



Depression in Final-Year Medical Students in Ho Chi Minh City, Vietnam: The Role of Career-Choice Motivation

Pham Duong Uyen Binh¹ , Minh Tam Vo Thi², Thuong Thi Hoai Do³, Giao Huynh⁴, Mai Hoang Tran⁵, Hai Ngoc Phung⁶ and Pham Le An³ 

¹Department of Educational Quality Assurance and Assessments, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam. ²Faculty of Medicine, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam. ³Grant and Innovation center, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam. ⁴Faculty of Public Health, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam. ⁵School of Medicine and Dentistry, Griffith University Griffith Health, Gold Coast, QLD, Australia. ⁶School of Public Health, Griffith University Griffith Health, Gold Coast, QLD, Australia.

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ABSTRACT

OBJECTIVES: Depression in medical students is concerning, potentially fueled by many stressors including career choice-relating stress. Choosing Medicine is a life-long commitment, and low intrinsic motivation or excessive dependence on family can complicate this decision and adding stress throughout their training. This stress intensifies in the final year, as students lacking personal drive struggle to see themselves continuing the career. Given limited studies on this crucial topic in Asia and Vietnam, we explored direct linkage between career choice motivation and depression in final-year medical students.

METHODS: A cross-sectional study was conducted with 569 final-year students between June and July 2020. The Vietnamese Patient Health Questionnaire 9 (PHQ-9) and 16-item CCM questionnaire were used as survey tools. Univariate analysis was used for descriptive statistics (absolute and relative frequency, mean (M), standard deviation (SD)). Multinomial logistic regression models were used to explore the relationship between variables using STATA 5.1.

RESULTS: The depression among participants was about 24.6% (PHQ-9 cut-off ≥ 12). No difference in gender was found regarding depression. The most acknowledged motivator is securing employment ($M = 4.14$, $SD = 1.02$) and the least is parental wishes ($M = 3.17$, $SD = 1.32$). Familial influence on career choice significantly increased odds of having “moderately-severe depression” ($OR = 1.17$, 95% CI 1.04-1.32) and “severe depression” ($OR = 1.36$, 95% CI 1.10-1.68), whereas, career-choice motivators including satisfaction ($OR = .76$, 95% CI .60-.97), self-competence ($OR = .80$, 95% CI .66-.97) and career success ($OR = .84$, 95% CI .71-.99) were found to be protective factors for depression.

CONCLUSIONS: Roughly a quarter of final-year medical students encountered depression. Occupational security ranked as the primary motivator, with parental wish being the least. Familial influence heightened depression risk, while career prospects, satisfaction and self-efficacy acted as protective factors. Medical career paths should align with intrinsic motivations and personal interests for better mental health outcomes.

KEYWORDS: depression, medical career, career-choice motivation, intrinsic motivation, extrinsic motivation

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CORRESPONDING AUTHOR: Pham Le An, Grant and Innovation Center, Department of Science and Technology, University of Medicine and Pharmacy at Ho Chi Minh City, 217 Hong Bang Street, Ho Chi Minh City 700000, Vietnam. Email: phamlean@ump.edu.vn

Introduction

Depression is a prevalent mental health condition that affects millions of individuals worldwide including medical doctors. A combination of physical, emotional, psychomotor, and cognitive deficits are hallmarks of depression.¹ The alarming prevalence of depression in junior doctors led researchers to investigate its roots in medical school.² Recent research reveals significant levels of depression among both medical and nonmedical students,² suggesting that the academic pressures and personal challenges of medical school including academic workload,³ financial burdens⁴ or exposure to patients' distress⁵ could be major contributing factors. Previous studies show this rate can range from 2.9% to 38.2%, and it's particularly high in Asia, often exceeding 30%.^{6,7} Notably, female medical students appear to be disproportionately affected.⁷

Stress generation theory suggests individuals, particularly those with certain traits or mental health conditions, may contribute to the generation of stressors in their lives.^{8,9} These stress contributes to the development,¹⁰ persistence and recurrence of depression.¹¹ Among these stressors is career-related stress, especially career decision making factors.¹² Indeed, familial pressure is known to create career decision making difficulties. Moreover, lack of confidence in one's ability to choose a career path or low self-efficacy, can trigger a cascade of negative emotions, including anxiety and feelings of worthlessness.^{13,14}

Other potential stressors included: a personal or family history of depression, point of degree entry and cultural background.² As college approaches, many students grapple with the daunting task of choosing a career path.¹⁵ This process



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can be fraught with difficulties, primarily stemming from 3 key areas: lack of readiness to make decision, information, and inconsistent information.¹⁶ Dealing with these challenges can significantly increase stress levels, which is associated with increased depression.¹⁷ Two factors contributing to career decision-making difficulties are insufficient motivation hindering readiness and a high level of dependence on external guidance in processing information.¹⁸ Notably, familial pressure stands out as a frequent source of career choice difficulties in Asian society. The pressure to both live up to demanding parental standards and personal desire hinders career decision and even causes stress to students.^{19,20}

For premedical students, entering medical school signifies a lifelong commitment to becoming a doctor. This momentous decision is driven by a complex interplay of external and internal motivators, so-called career-choice motivation in general.²¹ In self-determination theory (SDT), motivation is defined as intrinsic, extrinsic motivation and amotivation (or nonmotivation). Intrinsic motivation is described as engaging in an activity for its own inherent interest whereas extrinsic motivation is featured by action for a secondary benefit.²² Common external motivators for choosing medicine include with familial wish²³ or career prospects (high earning and social status),²⁴ whereas internal factors include personal interest and a sense of competence.²⁵ In Asian culture encompassing Vietnam, family advice significantly influences college students' career choices.²⁴ Pressure from familial expectation could challenge choosing career process, especially in Medicine in this context.

However, personal traits such as perfectionism, altruism, and self-critical or performance-oriented self-esteem, favored by medical school selection processes.² SDT underscores the evolving nature of motivation, emphasizing the transition from extrinsic motivators to intrinsic drives through internalization process.²⁶ Consequently, high extrinsic motivation corresponds to reduced independence and diminished self-efficacy. While many aspire to become medical doctors for both internal and external reasons, the absence of personal passion in choosing medicine can pose a considerable threat to well-being during their training. Students primarily motivated by external factors, such as familial expectations, are more likely to struggle in a perfectionist environment with self-doubt and dissatisfaction which potentially manifests stress.²⁷ Those who initially choose a health profession for career prospects, might realize that this elevated status brings increased work-related stress, leading to career choice dissatisfaction.⁹ Previous studies on health science students' depression support this. Specifically, students who select health profession due to interest in care delivery were less likely to be depressed.^{28–32} Additionally, health science students select their career due to familial pressure and financial gain or status were more likely to experience career dissatisfaction and had a higher risk of burnout and stress.^{33–35}

The stress caused by low career choice intrinsic motivation may persist into the final academic year, impacting final-year

medical students deciding to continue in the field after graduation. Insufficient intrinsic motivation for career continuity may lead to confusion, additional stress, and potential depression.³⁶ Hence, our study focuses on sixth-year medical students about to graduate, aiming to clarify the direct link between career choice motivation and depression. This aspect remains underexplored among final-year medical students in Asia. To our knowledge, there are no previous data on reasons for medical career choice motivation in Vietnam. Moreover, no studies have been conducted among Vietnamese medical students to explore the association between career choice motivation and depression.

As such, our investigation centers on assessing depression levels among senior medical undergraduates. Additionally, the current study aims to delve into their career choice motivations and its association with depression. In summary, we hypothesized that intrinsic motivators, like career choice satisfaction and self-competence, are likely linked to a reduced likelihood of experiencing depression, whereas extrinsic motivators such as career success and familial pressure may demonstrate the opposite. This forms the basis for our 2 research questions:

1. What is the prevalence of depression among final-year medical students?
2. To what degree do intrinsic and extrinsic motivations in career choice impact depression among medical students?

Methods

Design

The cross-sectional study was conducted between June and July 2020 (in the first term of the academic year) at the University of Medicine and Pharmacy at Ho Chi Minh City (HUMP). A nonprobability sampling technique was adopted in recruiting medical students. Determining the study size in this context is typically based on factors such as feasibility, availability of participants, and the research objectives. The inclusion criteria for participants were (a) Vietnamese medical students in HUMP and (b) in year sixth of the medical program. Exclusion criteria for this study comprise nonmedical students, responses with numerous missing data and medical students from other institutes.

Efforts to control bias include standardized data collection methods using validated tools such as the Patient Health Questionnaire 9 (PHQ-9) validated in Vietnam, clear research protocols, predefined hypotheses, and statistical controls like regression analysis. These measures enhance research validity and accuracy by minimizing bias sources. Additionally, the depressive status was reconfirmed by whether the students' depression also gets their low academic performance levels or not.

Context

In Vietnam, the Undergraduate Medical Education program is primarily a 6-year curriculum after high school education.³⁷

Consequently, aspiring medical professionals are typically high school seniors who participate in the National High School Graduation Examination. During this exam, candidates select their desired university major, a decision that profoundly influences their future academic and professional journeys. Attaining high scores is imperative for securing admission to medical universities or faculties of medicine across Vietnam.

The medical school curriculum in Vietnam encompasses 6 years, divided into 2 distinct phases: the preclinical and clinical phases. As students' progress, they transition to the final year in hospitals and healthcare facilities. HUMP is the main medical university for the Southern part of Vietnam which has provided the critical healthcare workforces for the healthcare system.

Data collection

An electronic form of an anonymous questionnaire was sent to all sixth-year medical students in the academic year of 2019 to 2020 via emails in June 2020. The questionnaire comprised demographic items, PHQ-9, and career-choice motivation items. The participants were required to fill in the questionnaire within 2 weeks. After 2 weeks, in order to collect more responses, the deadline for responding to the questionnaire was extended to 2 more weeks. Approximately 580 students from sixth-year studying Medicine voluntarily participated in this study and 569 participants (response rate = 98%) provided valid answers for the questionnaire. Participation was entirely voluntary, consented, and anonymous.

Table 1. Characteristics of participants (N = 569).

	M ± SD	MIN – MAX
Ages	22.5 ± 0.8	21–31
	<i>Frequency</i>	<i>Percentage (%)</i>
Gender		
Male	357	62.4
Female	212	37.5
Places of birth		
Southside	297	51.7
Middle	246	43.5
Northside	6	1
Performance level		
Excellent	158	27.7
Good	292	51.3
Fairly good	98	17.2
Average	21	3.6

Ages (ranging from 21 to 30) are presented as mean; other variables are presented as numbers (percentage).

Data were collected via an anonymous, self-administered electronic questionnaire distributed in June 2020 to 580 sixth-year medical students from the academic year 2019 to 2020. The questionnaire contained sections on demographics, mental health utilizing the PHQ-9 instrument, and career-choice motivators. Participants were initially given 2 weeks to complete the questionnaire, with an extension of 2 additional weeks granted to maximize participation. Furthermore, during relevant face-to-face lectures, the class monitors offered reminders to encourage completion of the questionnaire. Finally, a total of 569 students (response rate = 98%) provided valid responses. Participation was entirely voluntary, with informed consent obtained and anonymity guaranteed.

Participants

Table 1 presents the demographic characteristics of the participants, including their age, sex, major, year of study, and academic performance. Academic performance was classified as excellent, good, fairly good, or average.

The mean age of the final-year medical students was 23.5 years. The proportions of male and female students were 62.4% and 37.5%. Most students came from the south (51.7%) and middle (43.5%) of Vietnam. Regarding performance levels, 50% of the students were “good” students, while 27.7%, 17.2%, and 3.6% of the students were “excellent,” “fairly good,” and “average,” respectively.

Instruments

In this research, the independent variables or predictors were the 5 career choice motivators, whereas the dependent variables encompassed the 5 levels of depression. The career choice motivation questionnaire (CCMQ) was used to measure motivators, while depressive symptoms were assessed using The

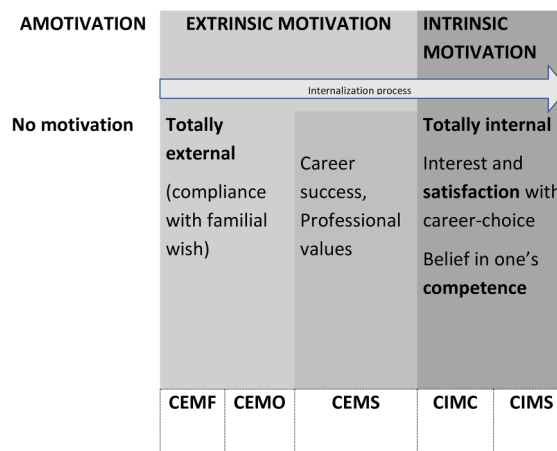


Figure 1. Five subcategories of career choice motivation on the spectrum of motivation. This is based on Cook DA, and Artino Jr, AR (2016). Motivation to learn: an overview of contemporary theories. *Medical education*, 50(10), 997-1014.

Table 2. Exploratory factor analysis.

NO.	ITEMS	COMPONENT					KMO
		CIMC	CEMS	CIMS	CEMF	CEMO	
	<i>I CHOSE TO PURSUE MEDICINE BECAUSE/DUE TO</i>						
1.	It gives me competence to be socially respected	.83					.77
2.	It gives me competence to earn my living	.80					
3.	I feel competent to pursue this program	.69					
4.	It gives me competence to deliver care to my family	.67					
5.	I feel interested in health science	.57					
6.	I satisfied with the university I am studying				.83		
7.	I satisfied with medicine which is a challenging field				.61		
8.	A secured employment		.75				
9.	Opportunities to study overseas		.83				
10.	High income		.78				
11.	Promoted position		.62				
12.	My parents' advice				.60		
13.	My elder siblings' opinion				.85		
14.	My parents' wish				.75		
15.	Others' opinion					.76	
16.	An influential health profession					.68	

Career-choice intrinsic motivation-satisfaction (CIMS) and self-competence (CIMC), career success (CEMS), families (CEMF) and other influencers (CEMO). Principle component factor extraction with varimax rotation for career-choice motivation Scale. The results from Bartlett's test of sphericity for the scale was all significant ($P \leq .00$).

PHQ-9. These surveys were employed to gather information on both career choice motivation and depression, forming the basis for exploring the correlation between the 2 variables (Figure 1).

Depressive symptoms. PHQ-9 is a short screening tool used to identify depressive symptoms in clinical and community settings. It comprises 9 items that match the 9 DSM-IV criteria for depression. The usage and validity of the PHQ-9 have been well described in other countries and in Vietnam.³⁸ In 2020, the Vietnamese PHQ-9 was adapted successfully to medical students at the HUMP with high internal and test-retest consistency for PHQ-9 (Cronbach's α was 0.82 and Spearman correlation coefficient was 0.83). Utilizing PHQ-9 with the 12 cut-off points to identify depressive medical students has been validated with 71% and 93% sensitivity and specificity, respectively.³⁹ In this study, we analyzed the PHQ-9 using 12 cut-off points to classify major depressive disorder (MDD; score 12 or higher) and nonmajor depressive disorder (non-MDD; score 11 or less). Using the adjusted cutoff point, symptoms of depression were classified into 5 levels comprising none/minimal (0-4), mild (5-12), moderate (12-14), moderately severe (15-19), and severe (> 20). Frequency of feeling depressive symptoms during the past 2

weeks was classified as "no day," many days," "more than seven days," and "nearly everyday." Depressive level was the outcome variable in the present study.

Career choice motivation. A questionnaire was developed to evaluate medical students' career choice motivation. The CCMQ was adapted from the Vietnamese Academic Motivation Scale (AMS)⁴⁰ and modified by an expert group, including a Master of Health Profession Education and Doctor of Philosophy in Clinical Psychology at UMP. Five subcategories included *career-choice intrinsic motivation motivators as career choice satisfaction* (CIMS) and *professional competence* (CIMC); *career-choice extrinsic motivators as career success* (CEMS), *families and other influencers* (CEMF and CEMO). Students responded to a 16-item questionnaire by grading on a 1-to-5 Likert scale the extent to which they agreed that the given motivators influenced their career choice.

To assess construct validity, exploratory factor analysis (EFA) was conducted. Table 2 summarizes the EFA results from the CCMQ. The results of Bartlett's test of sphericity for all subscales were significant ($P \leq .00$), allowing us to identify the factor model.⁴¹ Overall, 16 items can assess 5 subcategories as intended. The questionnaire also had acceptable internal reliability (Cronbach $\alpha = .70$).

Table 3. Prevalence of depression (N = 569).

	DEPRESSIVE LEVELS	PERFORMANCE LEVELS				P	TOTAL
		Excellent	Good	Fairly good	Average		
Depression PHQ-9 score ^a (M ± SD)		7.40 ± 4.86	7.74 ± 5.62	8.41 ± 5.46	9.90 ± 6.74	.15	
		Gender					
		Male	Female				
		7.73 ± 5.3	7.81 ± 5.5			.68	
No depression 429 (75.4%)	No depression (0-4 pts)	50 (31.7%)	99 (33.9%)	29 (29.6%)	4 (19.1%)		182 (32.0%)
	Mild (5-11 pts)	76 (48.1%)	121 (41.4%)	42 (42.9%)	8 (38.1%)		247 (43.4%)
Depression 140 (24.6%)	Moderate (12-14 pts)	18 (11.4%)	36 (12.3%)	11 (11.2%)	3 (14.3%)		68 (12.0%)
	Moderately Severe (15-19 pts)	14 (8.9%)	26 (8.9%)	13 (13.3%)	4 (19.5%)		57 (10.0%)
	Severe depression (20-27 pts)	0 (0%)	10 (3.4%)	3 (3.1%)	2 (9.5%)		15 (2.6%)

^aPatient Health Questionnaire 9 (PHQ-9) depression scores with 12-point cut-off.

The career-choice motivators. The subcategories in the CCMQ aimed to evaluate 5 career choice motivators that maneuver inside the motivational spectrum, between extrinsic and intrinsic motivation.

The CEMF, CEMO, and CEMS subscales aim to measure activities that lie on the left side of the spectrum or extrinsic motivation. The 3-item CEMF and 2-item CEMO subscale measured career choice based on familial members and other nonfamily people, respectively. The CEMS subscale has 4 items that referred to having a promising career which entails secured employment, stable income or social status.

CIMS and CIMC were motivators located on the right side of the spectrum or intrinsic motivation. CIMS evaluates whether the students' career choice were due to their fulfillment with Medicine. The CIMC subscale with 5 items pertained to how the students feel competent to study Medicine and gain professional competence through their training.

We used the composite scores of the items in each subscale to conduct further evaluation.

Statistical analysis

Univariate analysis was used for descriptive statistics (absolute and relative frequency, mean (M), standard deviation (SD) such as sample's demographic traits and depression prevalence and career choice motivation. A bivariate analysis was used to test differences in PHQ-9 scale between groups (one-way ANOVA). Multinomial logistic modeling was employed to investigate the relationship between the 5 career choice motivators and different levels of depression. All statistical analyses were performed using STATA (Version 5.1). Any case with missing data for 5 or more variables was removed from the analysis. We set the level of statistical significance at 5% ($P < .05$) for all analyses.

Ethics approval

Our study complied with the 1964 Declaration of Helsinki. All the participants signed a consent form before answering the questionnaires. They could withdraw from the study whenever they desired, without any penalties for their exam scores or academic rankings. Their information was kept confidential and used for research purposes only. This study was approved by the Ethical Committee of the University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam (protocol number 397/UMP-ETHICBOARD).

Results

Prevalence of depression

Table 3 presents medical students' depressive and performance levels. Students with severe, moderately severe, and moderate depression accounted for 2.6%, 10%, and 12.0%, respectively. Moreover, based on the Vietnamese PHQ-9 scale (12 cut-off points), 24.6% of students were classified as major depression. Additionally, a few excellent and good students experienced severe depression (0% and 3.4%). Notably, the students' mean depression scores increased as their academic performance levels decreased. However, there is no significant difference in PHQ-9 depression scores between genders as well as across performance levels ($P > .05$).

Medical students' career-relating factors

Table 4 presents medical students' descriptive results of career-relating factors. Secure employment ($M = 4.14$, $SD = 1.02$) and high incomes ($M = 4.43$, $SD = 0.75$) were the most influencing factors in career choice. Gaining the ability to provide care for family was the third most endorsed reason for pursuing

Table 4. Students' career-choice motivation (N = 569).

CCMQ ITEMS	M	SD
<i>I chose Medicine because/due to</i>		
A secured employment	4.43	0.75
High income	4.14	1.02
The competence provide family care	3.92	0.89
I satisfied with the university I am studying	3.84	1.09
I satisfied with medicine which is a challenging field	3.81	0.95
Promoted position	3.80	0.99
The competence to be socially respected after graduation	3.71	0.93
The competence to earn my living after graduation	3.66	0.95
I feel interested in health science	3.56	1.11
I feel competent to pursue this program	3.56	1.01
Opportunities to study overseas	3.48	1.2
My parents' wish	3.17	1.32
My elder siblings' opinion	2.23	1.18
My parents' advice	2.16	1.29
An influential health profession	2.00	1.12
Others' opinion	1.87	1.09

medicine (M = 3.92, SD = 0.89). Moreover, feeling satisfied with medical university (M = 3.84, SD = 1.09) and the field of medicine (M = 3.81, SD = 0.95) were also among highly rated motivation to choose medicine. However, the least influencing factors in career choice included parents' wish (M = 3.17, SD = 1.32), siblings (M = 2.23, SD = 1.18), and parents' background (M = 2.16, SD = 1.29).

Association between depression with career-relating factors

Table 5 presents the results of the multinomial logistic regression analysis using nondepression as the baseline group. There were 1.17 and 1.36 times greater relative probability of having "moderately-severe depression" (95% CI 1.04–1.32, $P < .05$) and "severe depression" (95% CI 1.10–1.68, $P < .05$) respectively in students whose career choice was influenced by family (CEMF) compared to "no-depression."

Contrastingly, the relative probability of being in the "moderately-severe depression" category among students with career choice satisfaction (CIMS) is about .76 (95% CI .60–.97, $P < .05$) lower than that of the "no depression" group.

Notably, students whose career choice was motivated by professional success (CEMS) and belief in competence (CIMC) had a relative probability of being in "severe depression" which are, respectively, .80 times (95% CI .66–.97, $P < .05$) and

.84 times (95% CI .71–.99, $P < .05$) lower than that of "no depression."

Discussion

In the present study, we investigated the prevalence of depression and career-choice motivators among final-year medical students. We also investigated whether external motivators, such as satisfaction in career choice and self-competence, are associated with a lower risk of depression, while external motivators like career success and familial pressure may indicate the opposite. The results largely support our hypotheses that several career-choice motivators are associated with depression.

In our study, the prevalence of self-reported depression was 24.6% in Vietnamese medical students (PHQ-9 cut-off ≥ 12), slightly higher than previously reported, which was 15.2% with cut-off of 10 point³¹ and less than the worldwide prevalence (27.2%).⁴² The previous study focused on medical students from the fourth to final year, whereas our study concentrated on final-year students whose stress had been gathering for years, which might explain the higher prevalence of depression in the present study. This study was conducted in the second wave of the COVID-19 (lasts for 129 days, from July 25 to December 1, 2020, included 554 community cases) causing 35 deaths in vulnerable patients.⁴³ Nonetheless, the pandemic was effectively managed, thus, medical students were not compelled to participate in the health workforce. While this could be a potential stressor for depression, its impact may be less significant when compared to a prolonged stressor caused by career-choice motivation.

Regarding students' various career-choice motivation, final-year medical students perceived secure employment and high income as the 2 most influential factors for pursuing medicine. This might indicate the desire to fulfill the basic segments of Maslow's pyramid of needs (safety, health, and security of employment), which are deeply ingrained in the society of low-middle-income countries.²⁵ Furthermore, students' career choice were strongly driven by the competence for caring for families, which is similar to studies in Kuwait and China, where such reason was endorsed by nearly 40% of medical students.^{44,45} Noticeably, the pursuit of medicine was more autonomously decided, given that familial influences were among the lowest-ranked motivators. This might reflect the shift from the traditional model of collectivism, in which youths select a career based on familial and societal standards, to a hybrid cultural model between collectivism and individualism.⁴⁶

As hypothesized, *familial influence* increased the odds of being depressed. In particular, medical students whose career choice complying with familial wish are more prone to depression at *moderately-severe* and *severe* levels. This is consistent with previous studies which family pressure on career choice was also found to yield a negative impact on college and medical students' depression.^{23,32} Most Vietnamese students

Table 5. The association between career choice motivation and depressive levels.

DEPRESSION LEVEL		OR (95% CI)	P
No-depression (base group)			
Mild			
	CIMC	0.96 (0.89-1.03)	.331
	CIMS	0.88 (0.74-1.01)	.074
	CEMS	0.97 (0.90-1.05)	.532
	CEMF	1.07 (0.90-1.16)	.069
	CEMO	1.11 (0.98-1.26)	.093
Moderate			
	CIMC	0.99 (0.90-1.07)	.86
	CIMS	0.87 (0.74-1.02)	.08
	CEMS	0.93 (0.78-1.01)	.09
	CEMF	1.03 (0.94-1.12)	.48
	CEMO	1.06 (0.89-1.22)	.34
Moderately severe			
	CIMC	0.93 (0.83-1.02)	.16
	CIMS	0.74 (0.60-0.97)	.003
	CEMS	0.90 (0.80-1.05)	.062
	CEMF	1.17 (1.04-1.32)	.006
	CEMO	0.98 (0.81-1.18)	.832
Severe			
	CIMC	0.84 (0.71-0.99)	.04
	CIMS	0.90 (0.60-1.26)	.57
	CEMS	0.80 (0.66-0.96)	.018
	CEMF	1.36 (1.10-1.68)	.003
	CEMO	1.16 (0.85-1.58)	.34

Career-choice intrinsic motivation-satisfaction (CIMS) and self-competence (CIMC), career success (CEMS), families (CEMF) and other influencers (CEMO).

choose their college majors right after high school graduation, when they are still inexperienced about this matter. Thus family attempt to guide them through this process to avoid problems and premature failures. Moreover, medical professions are highly esteemed which parents often aspire for. This familial influence can sometimes lead to a mismatch between personal interests and career choices. When students feel compelled to pursue a career aligned with familial wishes but not their personal interests, it can create internal conflict, potentially resulting in depressive symptoms, as our findings suggest.⁴⁶

Furthermore, our study identified 3 protective factors against depression among final-year medical students. As expected, career choice intrinsic motivation was linked to

a lower risk of depression, consistent with prior researches.^{32,47} In this study, intrinsic motivation suggests satisfaction and enjoyment toward career choice which theoretically contributes to improved mental health.²⁶ Additionally, feeling confident to be able to acquire the necessary professional competencies was associated with a reduced risk of severe depression. Theoretically, students with high self-efficacy or trusting in their abilities, may exhibit the resilience to combat depressive moods.³³ Contrary to our hypotheses, expectations of career success were linked to decreased depression. This can be explained that students with minimal expectations for professional success may perceive it as unattainable, resulting in reduced pleasure and cognitive control over their work.^{48,49} Medical doctors in Vietnamese society are expected to achieve high earnings and respected status.⁵⁰ Therefore, medical students who perceive that achieving these prospects is beyond their reach may face disappointment and reduce pleasure toward the career choice.⁹

In summary, the present study underscores the significant role of career-choice motivators in mental health outcomes, which persists to the final academic year. Familial factor as an external career choice motivators still negatively impact senior medical students' depression, therefore, this should not be taken for granted. Educational institutions and families should encourage final-year medical students to align their career paths with intrinsic motivations and personal interests for better mental health outcomes. Moreover, a protective factor identified, such as belief in competencies might be trained in the curriculum. Fostering this could be integrated into educational programs to enhance students' resilience and overall mental well-being.

Limitation

It is worth noting that our study has certain limitations that should be acknowledged. Firstly, the cross-sectional design restricts causal interpretations, and longitudinal studies are warranted to establish the temporal relationship between motivation and depression. Another limitation is that although the study found acceptable reliability for the instrument and conducted exploratory factor analysis to verify the 5 motivational components measured by the questionnaire, the lack of prior validation and piloting may still introduce a degree of uncertainty about the instrument's validity. Additionally, the fact that we did not conduct a sample size and power analysis may impact the generalizability and robustness of our findings. Future research should incorporate objective measures to enhance the validity and generalizability of the results.

Conclusion

Nearly a quarter of final-year medical students were found to be depressed. Female and male was equally depressed. There is association between career-choice motivation and depression. While familial influence on medical career choice increases

the risk of depression, career choice following satisfaction, professional success, and confidence in competence acted as protective factors. Our findings suggest that belief in competence and less dependence on familial influence in choosing career path can positively impact mental health, thus, should be fostered.

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Author Contributions


All authors contributed to data analysis, drafting, or revising the article, gave final approval of the version to be published, agreed to the submitted journal, and agreed to be accountable for all aspects of the work.

Data Sharing

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

ORCID iDs

Pham Duong Uyen Binh  <https://orcid.org/0000-0003-3398-3210>

Pham Le An  <https://orcid.org/0000-0003-1186-0543>

Supplemental Material

Supplemental material for this article is available online.

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