Original Article

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Association Between Perceptions of Educational Environment and Burnout Syndrome in Clinical Medical Students

Sasiwan Wongmaneewan, M.D.[1], Nirucha Thamwiriyakul, M.D.[1]
Prakasit Wannapaschaiyong, M.D.[2], Supitcha Thamissarakul, M.D.[1]

[1]Department of Pediatrics, Chonburi Hospital, Pediatrics Building, Chonburi 20000, Thailand.

[2]Department of Pediatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok Noi, Bangkok 10700, Thailand.

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Abstract:

Objective: Burnout syndrome is a critical concern among medical students, contributing to fatigue, reduced academic performance, and negative health outcomes. The educational environment is considered a key factor influencing burnout. This study aimed to assess medical students' perceptions of their educational environment and its association with burnout syndrome.

Material and Methods: A cross-sectional study was conducted at Chonburi Hospital, Thailand, from November to December 2023, involving 106 clinical medical students. Burnout syndrome was measured using the Maslach Burnout Inventory (MBI), and perceptions of the educational environment were evaluated using the Dundee Ready Education Environment Measure (DREEM). Data were analyzed using descriptive statistics, Pearson's correlation, and regression analyses.

Results: The mean DREEM score was 125.17±12.80, indicating an overall positive perception of the educational environment. The prevalence of burnout syndrome among participants was 50.94%. DREEM scores were significantly negatively correlated with burnout (r=-0.504, p-value<0.001), emotional exhaustion (r=-0.427, p-value<0.001), and depersonalization (r=-0.395, p-value<0.001). Subscales such as the Students' Perception of Learning (SPL), Students' Academic Self-Perception (SAP), Students' Perception of Atmosphere (SPA), and Students' Social Self-Perception (SSP) were also significantly negatively associated with burnout (all p-value<0.001). Multivariate analysis identified SPA and SSP as significantly associated factors of burnout.

Contact: Supitcha Thamissarakul, M.D.
Department of Pediatrics, Chonburi Hospital, Pediatrics Building, Chonburi 20000, Thailand.
E-mail: supitchatham@gmail.com

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Conclusion: Medical students' perceptions of the educational atmosphere and social support are significantly associated with burnout syndrome. Targeted efforts to improve these aspects of the educational environment may be effective in reducing burnout among clinical medical students.

Keywords: burnout syndrome, clinical medical students, educational environment

Introduction

Burnout syndrome arises as a psychological consequence of extended exposure to occupational stress, and is marked by emotional exhaustion (EE), depersonalization (DP), and diminished feelings of personal achievement (PA)[1]. Emotional exhaustion occurs when individuals feel emotionally fatigued and unable to cope, often stemming from ongoing work pressures. Depersonalization involves developing a cynical attitude toward recipients of one's services, and a diminished sense of personal accomplishment reflects a reduced feeling of competence and achievement in professional activities. Burnout syndrome has significant implications, including negative health outcomes, cognitive and emotional impairments, decreased professional efficacy, and negative attitudes toward peers and professional responsibilities[1-3].

Among medical students, burnout syndrome is a significant global concern, with reported prevalence rates ranging from 45% to 56%. High levels of emotional exhaustion (35%–45%) and depersonalization (26%–38%) have also been frequently reported. The presence of burnout syndrome in medical students is associated with detrimental effects, such as psychological distress, anxiety, depression, substance abuse, and even suicidal ideation. These effects can severely impair academic performance and professional development.

Multiple contributors to burnout in medical students have been identified, with the educational and clinical training environment consistently highlighted as a key influence. Although previous studies have established links between negative perceptions of the educational environment and increased burnout[2,4], the specific components of the educational environment that most significantly contribute to burnout remain unclear. Furthermore, there is limited evidence focusing on medical students in Thailand, highlighting a critical gap in understanding how various aspects of their educational environment influence burnout risk.

Given these gaps, this study aimed to evaluate the specific associations between clinical medical students' perceptions of the distinct aspects of their educational environment and the presence of burnout syndrome. The findings may help inform targeted strategies to enhance the educational climate and reduce the risk of burnout among clinical medical students in Thailand.

Material and Methods

Study design and population

This study, employing a cross-sectional design, was conducted at Chonburi Hospital's Medical Education Center from November to December 2023. It included 106 clinical medical students. Ethical clearance was obtained from the hospital's ethics committee (No. 148/66/R/q).

Data collection

Participants were informed of the study's objectives prior to participation. Data were collected using questionnaires, which included demographic information, the Dundee Ready Education Environment Measure (DREEM), and the Maslach Burnout Inventory – General Survey.

Research instruments

Demographic characteristics

The demographic questionnaire collected data on gender, year of study, cumulative grade point average (GPAX), and the clinical department in which students were practicing.

Dundee Ready Education Environment Measure (DREEM) (Thai version)[5]

The DREEM tool has been widely validated for evaluating the perceived learning environment in medical and allied health education settings. It comprises 50 items categorized into 5 domains: Students' Perceptions of Learning (SPL), Students' Perceptions of Teaching (SPT), Students' Academic Self-Perception (SAP), Students' Perception of Atmosphere (SPA), and Students' Social Self-Perception (SSP). Each item is scored on a 5-point Likert scale, where 0–1 indicates a negative perception, 2 is neutral, and 3–4 reflects a positive perception. The Thai adaptation of the DREEM instrument has demonstrated high internal consistency, with a Cronbach's alpha exceeding 0.91.

Maslach Burnout Inventory – General Survey (Thai version)[6]

This is a standardized tool used to assess burnout syndrome. The Thai version of this questionnaire consists of 22 items, each rated on a 7-point Likert scale ranging from 0 (never felt it) to 6 (feel it every day). Burnout syndrome is evaluated across 3 dimensions: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). Each dimension is categorized into 3 levels of severity: high, moderate, and low. Participants with high scores in EE and/or high DP are considered to have burnout syndrome. This questionnaire has an overall Cronbach's alpha greater than 0.75.

Data analysis

Statistical analyses were performed using IBM Statistical Package for the Social Sciences (SPSS) Statistics (version 25; IBM Corporation, Armonk, New York, USA). Descriptive statistics, including percentages, means, and standard deviations, were used to summarize the data. Pearson's correlation test and regression analyses were conducted to analyze the association between students' perceptions of the educational environment and burnout syndrome. A p-value<0.05 was considered statistically significant.

Results

A total of 106 clinical medical students participated in this study, yielding a 100% response rate (Table 1). The majority were female (57.55%), and participants were evenly distributed across academic years: fourth year (34.0%), fifth year (33.0%), and sixth year (33.0%). More than half of the students had a cumulative grade point average (GPAX) of 3.00 or above (60.38%), and the majority (81.13%) were studying in major departments.

The overall mean score on the DREEM was 125.17±12.80, indicating a generally positive perception of the educational environment. The mean subscale scores were as follows: SPL: 31.30±3.82 (interpreted as a more positive perception), SPT: 27.13±2.73 (moving in the right direction), SAP: 20.58±3.20 (feeling more on the positive side), SPA: 28.95±4.00 (a more positive attitude), and SSP: 17.21±2.97 (not too bad). Detailed categorical distributions for each subscale are presented in Table 2.

Burnout syndrome was identified in nearly half of the participants (50.94%). Approximately 44.34% of students reported experiencing high emotional exhaustion, whereas a substantial majority (83.02%) demonstrated low levels of depersonalization. Personal accomplishment scores were relatively evenly distributed across categories: low (34.91%), moderate (33.02%), and high (32.08%) (Table 3).

Table 1 Baseline characteristics of clinical medical students (N=106)

Demographic characteristics	No. of participants (%)
Gender	
Male	45 (42.5)
Female	61 (57.5)
Year-level of clinical medical students	
4th-year medical student	36 (34.0)
5th-year medical student	35 (33.0)
6th-year medical student	35 (33.0)
GPAX	
<3.00	42 (39.62)
≥3.00	64 (60.38)
Major department	86 (81.13)
Obstetrics and gynecology	6 (5.66)
Medicine	32 (30.19)
Surgery	19 (17.92)
Pediatrics	15 (14.15)
Orthopedics	3 (2.83)
Emergency medicine	11 (10.38)
Minor Department	20 (18.86)
Ophthalmology	1 (0.94)
Psychology	13 (12.26)
Family medicine	6 (5.66)
Burnout syndrome	
No	52 (49.05)
Yes	54 (50.94)

GPAX=cumulative grade point average, data presented as a number (percentage)

Correlation analysis revealed a significant negative association between overall DREEM scores and burnout (r=−0.504, p-value<0.001). Specifically, significant negative correlations were observed for the following subscales: SPL (r=−0.416, p-value<0.001), SAP (r=−0.563, p-value<0.001), SPA (r=−0.369, p-value<0.001), and SSP (r=−0.349, p-value<0.001). No significant correlation was observed for the SPT (Table 4).

In univariate analysis, significant associations with burnout were observed among students assigned to major departments (OR=3.241, 95% CI 1.136-9.242, p-value=0.028), as well as those with low SPA scores (OR=19.599, 95% CI 2.490-154.243, p-value=0.005) and SSP scores (OR=12.324, 95% CI 2.698-56.282, p-value=0.001) (Table 5). Multivariate analysis confirmed that low SPA (OR=13.924, 95% CI 1.684-115.158, p-value=0.015) and low SSP (OR=10.216, 95% CI 2.131-48.959, p-value=0.004) remained significantly associated with burnout (Table 6).

Discussion

The present study revealed a notably high prevalence of burnout syndrome among clinical medical students, with approximately 51% affected—an observation that is in concordance with the findings from previous international literature. The study specifically identified low scores in the SPA and SSP as significant predictors of burnout, aligning with prior research, indicating the importance of educational atmosphere and social support in mitigating burnout symptoms[4,7,8].

These findings underscore the protective role of a supportive academic climate and healthy peer relationships in buffering against burnout symptoms. These findings are consistent with prior studies suggesting that favorable educational climates and social support can enhance psychological resilience and academic motivation, ultimately reducing stress and risk of burnout[7,8].

Significant negative correlations between burnout and the subscales of perceptions of SPL, SAP, SPA, and SSP reinforce the multifaceted role of the educational environment on student well-being. Interestingly, the SPT subscale was not significantly associated with burnout, indicating that specific factors within teaching methodologies warrant further investigation in future studies.

This study has certain limitations. The cross-sectional nature of the design precludes establishing causal relationships, while the single-center setting may restrict the applicability of the findings to broader populations. Future research employing longitudinal and multicenter approaches is warranted to validate and extend these results.

Table 2 Mean scores and categorical distribution of DREEM subscales among clinical medical students (N=106)

DREEM Subscales	Mean±S.D.	Categories	Participants N (%)
Students' perception of learning (SPL)	31.30±3.82	Very poor	0 (0)
		Teaching is viewed negatively	8 (7.55)
		A more positive perception	92 (86.79)
		Teaching highly thought of	6 (5.66)
Students' perception of teaching (SPT)	27.13±2.73	Abysmal	0 (0)
		In need of some retraining	8 (7.55)
		Moving in the right direction	97 (91.51)
		Model course organizers	1 (0.94)
Students' academic self-perception (SAP)	20.58±3.20	Feelings of total failure	0 (0)
		Many negative aspects	12 (11.32)
		Feeling more on the positive side	84 (79.25)
		Confident	10 (9.43)
Students' perception of atmosphere (SPA)	28.95±4.00	A terrible environment	0 (0)
		Many issues need changing	17 (16.04)
		A more positive attitude	88 (83.02)
		A good feeling overall	1 (0.94)
Students' social self-perception (SSP)	17.21±2.97	Miserable	0 (0)
		Not a nice place	21 (19.81)
		Not too bad	78 (73.58)
		Very good socially	7 (6.60)
Total DREEM Score	125.17±12.80	Very poor	0 (0)
		Plenty of problems	6 (5.66)
		More positive than negative	99 (93.40)
		Excellent	1 (0.94)

GPAX=cumulative grade point average, DREEM=the Dundee ready education environment measure, S.D.=standard deviation

Table 3 Burnout syndrome among clinical medical students (N=106)

Burnout symptoms	Low level	Moderate level	High level	Average score
EE	22 (20.75)	37 (34.91)	47 (44.34)	25.28±10.30[a]
DP	88 (83.02)	16 (15.09)	2 (1.89)	10.1 (5.6,14.6)[b]
PA	37 (34.91)	35 (33.02)	34 (32.08)	17.54±8.32[a]

EE=emotional exhaustion, DP=depersonalization, PA=personal accomplishment, Data presented as a number (percentage), [a]=Data presented as mean±standard deviation, [b]=Data presented as median (IQR)

Conclusion

This study highlights a significant association between clinical medical students' perceptions of the educational atmosphere and their social self-perception with burnout syndrome. Enhancing aspects of the educational environment, particularly fostering a supportive, positive atmosphere and promoting strong social connections among students, is essential for addressing burnout.

Table 4 Association between perceptions of the educational environment and burnout syndrome among clinical medical students (Pearson correlation test)

Subscales of DREEM	SPL	SPT	SAP	SPA	SSP	DREEM
Burnout syndrome	−0.416**	−0.135	−0.563**	−0.369**	−0.349**	−0.504**

SPL=students' perception of learning, SPT=Students' perception of teaching, SAP=students' academic self-perception, SPA=students' perception of atmosphere, SSP=Students' social self-perception, DREEM=the Dundee ready education environment measure, The association was analyzed by Pearson correlation test, **p-value<0.01

Table 5 Association between perceptions of educational environment and burnout syndrome among clinical medical students (univariate analysis)

Variables	Odds ratio	95% Confidence interval	p-value
Male	1.036	0.487-2.241	0.929
5th-year medical students	0.533	0.206-1.389	0.195
6th-year medical students	0.476	0.183-1.232	0.126
GPAX <3.00	0.568	0.243-1.327	0.192
Major Department	3.241	1.136-9.242	0.028*
DREEM			
Low SPT	6.999	0.839-59.044	0.074
Low SPA	19.599	2.490-154.243	0.005*
Low SSP	12.324	2.698-56.282	0.001*

SPT=students' perception of teaching, SPA=students' perception of atmosphere, SSP=students' social self-perception, The association was analyzed by univariate logistic regression analysis. *statistically significant at a p-value<0.05

Table 6 Association between perceptions of educational environment and burnout syndrome among clinical medical students (multivariate analysis)

Variables	Odds ratio	95% Confidence interval	p-value
Major department	2.126	0.682-6.632	0.193
Low SPA	13.924	1.684-115.158	0.015*
Low SSP	10.216	2.131-48.959	0.004*

SPA=students' perception of atmosphere, SSP=students' social self-perception, The association was analyzed by multivariate logistic regression analysis, *statistically significant at a p-value<0.05

Conflict of interest

All authors declare no competing interests.

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