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Investigation of academic motivation in medical students and its association with clinical education quality, academic achievement, and academic burnout

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Abstract:

BACKGROUND: Improving the quality of clinical education requires continuous review of the current situation, identifying strengths, and correcting weaknesses. This study aimed to investigate the association between academic motivation with quality of clinical education, academic achievement, and burnout.

MATERIALS AND METHODS: This cross-sectional study was done in 2020 on all of the 140 internship students of Shahrekord University of Medical Sciences, using the consensus method. The data collection tools included standard questionnaires such as Herman's Academic Motivation, Clinical Education Quality, Maslach Modified Academic Burnout, Pham and Taylor Academic Achievement, Satisfaction of Educational Welfare Facilities. Data were analyzed using SPSS (ver. 22) software and descriptive statistics (mean, standard deviation, frequency and percentage of frequency), Spearman rank, correlation coefficient and Mann-Whitney and Kruskal-Wallis statistical tests. $P < 0.05$ is considered statistically significant.

FINDINGS: The mean \pm SD of age was 25.68 ± 2.03 . 86 (61.4%) of the internship were female and 87 (62.1%) were single. Mean \pm SD of academic motivation and quality of clinical education were 81.51 ± 8.73 and $28/99 \pm 11/52$ respectively. Also, the Mean \pm SD of academic achievement and academic burnouts were $147/61 \pm 14/94$ and $42/37 \pm 10/42$ respectively.

RESULTS: Academic motivation had a meaningful and positive relationship with academic achievement and satisfaction of welfare facilities but a negative correlation with academic burnout. Also, academic achievement and academic burnout had a negative correlation but a positive correlation was seen between the quality of clinical education and satisfaction of welfare facilities.

CONCLUSION: Considered the results, recommended improving welfare education facilities by using up-to-date training aids, upgrading educational infrastructure, and employ young staff in the education office. For improving the quality of clinical education, appropriate educational methods, conducting developmental assessments continuously, using simulated environments, and improving students' motivation.

Keywords:

Academic burnout, academic motivation, academic success, clinical education, internship, satisfaction, welfare facilities

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Introduction

Nowadays, the educational system is considered as the basis and infrastructure of the socioeconomic, political, and cultural development of the society.^[1] Clinical education is a dynamic process, that students gain experiences to apply learned concepts in practice and is defined as a set of learning facilitating activities to create measurable changes in students, for clinical care doing.^[2]

Improving the quality of clinical education requires continuous evaluation of the current situation, identifying strengths, and correcting weaknesses.^[3] Continuous evaluation of educational status and review of related factors is one of the necessary and inevitable pillars of improving the quality of clinical education. Hence, paying attention to evaluation is at the top of training development programs.^[4]

One main related factor with clinical education quality is students' satisfaction with the services and facilities. In recent years, students' satisfaction had considered a vital goal of educational institutions.^[5] The satisfaction evaluation can be the first step toward providing and improvement of the organization's services. If students evaluate the organization's educational services as weak to moderate, it seems essential to increase students' satisfaction in all aspects of educational services.^[6]

Therefore, the study of students' satisfaction, who are customers of the educational system and have a major role in evaluating the performance and educational activities of each university, provides the necessary information in the field of quantitative and qualitative improvement of these centers.^[7]

Academic motivation is the other related factor with the satisfaction of educational services and clinical education quality. Gottfried defined it as "the enjoyment of learning in school, characterized by directional mastery, curiosity, persistence, endogenous task, and learn of challenges, Difficulties, and new duties."^[8]

Some factors affecting academic motivation include (1) individual characteristics (age, gender, marital status, grade point average [GPA], contact with friends and the opposite gender, suitable job, and sufficient income), (2) family condition (parental education and occupation, socioeconomic status, emotional situation, and Family encourage), (3) environmental and social conditions (social importance for college education, social respect, social status), (4) universal benefits of learning, (5) welfare and educational facilities, (6) admission quota, (7) housing status, (8) field and degree, (9) faculty education (provider characteristics,

experienced professors accessing, teaching ability, professors' treatment with student, interest, and effort to convey concepts, (10) cost and benefit of future career.^[9,10]

Academic motivation, helps a person to achieve learning goals, which leads to more training success and empowerment by guiding learning activities, increasing desire to learn, and a sense of efficiency, protects the person against educational pressures, and preventing academic burnout.^[11,12]

The effects of educational motivation on academic achievement are one of the main aspects of effective learning.^[13] In recent years, the reason for paying attention to academic achievement is the rapid decisions to improve the students with lower motivation.^[14] Academic achievement refers to an individual's learned or acquired ability in school subjects, which is evaluated by standardized learning tests or teacher-made tests.^[15]

Burnout is a constellation of emotional exhaustion, depersonalization, and a low sense of personal accomplishment that frequently occurs in people-related professionals such as healthcare personnel.^[16,17] Academic burnout is defined as feelings of inadequacy, and mental fatigue students experience with chronic stress caused by a lack of resources to perform their tasks.^[18]

Some reasons for burnout in an internship are a high level of anxiety due to constant communication with the patients and their family's problems, unfamiliarity with the clinical environment, lack of self-confidence, distance from family, and regular clinical and educational evaluation.^[19,20]

Extensive researches had done about these variables and their relation. Rezaei concluded that the overall quality of clinical education was moderate. Objective and educational programs, the instructor's performance, dealing with the student and supervision and evaluation area was intermediate level, in the education environment, half of the students evaluated the education environment as weak.^[21]

In assessing the level of Student's satisfaction with the services and educational facilities of Kurdistan University of Medical Sciences, Faizi stated that Students' overall satisfaction with education services and facilities was moderate. The lowest level of satisfaction was with the Department of Education's services, which requires that relevant authorities, such as employing efficient and young staff in the department, devote more time to improving student satisfaction as Clients implement the education system.^[22]

Naseh said that the academic motivation of most students is moderate and has a significant relationship

with age, gender, parental education, the field of study, student welfare, faculty education, educational centers, and factors of career future.^[23]

Yousefi concluded that nondormitory students have a higher motivation than dormitories. It is possible to increase students' motivation by holding counseling sessions, raising welfare facilities, and studying in dormitories. There was also a significant relationship between motivation and GPA of basic sciences.^[13]

Sharifard had concluded that there is a significant relationship between all subscales of academic motivation and the scale of lack of motivation and intrinsic motivation with academic burnout.^[24]

Since factors such as satisfaction with welfare educational facilities and academic motivation affect the quality of clinical education, examining these variables from the perspective of clinical students to formulate rules, provide appropriate facilities, plan for training capable students, select appropriate teaching and learning processes, and effectively interact with Learners, seem to be useful and always is one of the priorities of research in education.

According to the available evidence, the decrease in academic motivation and quality of clinical education, dissatisfaction with educational facilities, and high academic burnout in medical students, which cause a waste of human power and costs, to know students' opinions and views on their experiences help to find a specific and objective context for solving the problems facing the education system, seems very important.

Despite numerous studies in this field, due to the different results at different times and places, as well as various physical space and welfare educational facilities, it is decided to investigate satisfaction with welfare educational facilities, quality of clinical education, academic motivation, performance, and burnout and their interactions in medical students of Shahrekord University of Medical Sciences. There is hope that the results of this study will be a step toward improving the educational condition.

Materials and Methods

Study design and setting

This cross-sectional study was done in 2020 on all of the 140 internship students of Shahrekord University of Medical Sciences. Data entered in SPSS software version 22.0 (IBM SPSS Inc., Chicago, IL, USA) Descriptive statistics such as frequency, percentage, mean and standard deviation (SD) was used. For analyses of data using central indices and dispersion, Spearman

rank correlation coefficient and Mann-Whitney and Kruskal-Wallis statistical tests. $P < 0.05$ is considered statistically significant.

Study participants and sampling

All of the 140 internship students of Shahrekord University of Medical Sciences in 2020 had registered using the consensus method. Inclusion criteria were consent to participate in the study, being an intern, and having no history of known and treated psychiatric disorders and exclusion criteria were insufficient and incomplete registration of the questionnaire and reluctance to cooperate in the study.

Data collection tool and technique

For data collection, we used standard questionnaires such as:

1. Herman's Academic Motivation Questionnaire^[25,26]
2. Clinical Education Quality Questionnaire in Five Areas^[27]
3. Maslach Modified Academic Burnout Questionnaire^[28]
4. Pham and Taylor Academic Achievement Questionnaire (1994)^[29]
5. Satisfaction of Welfare Facilities inventory (designed by Shahrekord University of Medical Science).

1. The Herman's Academic Achievement Questionnaire consists of 29 questions translated by Abolfazl Karami. For the validity of the questionnaire, a correlation coefficient had obtained from 0.31 to 0.57, respectively. In addition, Hermans in one study points to the entity of a high correlation coefficient between this questionnaire and the Thematic Apperception Test. He also estimated the correlation coefficient of the two questionnaires with progressive behaviors that showed high test validity ($r = 0.88$). The validity and reliability of this questionnaire had examined by McEnery in Australia with a coefficient of 0.82.^[25] In Iran, the correlation coefficient calculated at the level of 0.05 was significant ($r = 0.46$). In reliability, Cronbach's alpha coefficient had calculated to be 0.78 and the reliability coefficients calculated using Guttman and Spearman-Brown methods, respectively, 0.7 and 0.72.^[30]

2. Clinical education status questionnaire containing 33 questions in five areas; *Objectives and curriculum (11 Questions) *instructor performance *how to interact with the student in the clinical environment *educational environment *monitoring and evaluation.^[31]

The reliability of the questionnaire in the Tavakoli study had obtained by the retest method with Cronbach's alpha coefficient of 0.88 indicates the appropriate reliability of this tool. Its validity

had confirmed by the content validity method with consultation with nursing and midwifery professors.^[32]

3. The Modified Professional Burnout Questionnaire (student version) measures three areas of academic burnout: *namely educational fatigue, *educational apathy, and *educational inefficiency and has three dimensions: *emotional fatigue, *skepticism, and *academic self-efficacy^[33] In the research of Rostami, Convergent and divergent validity of the Maslach Academic Burnout Questionnaire had obtained with the Student Depression Questionnaire and the Interest Scale acceptable. Also, the reliability of the questionnaire had calculated using Cronbach’s alpha measurement method. As well, for emotional fatigue was 0.89 doubt and pessimism were 0.84 and academic self-efficacy was 0.67.^[34]
4. The Pham and Taylor Academic Achievement Questionnaire has 48 items, to assess academic performance in terms of *self-efficacy, *emotional effects, *planning, *lack of outcome control, *motivation. In Derataje’s research, the content validity of this questionnaire had confirmed using the opinion of professors. Also, the validity of this scale had obtained by the factor analysis method. The reliability of the questionnaire was 74% by Cronbach’s alpha method.^[35]

Results

Mean and SD of age was 25.68 ± 2.03 . Eighty-six (61.4%) of internship were female and 87 (62.1%) were single. The admission quota for 114 (81.4%) of participant was free and about 19% of them used martyrs’ family or regional quota. 135 (96.4%) were full time, 84 (60.0%) lived in personal home and the other in dormitory or student home. 95 (68%) of their parents had academic education and high occupation such as physician or university professors, finally 129 (94%) of students stated that have a good economic status [Table 1].

The mean and SD of age was 25.68 ± 2.03 . 86 (61.4%) of the internship were female, and 87 (62.1%) were single. The admission quota for 114 (81.4%) participants was free, and about 19% of them had used martyrs’ family or regional quota. 135 (96.4%) were full time, 84 (60.0%) lived in personal home and the other in the dormitory or student home. 95 (68%) of their parents had an academic background and a high job as a doctor or university professor. Finally, 129 (94%) students stated a Good financial situation [Table 1].

Mean \pm SD of clinical education was 28.99 ± 11.52 out of 66 that showed moderate level. Clinical education

Table 1: Demographic variables of the under-study participants

Variable	Frequency (%)	Mean \pm SD
Age	-	25.68 \pm 2.03
GPA	-	16.79 \pm 0.97
Gender		
Male	54 (38.6)	-
Female	86 (61.4)	
Marriage		
Single	87 (62.1)	-
Married	53 (37.9)	
Admission quota		
Free	114 (81.4)	-
Martyrs’ family	5 (6.3)	
Regional	21 (15)	
Student status		
Full time	135 (96.4)	-
Guest	2 (1.4)	
Transmitted	3 (1.2)	
Residency		
Personal home	84 (60)	-
Student home	37 (26.4)	
Dormitory	19 (13.6)	
Economic status		
Poor	11 (9.7)	-
Average	56 (40)	
Good	68 (48.6)	
Excellent	5 (6.3)	
Parental education		
Illiterate	11 (7.9)	-
Intermediate	14 (10)	
Diploma	20 (14.3)	
Undergraduate	66 (47.1)	
Postgraduated	21 (15)	
Physician	8 (5.7)	
Parental job		
Unemployed	10 (7.1)	-
Freelance	37 (26.4)	
Clerk	73 (52.1)	
University professors	4 (2.9)	
Doctor	8 (5.7)	
Other	8 (5.7)	
Clinical education quality	-	11.52 \pm 38.99
Academic achievement	-	14.94 \pm 147.61
Welfare facilities satisfaction	-	40.20 \pm 9.98
Academic motivation	-	81.51 \pm 8.73
Academic burnout	-	42.37 \pm 10.42

SD=Standard deviation, GPA=Grade point average

was significantly higher among those who had postgraduated parents ($P = 0.009$) and who lived in dormitories ($P \leq 0.001$).

Mean \pm SD of satisfaction with welfare educational facilities was 40.20 ± 9.98 out of 90 and was significantly associated with the parental job ($P = 0.04$), parental education ($P = 0.03$), economic status ($P = 0.004$), and residency [$P \leq 0.01$, Table 2].

Table 2: Demographic variables of the under-study participant's association with other variables

Demographic variable	Academic motivation		Clinical education quality		Satisfaction with welfare facilities	
	Mean±SD	P	Mean±SD	P	Mean±SD	P
Male						
Gender	9.76±80.83	0.481	30.76±12.99	0.128	40.02±11.47	0.873
Female	8.05±81.49		27.71±10.4		40.31±8.99	
Single						
Marriage	9.14±80.94	0.320	28±10.56	0.480	41.08±9.97	0.182
Married	8±82.45		29.43±12.09		38.75±9.92	
Admission quota						
Free	81.74±8.55	0.041	29.01±12.14	0.965	40.46±10.16	0.718
Martyrs' family	72±14.69		28.6±8.73		41±9.56	
Regional	82.57±7.03		28.29±8.53		38.57±9.37	
Full time						
Student status	81.46±8.88	0.921	29.03±11.64	0.640	40.21±10.06	0.935
Guest	83.5±2.12		21.50±4.95		42±4.24	
Transmitted	82.67±2.3		27.33±8.08		38.67±11.54	
Residency						
Personal home	80.15±8.86	0.029	28.1±10.67	0.001	39.01±10.17	0.013
Student home	82.41±7.59		26.24±9.47		39.73±8.17	
Dormitory	85.79±9.1		37.53±14.97		46.37±10.57	
Economic status						
Poor	74.82±11.67	0.003	23.91±8.9	0.330	29.91±10.78	0.004
Average	81.57±7.21		28.11±9.58		40.71±11.02	
Good	83.88±8.6		30.37±13.28		41.26±7.99	
Excellent	73±9.72		28.4±8.96		42.6±10.64	
Parental education						
Illiterate	78.73±12.51	0.035	29.36±11.03	0.009	34.91±15.3	0.034
Intermediate	83.57±7.34		23.93±7.06		35.50±8.78	
Diploma	84.65±9.84		26.95±14.08		42±9.14	
Undergraduate	81.92±6.61		28.86±11.38		39.74±8.9	
Postgraduated	76.57±10.43		36.43±8.7		44.1±9.9	
Physician	83.5±8.51		22.12±11.39		44.75±9.55	
Parental job						
Unemployed	76±13.8	0.005	28±11.42	0.255	33.80±15.9	0.045
Freelance	85.08±7.28		27.49±11.74		40.54±7.76	
Clerk	81.23±8.39		29.78±11.36		40.25±9.08	
University professors	74.75±0.95		27.75±3.2		50.5±11	
Doctor	83.5±9.07		22.12±11.29		44.75±9.55	
Other	75.88±3.31		35.62±13.21		36.50±13.91	

SD=Standard deviation

Pearson correlation showed that academic motivation had significantly correlated with academic achievement ($r = +0.38, P < 0.001$), academic burnout ($r = -0.43, P < 0.001$), and welfare educational facilities ($r = +0.18, P = 0.03$). Furthermore, the Pearson correlation showed that clinical education and welfare educational facilities were significantly correlated [$r = +0.21, P = 0.01$, Table 3].

The mean ± SD of academic achievement was 147/61 ± 14/94 out of 175 that indicating average academic performance. Academic achievement was significantly higher among students with a regional admission quota ($P \leq 0.001$). Mean ± SD of academic burnout was 42/37 ± 10/42 out of 90 and was significantly higher among students with Martyr's family quota [$P \leq 0.001$, Table 4].

Pearson correlation showed that academic achievement had significantly correlated with academic motivation ($r = +0.38, P < 0.001$) and academic burnout ($r = -0.34, P < 0.001$). Finally, Pearson correlation showed a significant correlation between academic burnout and motivation [$r = -0.42, P < 0.001$, Table 3].

Discussion

In a general conclusion about academic motivation, we can point to the higher than average level of motivation and its significant relationship with admission quota, housing status, economic status, and parental education and occupation. This variable had positively correlated with satisfaction with welfare facilities and inversely correlated with academic burnout.

Table 3: Correlations between variables of study

Correlations	Academic achievement	Clinical education quality	Academic motivation	Academic burnout	Satisfaction of welfare facilities
Academic achievement					
Pearson correlation	1	0.023	0.379**	-0.349**	-0.31
P		0.785	0.001	0.001	-0.72
Clinical education quality					
Pearson correlation	0.023	1	-0.061	-0.055	0.215
P	0.785		0.473	0.521	0.11
Academic motivation					
Pearson correlation	0.379**	-0.061	1	-0.426**	0.182
P	0.001	0.473		0.001	0.32

**P ≤ 0.05 regarded as meaningful.

Table 4: Demographic variables of the under-study participant's association with other variables

Demographic variable	Academic achievement		Academic burnout	
	Mean±SD	P	Mean±SD	P
Gender				
Male	13.67±147.69	0.961	10.01±43.19	0.466
Female	15.87±147.56		10.7±41.86	
Marriage				
Single	15.72±147.40	0.836	10.89±42.01	0.602
Married	13.71±147.94		9.67±42.96	
Admission quota				
Free	16.64±149.08	0.001	8.61±41.8	0.001
Martyrs' family	8.98±125.6		16.92±67.6	
Regional	13.51±144.86		10.44±39.48	
Student status				
Full time	14.92±148.03	0.092	10.40±42.25	0.139
Guest	8.48±147		7.07±35	
Transmitted	5.19±129		7.5±52.67	
Residency				
Personal home	15.57±147.77	0.984	10.11±41.63	0.592
Student home	15.02±147.24		10.54±43.46	
Dormitory	12.45±147.58		11.79±43.53	
Economic status				
Poor	7.95±139.55	0.170	6.44±43.45	0.984
Average	13.56±164.55		9.74±42.21	
Good	16.77±149.41		11.77±42.38	
Excellent	8.98±152.6		6.1±41.6	
Parental education				
Illiterate	11.48±145.45	0.553	7.7±40.91	0.600
Intermediate	11.32±146.86		10.07±40.57	
Diploma	15.48±146.7		8.59±45.30	
Undergraduate	15.74±147.91		9.9±41.91	
Postgraduated	14.89±145.52		15.69±44.19	
Physician	17.15±157.12		3.41±39.25	
Parental job				
Unemployed	11.08±143	0.414	7.27±42.5	0.814
Freelance	13.88±149.03		8.06±41.05	
Clerk	16.21±146.67		12.55±43.27	
University professors	4.61±144		1.5±40.25	
Doctor	17.15±157.12		3.41±39.25	
Other	10.79±147.62		9.19±44.25	

SD=Standard deviation

Students who did not use any quota in the admission exam were at the highest and inverse, students with the martyrs' families quota, were at the lowest level of motivation. Furthermore, students living in dormitories and those parents who had an academic education were more motivated than others.

In the Bakhshandeh study,^[36] half of the students had a higher than average academic motivation. Furthermore, there was a significant relationship between motivation and marriage. In our findings, the motivation was above-average, and no relation had not seen with marriage.

In Hossein Abadi's study, there was a significant relationship between academic motivation and GPA, age, gender, parents' education, educational welfare facilities, and the quality of educational factors. In the present study, motivation had a significant relationship with parental education and satisfaction with welfare facilities.^[37] He also acknowledged the inverse relationship between academic motivation and academic burnout, which confirms the results of our study.

Furthermore, Yousefi had pointed to a significant relationship between academic motivation and academic performance,^[13] which is consistent with the results of our study. However, nondormitory students were more motivated, which is contrary to the findings of the present study.

In Naseh's study, academic motivation had a significant relationship with age, gender, parents' education, educational-welfare facilities, and educational quality.^[23] In our study, motivation had a significant relationship with parents' education and satisfaction with welfare facilities. However, age and gender did not affect academic motivation.

In our study, the quality of clinical education is moderate, housing status, parental education, and satisfaction with

welfare educational facilities are significantly related to quality. Rezaei had acknowledged a medium level of quality in his study.^[21]

Anbari had acknowledged that clinical educational quality and methods, educational environment facilities, staff cooperation, and training program content were at the middle^[38] that confirm our findings.

Salmani had concluded that in assessing the areas of professors, student personal characteristics, curriculum, staff, and clinical environment, the main barrier affecting educational quality, was related to the clerk and Clinical situation. It is vital that providing equipment and facilities and creating the necessary coordination between students and clerks can overcome this obstacle.^[39] These findings are also consistent with the result of our study on the correlation between the quality of clinical education and satisfaction with educational facilities.

Assessing the Student's satisfaction as customers of the educational system has a vital role in evaluating the performance and educational activities of the university. Unfortunately, in the present study, the satisfaction of clinical students with welfare educational facilities has been assessed at a weak level. Dormitory students, good economic status, and educated parents had expressed higher satisfaction with the welfare educational facilities. Faizi, "the study of Student's satisfaction and the related factor" had concluded that the average levels of overall and the lowest level of satisfaction were the result of the services of the Department of Education.^[22]

In the studied students, the rate of academic achievement was moderate and acceptable and had no significant relationship with any of the demographic variables except the admission quota. Sadeghi had concluded that residence, GPA, employment, nativeness, Socioeconomic status, self-esteem, depression, and IQ, were significantly associated with academic achievement.^[40]

Nohi had concluded that by strengthening the motivation for achievement, we increase students' academic success^[41] which confirms the positive correlation between these two variables in the present study. Academic achievement had a positive correlation with academic motivation and an inverse correlation with academic burnout.

On the other hand, the rate of academic burnout was also reported above average and had a significant relationship with the admission quota. Students with free quota showed higher levels of academic performance and lower burnout than others. Fallahchai also had examined the

relationship between burnout and academic achievement and had concluded that a significant percentage of students experience burnout.^[42] which is in line with the results of the present study.

Limitation and recommendation

The limitations of the study include unresponsive to the questions of the self-report questionnaires correctly, which was solved by assuring the students about the anonymity of the questionnaire and the confidentiality of the information. The second limitation is the lack of uniform perception of the items of the questionnaire, which was obtained with a complete explanation by the project partner. Hence, it is recommended to re-research after the necessary corrections based on the findings of the present study, re-research after the corona epidemic and complete and comprehensive resumption of training and full-time attendance of students in clinical education settings, re-conduct a study with a larger sample size.

Conclusion

According to our finding and based on the relatively high level of dissatisfaction with welfare facilities, measures such as the use of up-to-date teaching aids, upgrading the educational infrastructure, employ young and more staff in the educational services department can Improve student satisfaction as customers of the educational system in this area.

Furthermore, using appropriate educational methods, conducting developmental assessments continuously, using simulated environments, and improving students' motivation levels as effective strategies, can improve the quality of clinical education factors.

To create protective factors against academic burnout and improve the quality of clinical education, and academic achievement, we should perform the necessary schedule to raise a positive attitude toward the field of study, more hope, and vitality in the educational environment. Based on the results of this study, it is suggested, corrective measures will take, so the results will be re-evaluated.

Given the very high level of burnout in our students, it is essential to conduct further studies to find the possible causes of burnout and look for ways to alleviate the situation. To better understand the leading causes, we need to conduct complementary studies, mainly qualitative surveys such as structured interviews or panel interviews, which may give more in-depth insight into the causes of the high prevalence of burnout.

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Ethical consideration

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) had been completely observed by the authors.

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Conflict of interest

There are no conflicts of interest.

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