
Christianity	11	3.4
Islam	6	1.9
Other	17	5.3
Accommodation		
Rental	173	53.9
Own house	72	22.4
Dormitory	76	23.7

Table 1. Socio-demographics and educational factors (Continue)

Variable	n	%
Financial status		
Had savings	207	64.5
No savings	103	32.1
In debt	6	1.9
Other	5	1.5
Method of Admission		
2nd round Direct examination by college	133	41.4
National Thai medical college system	128	39.9
Direct examination by college: (for international schools)	37	11.5
1st round Direct examination by college	20	6.3
Other	3	0.9
Reasons for enrolling for a medical degree		
Own intention	238	76.3
Uncertain goal	48	15.4
Expectation from family	23	7.3
Other	3	1.0
Relationship with classmate		
Very good	155	48.1
Good	137	42.5
Average	29	9.0
Not good	1	0.4
Perceived competition rate in the classroom		
Average	217	67.4
Low	66	20.5
High	39	12.1
College year		
1	58	18.0
2	60	18.6
3	54	16.8
4	58	18.0
5	49	15.2
6	43	13.4
History of previous or existing psychiatric disorders		
No	276	85.7
Yes	46	14.3

Table 1. Socio-demographics and educational factors (Continue)

Variable	n	%
Perceived mental health service		
Adequate	212	67.1
Inadequate	104	32.9

Prevalence of burnout and depression and related factors

Emotional exhaustion at a high level was found in 28.1% of students, with moderate and low levels being at 20.6%, and 51.3%, respectively. Depersonalization showed similar results, with 24.8%, 18.2%, and 57.1% at high, moderate, and low levels, respectively. Low personal accomplishment was found in 2.2%, with moderate and high levels at 4.7%, and 93.1%. (Table 2.) High EE and DP tended to be found in the clinical years' students, while low PA was identified in second- and third-year students but not in those in their clinical years (Figure 1).

High Emotional exhaustion, High Depersonalization and Low Personal Accomplished on each college year
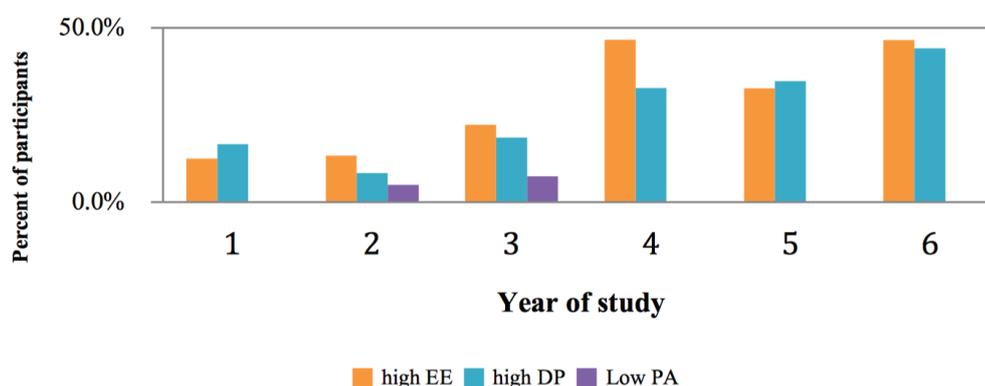

Fig. 1 Comparison of high emotional exhaustion, high depersonalization and low personal accomplishment among different college years

Common factors related to high EE, high DP and low DP were age, religion, type of accommodation, admission system, college years, reasons for enrolling for medical degree, and perceived competition rate in the classroom (Table 3). Depression was associated with financial status, relationships with classmates, and perceived competition rate in the classroom (Table 4).

Table 2. Burnout level of participants (n = 320)

Burnout	Low n(%)	Moderate n(%)	High n(%)
Emotional exhaustion	164(51.3)	66(20.6)	90(28.1)
Depersonalization	183(57.1)	58(18.2)	79(24.8)
Personal accomplishment	7(2.2)	15(4.7)	298(93.1)

Table 3. Related factors of burnout score by multivariable linear regression analysis

Factors	EE		DP		PA	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Gender: female	1.26	.36	-1.27	.064	1.21	.381
Age (years)	-0.72	.106	-0.67	.003*	-1.08	.018*
College year (years)	1.56	.015*	1.54	<.001*	1.13	.086
Religion						
- Others	0.7	.742	0.04	.974	4.4	.043*
- Buddhism			Ref			
Accommodation						
- Rental	0.47	.768	-0.04	.962	3.3	.044*
- Own house	-2.27	.254	-1.82	.071	1.54	.450
- Dormitory			Ref			
Method of admission to the medical college						
- Examination by college itself, domestic route	-1.29	.336	-0.66	.335	0.99	.475
- Examination by college itself, international route	-1.5	.480	-0.38	.723	6.93	.002*
- Thai medical college system			Ref			
Reason to study medicine						
- Uncertain goal, expectation from family and others	5.29	.001*	0.57	.495	-1.22	.459
- Own intention			Ref			
Perceived competition in classroom						
- High	5.32	.008*	2.83	.005*	-1.86	.358
- Low/average			Ref			

*Significance at p-value <.05, Ref = Reference

Table 4. Related factors of depression by multivariable logistic regression analysis

Factors	Depression			
	Odds Ratio	95%CI		p-value
		Lower	Upper	
Gender: female	1.66	0.74	3.67	.214
Age (years)	1.04	0.8	1.34	.784

Table 4. Related factors of depression by multivariable logistic regression analysis (Continue)

Factors	Depression			
	Odds Ratio	95%CI		p-value
		Lower	Upper	
College year (years)	0.82	0.56	1.2	.312
Religious				
Others	0.83	0.24	2.88	.771
Buddhism	Ref			
Type of accommodation				
Rental	1.89	0.72	4.95	.193
Own house	0.59	0.16	2.24	.444
Dormitory	Ref			
Financial status				
No saving, indebt, others	2.47	1.18	5.18	.017*
Have savings	Ref			
Having existing disease	1.74	0.79	3.85	.170
Method of admission to the medical college				
Examination by college itself, domestic route	0.87	0.41	1.85	.719
Examination by college itself, international route	0.12	0.01	1.05	.055
Thai medical college system	Ref			
Reason for studying medicine				
Uncertain goal, expectation from family and others	1.12	0.46	2.72	.811
Own intention	Ref			
Perceived competition rate in classroom				
High	4.98	1.95	12.68	.001*
Low/average	Ref			
Relationship with classmate				
good/very good	0.14	0.05	0.44	.001*
Average/not good	Ref			
Cumulative GPA				
<3	0.93	0.37	2.35	.871
≥3	Ref			
History of previous or existing psychiatric disorders	1.36	0.52	3.52	.530
Perceived mental health service				
Inadequate	1.23	0.55	2.77	.609

*Significance at p-value < .05, Ref = Reference

Burnout and depression

EE and depression had a correlation of 0.59 (p < .001), DP and depression of 0.36 (p < .001), and PA and depression of 0.01 (p 0.817).

Discussion

Our results showed that more than half of the participants had low levels of EE and DP. High EE and high DP were found in only 28.1% and 24.8% of the participants, respectively. These figures were lower than those found in previous studies in the USA (52.8%)[15] and China (40%)[16] but at the same level as found in a Korean study (28.1%)[17]. High DP was found in 24.8% of participants, lower than those found in the USA (25.8%)[18] and Korea (40.4%)[19].

A low PA was found in 2.2% of the participants, which was much lower than in Korea (25.5%)[19] and the USA (30.8%)[18]. There has been no previous study of burnout in Thai public medical schools with which we could compare our findings. The PA item measures the participants' feelings about their professional competence and achievement. In this study, 93% of participants said they had high PA; therefore, participants clearly felt that they had a positive self-evaluation. This is different from the results of a previous study which reported that PA increased incrementally with the shift from being medical students to being residents and that it reached its peak in their early career as physicians[8]. The prevalence of depression (18.6%) was close to levels found in a previous study in a medical school in Thailand in which it was found to be 19.6%[20].

EE and DP were significantly related to educational years, with medical students experiencing much more stress from studying in senior educational years. Students in the clinical years are exposed to more stress than those in the preclinical period, and this is similar to the findings of a previous study in the USA[21].

EE and DP were also associated with reasons for enrolling in medical college. Participants with uncertain goals or with expectations from family and others to become doctors were significantly associated with high EE. Students who applied to medical school due to personal motivations, such as intellectual curiosity, professional autonomy, altruism, or human relationships. were found to be at low risk of burnout[22].

Perceived competition in the classroom was strongly associated with EE, DP, and depression. These findings support those of a previous study, in which relaxed learning communities were significantly associated with less EE, less DP, a better quality of life, and greater empathy[23].

Depression was strongly associated with financial status. Studying in a private medical school entails high costs and is a drain on savings, and the importance of this is supported by the results of earlier research which revealed that university students perceived financial status as having a statistically significant influence on their risk of depression[24].

Relationships with classmates were strongly associated with depression. A depressed mood can lead to intolerance from students' acquaintances; depressive people avoid social activity, and their peers who do not understand this may interpret it as hostility and react in a similarly unfriendly way. These relationships suffer as time goes by, and the depressive person often ends up feeling isolated.

Our report found that EE and DP were strongly related to depression. DP caused more impaired relationships, manifesting in a callous attitude or detachment. Both EE and DP have also been suggested to be diagnostic criteria of depression[25].

Conclusion

This is the first cross-sectional study of a private medical school in Thailand. The reason for studying in medical college, clinical year, and perceived competition rates were associated with burnout, while financial status and perceived competition were related to depression.

Limitations

Firstly, this study was a cross-sectional study conducted in a single medical school, and its results, therefore, might not be representative of other medical schools in Thailand or elsewhere. Secondly, our results did not report the causal effects of risk factors of burnout and depression. Thirdly, participants were from several different departments, and variations in levels of course difficulty might have confounded the levels of stress. Finally, some factors were subjectively evaluated, such as relationships with classmates and perceived competition rate in the classroom.

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