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Academic Motivation among Medical Students of Peshawar via Cross-Sectional Study

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Abstract

Introduction: Motivation, the general desire for a person to commit to an act, is an essential topic of medical research.

Objectives: To evaluate medical student motivation, compare levels across five study years, and investigate gender variations in motivation.

Methodology: In this cross-sectional study, 390 undergraduate medical students of Peshawar participated. The Academic Motivation Scale (AMS) was used: a 28- item questionnaire measuring students' academic motivation. SPSS Version 20 was used to analyze the data.

Results: Only 18% of students came out to be motivated compared to 82% of students who were motivated. Among motivated students, 42.7% of medical students were extrinsically motivated and 39.4% were intrinsically motivated. In both genders, extrinsic motivation scores were slightly higher than intrinsic motivation. The overall results of our study indicate that women are more motivated than men. The results revealed that students are highly motivated in their second and fourth years, while they are less motivated in their final year.

Conclusion: Our research concludes that medical students in Peshawar were most typically motivated to study because they believe that their degree would enable them to effectively prepare for their desired careers and lead a more comfortable life in the future.

Keywords: academic motivation scale; motivation level; medical students; Peshawar.

Introduction

Medicine is infamously known as one of the most challenging programs to step into. It is presumed that only individuals with incredible determination and passion are at the forefront of fresh medical school admissions, as only such characters can endure the journey through medicine [1]. However, the attrition rate of Pakistani medical schools is at an alarming 16%, and a lack of motivation is one of the main culprits [2].

Motivation, the general desire for a person to commit to an act, is an essential topic of medical research. Previous studies showed that the higher the level of motivation in students the better their quality of learning, persistence, and performance [3], and the less likely they are to drop out. On the opposite end of the spectrum is amotivation. This is defined as the complete absence of any type of motivation. According to self-determination theory, there is a relation between the quality of motivation and the role of self-determination and controlled behavior in the academic environment and proposes a multidimensional structure i.e. behavior can be amotivated, extrinsically motivated, or intrinsically motivated [4].

To our knowledge, no previous research has been done on the topic in Peshawar, and a thorough scan of online databases showed very few articles on the subject in Pakistan. Therefore, our study attempts to assess the motivation level of medical students of Peshawar, to evaluate the difference in motivation levels among two genders: male and female, and to determine motivation levels among the different years of the study.

According to a prior study on the topic by Kasurker [5], we predict that females will be more intrinsically motivated than males in medical school, primarily based on the fact that the female to male ratio in medical schools has drastically changed, with women outnumbering men [6]. We also anticipate that the younger students will have less motivation as compared to the older students, as shown in the Australian study stating that only 52% of medical school admissions had the drive to pursue medicine. At the same time, the rest were there for other reasons such as parental pressure, not knowing what else to do, and a passion for biology and some did not know at all [7].

We hope this research on motivation assists in bringing awareness to the topic, especially in the medical community of Pakistan. In addition, this exists to incite discussions on new ideas and improvements to the

curriculum to keep students engaged and determined. Consequently, this is also to benefit students in being more self-aware and enhance their health care delivery, and help teachers equip themselves with the knowledge to support their student's motivation.

Materials and methods

This research was conducted by students at Khyber Girls Medical College, Peshawar to measure the academic motivation levels of students at six medical colleges in Peshawar. The colleges include:Khyber Girls Medical College (KGMC), Khyber Medical College (KMC), Rehman Medical College (RMC), Northwest School of Medicine (NWSM), Peshawar Medical College (PMC), Kabir Medical College (KMC). Data was collected from 23rd June 2022 to 7th July 2022. A sample size calculator called "Population Proportion Sample Size" was used to calculate the sample size. A sample size of 383 came out with a 5% error and 95% confidence interval with a 100,000 population size. The non-probability, convenience sampling technique was adopted, consisting of selecting subjects based on their easy availability to participate in the study.

Undergraduate medical students of KGMC, KMC, RMC, NWSM, PMC, and KMC were included in the study. Medical students who did not fill out the questionnaire were excluded from the study. It was a cross-sectional study that assesses data from a population at a specific point in time. Although the sample size was 383, the questionnaire was filled by 390 students. All the responses were included in the study. An equal number of responses were taken from all five academic years, 78 from each class. Each class' responses were divided into two equal strata: male and female (39 males and 39 females from each class). A questionnaire was created using Google Forms. The questionnaire consists of two parts: a demographic section and a 28-item Academic Motivation Scale (AMS, AMS-C-28, Vallerand, et al., 1992).[8] A five-factor version of the study questionnaire was used.[9] First, a pilot study was conducted on 24th June 2022 on 10 students from KGMC, to ensure there were no mistakes in filling out the survey, and corrections were made accordingly. Data from the pilot study was not included in the final analysis. The study questionnaire along with the informed consent form was distributed among the students of the colleges through online applications. The respondents' level of motivation was assessed by 28 questions; each of these questions had possible answers arranged in five-point Likert scales. Points in the Likert scale were assigned as follows: 1 = does not correspond at all, 2,3 = corresponds a little, 4 = corresponds moderately, 5,6 = corresponds a lot, and 7 = corresponds exactly. These points were used to calculate the mean and standard deviation. In the AMS scale, the components of motivation are:

know= intrinsic motivation to know
acc= intrinsic motivation to accomplishments
stim= intrinsic motivation to experience stimulation
iden= extrinsic motivation to identification
intro= extrinsic motivation to interjected regulation
reg= extrinsic motivation to external regulation

The mean motivation score difference between male and female students and the mean motivation score difference for different medical years were obtained by using SPSS Version 20.

Informed consent

Informed consent has been obtained from all individuals included in this study.

Ethical approval

Ethical approval was obtained from the Institutional Review Board of Khyber Girls Medical College, Peshawar, Pakistan.

Results

The study included 390 undergraduate medical students, 139 males, and 139 females. A total of 39 students were taken from each year. AMS was used to calculate motivation levels among medical students of Peshawar.

Overall population

The statement "Because I think that a college education will help me better prepare for the career I have chosen" got the highest response rate with a mean of 5.67±1.657. The statement "I don't know; I can't understand what I am doing in school" got the lowest response rate with a mean of 2.65 ±1.972.

Table 1: shows the mean, median, mode, and standard deviation calculated from the AMS scores of the overall population.

	Motivation	Intrinsic	Extrinsic
Mean	2.7135	4.7579	5.1553
Median	2.25	4.9167	5.3333
Mode	1	5.42a	5.50a
SD	1.60237	1.24883	1.19987

SD: Std. Deviation

According to data, extrinsic motivation came out to be higher with a mean score of (5.15 ± 1.19) than intrinsic motivation which got a mean of (4.75±1.24). Overall mean AMS scores came out lowest for the amotivation (2.713±1.602).

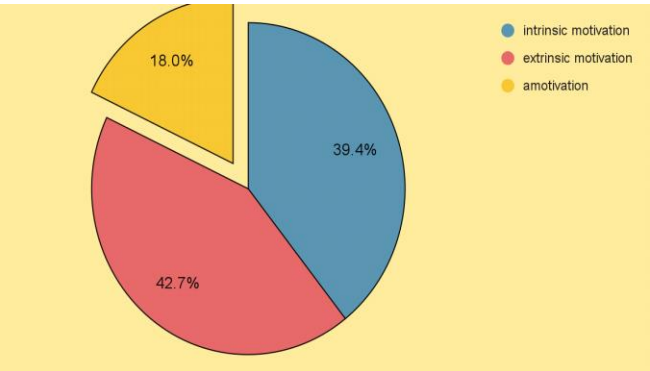

Figure 1: Pie chart showing percentages of intrinsic motivation, extrinsic motivation, and amotivation in the whole population.

Only 18% of students came out to be amotivated compared to 82% of students who were motivated. Among motivated students, 42.7% of medical students were extrinsically motivated and 39.4% were intrinsically motivated.

Table 2: Shows mean scores for each component of AMS

in the overall population.

	Mean	Std. Deviation
know	5.1212	1.33998
acc	4.7712	1.36202
stim	4.3814	1.35463
iden	5.4679	1.22878
intro	4.6859	1.57086
reg	5.3122	1.46153
amo	2.7135	1.60237

**Where; Know = intrinsic motivation to know, accc= intrinsic motivation to accomplishment', stim=intrinsic motivation' to experience stimulation, iden=extrinsic motivation to identification, intro=extrinsic motivation to introjected regulation , reg=extrinsic motivation to external regulation and amo= Amotivation.*

In the overall population, as extrinsic motivation percentage was highest, 'extrinsic motivation to identification' got a higher AMS score (5.46±1.22) while in intrinsic motivation, 'intrinsic motivation to know' got the highest mean AMS scores (5.121±1.33). Amotivation got the least score i.e 2.713±1.602.

Motivation and Gender

In both genders, extrinsic motivation scores were slightly higher than intrinsic motivation. Extrinsic motivation in females has a mean of 5.194 ±1.10303 and males with a mean of 5.1167±1.29117. In females, intrinsic motivation scores have a mean of 4.84629±1.14773 as compared to males who have an intrinsic motivation of 4.6697±1.339. In gender comparison, intrinsic motivation (50.4%) and extrinsic motivation (50.4%) turned out to be more in females than males (49.1%) and (50.9%) respectively. While amotivation is more in males than females with a mean of 2.936±1.678240 (53.9%) and 2.5000±1.49677 (46.1%) respectively. The overall results of our study indicate that women are more motivated than men.

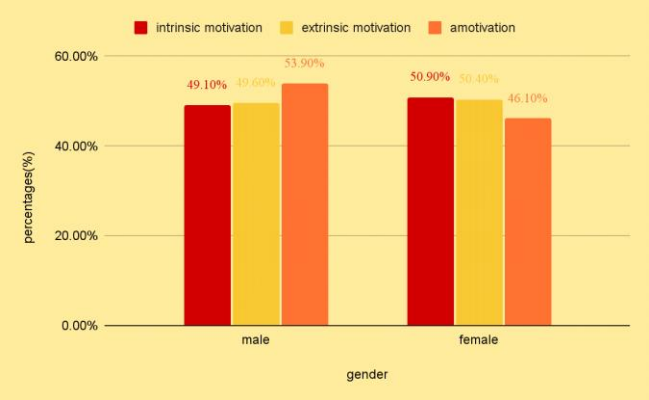

Figure 2: Comparison of mean AMS scores for different types of motivation among gender groups.

Scores for 'intrinsic motivation to know',' intrinsic motivation to the accomplishment',' intrinsic motivation to experience stimuli', and 'extrinsic motivation to identification' are slightly higher among female students than males. 'Extrinsic motivation to introjected regulation' and 'to external regulation' is the same for both males and females.

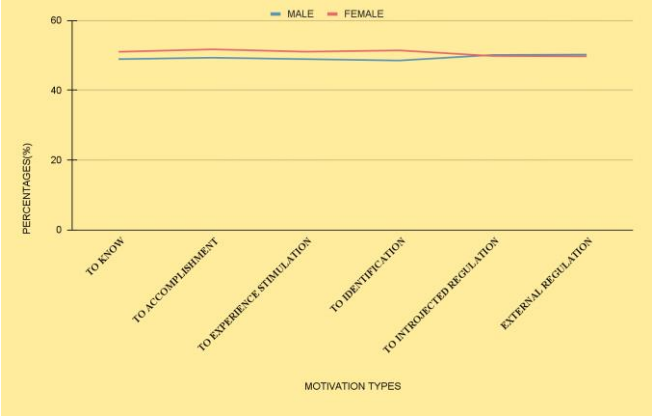

Figure 3: Comparison of different components of motivation between gender groups.

Motivation and year of study

Intrinsic motivation levels are almost the same for 1st year, 2nd year, and 4th-year students (mean AMS scores are 4.8±1.1, 4.8±1.2, and 4.8±1.2 respectively) which turned out to be the highest value among different years of study. A comparative analysis of student intrinsic motivation scores showed low intrinsic motivation among 3rd-year students (4.7083±1.23776) and lowest intrinsic motivation among final-year students (mean AMS scores 4.46±1.36).

Extrinsic motivation levels have almost the same result as intrinsic motivation. Based on the AMS data, 2nd and 4th-year students had the highest mean average of 5.30±0.95 and 5.34±1.24 respectively. For the 1st year, the AMS score was 5.1795±1.28, for the 3rd year, it was 4.9925±1.18, and the lowest score was 4.96±1.28 for the Final year.

Amotivation is highest among final-year students, with average AMS scores of 3.05±1.64. 2nd-year students are least amotivated with average AMS scores of 2.36±1.51. 1st year, 3rd year, and 4th year got AMS scores of (2.7949± 1.59073),(2.8397±1.63811), and (2.5128±1.57233) respectively. The results revealed that students are highly motivated in their second and fourth years, while they are less motivated in their final year.

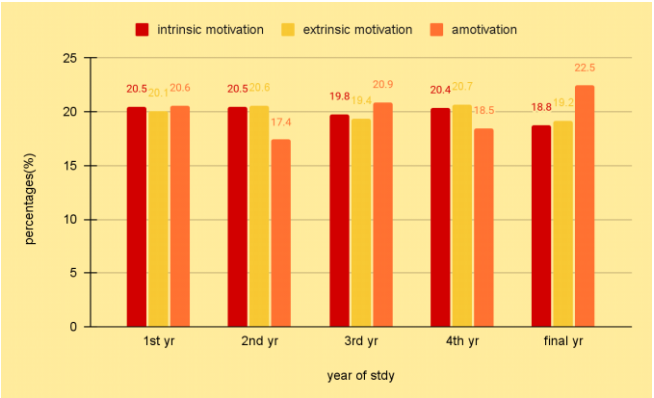

Figure 4: Comparison of mean AMS scores for different types of motivation among years of study.

Intrinsic motivation to know is highest among 2nd year students (5.359±1.31) and lowest among final year students (4.74±1.45). Intrinsic motivation for accomplishment is high among 2nd-year and 4th-year students (4.88±1.3) and low among final-year students

(4.48±1.44). Intrinsic motivation for stimulation is high among both 1st and 4th-year students (4.51±1.3). Extrinsic motivation to identification is higher among both 2nd-year and 4th-year students (5.51±1.1) and low among final-year students with mean AMS scores of 5.20±1.3.

Extrinsic motivation for introjected regulation is highest among 1st-year students (4.96±1.46) and lowest among final-year students (4.42±1.60).Lastly, extrinsic motivation for external regulation is seen to be higher among 2nd-year and 4th-year students (5.51±1.5) and lowest among 1st-year students (5.04±1.58).

Table 3: Comparison of different components of motivation among study years using mean AMS scores.

		know	Acc	stim	Eden	intro	reg
FIRST YEAR	Mean	5.1474	4.9519	4.5192	5.5321	4.9615	5.0449
	Std. Deviation	1.27694	1.17886	1.37449	1.24731	1.46112	1.58716
	% of Total Sum	20.10%	20.80%	20.60%	20.20%	21.20%	19.00%
SECOND YEAR	Mean	5.359	4.8846	4.4167	5.6442	4.6827	5.5769
	Std. Deviation	1.31771	1.35242	1.36138	1.10747	1.64093	1.40633
	% of Total Sum	20.90%	20.50%	20.20%	20.60%	20.00%	21.00%
THIRD YEAR	Mean	5.1763	4.6635	4.2853	5.3462	4.4615	5.1699
	Std. Deviation	1.25816	1.48522	1.2841	1.23019	1.60158	.33174
	% of Total Sum	20.20%	19.50%	19.60%	19.60%	19.00%	19.50%
FOURTH YEAR	Mean	5.1763	4.8718	4.5256	5.6122	4.8974	5.516
	Std. Deviation	1.34183	1.30231	1.31277	1.19906	1.5024	1.50235
	% of Total Sum	20.20%	20.40%	20.70%	20.50%	20.90%	20.80%
FINAL YEAR	Mean	4.7468	4.484	4.1603	5.2051	4.4263	5.2532
	Std. Deviation	1.45411	1.44899	1.43358	1.32395	1.60463	1.43331
	% of Total Sum	18.50%	18.80%	19.00%	19.00%	18.90%	19.80%

**Know = Intrinsic motivation to know, acc= Intrinsic motivation to accomplishment, stim= Intrinsic motivation to stimulation, iden= Extrinsic motivation to identification, intro= extrinsic motivation to interjected regulation ,reg= extrinsic motivation to external regulation*

Discussion

Self-determination is defined as the process in which an individual is in control of their decisions and actions. This vast topic has been explored by psychology researchers all around the world for the very concept of being human is to be free to make choices and control their own life. As more research was done on the topic, three ideas emerged to be the main contributors to self-determination; connection, competence, and autonomy [10].

The AMS scale is perhaps the most widely used tool worldwide to assess the motivation of students and it can be taken in various languages [11]. The questionnaire was conducted in English in our study as all the students had a high level of English proficiency. According to our results, the most popular reasons for undergraduate medical students for choosing medicine as a career were: 'because I think that a college education will help me better prepare for the career I have chosen (5.67 ∓ 1.657). A study conducted in the Azad Kashmir region of Pakistan had the same reason for motivation as their second highest mean. The statement: 'Because this will help me make a better choice regarding my career orientation' ranked first. This could be because the participants in the study were medical students, who, due to the intense competition before entering, tend to be more engaged in learning and confident in their career choice [12]. This echoes the results of our study: Pakistani students are concerned for their future regarding their careers and this is their main motivation for studying.

Due to differences in cultural values and work ethic, the motivational components are different for other countries. According to a study done in Egypt by Kabil NS et al, status is the most important motivator for selecting a career in medicine, followed by financial stability [13]. Altruism was the most prevalent motivational component among medical students in a study by Narayanasamy et al of India [14].

'I don't know; I can't understand what I am doing in school' was the least popular response with a mean of 2.65 ± 1.972. MBBS is one of the most difficult degrees in the world. Students are required to work diligently from the start and absorb vast volumes of data over a dauntingly long period of time. This can take a toll on one's mental health and ebb away their motivation level [15].

Other reasons for feeling a lack of motivation could be: financial constraints – most students take out huge loans in order to fund their studies and rent; lack of work-life balance – some students have not yet mastered the art of time management which could lead to burn out and stress. Sudden deterioration of health of the students or their family members may lead to reevaluation of their priorities, where medical school is not on top [16].

Gender may seem to affect the motivation levels of students. In our study, the results showed that females were more motivated than males. Intrinsic (50.4%) and extrinsic motivation (50.4%) turned out to be higher in females than in males who showed (49.1%) and (50.9%) respectively. The difference is slight but notable and akin to previous research. In the 2010 study conducted by Kusurkar et al [5], the author found that females showed a tendency to be more motivated and that it may be because they mature earlier than males, although more research needs to be done.[5] In the previous study in Azad Kashmir, the authors noted no significant difference between the two genders [12]. The disparity between our results and the previous may be due to the basis that they held their study in only one college whereas our results came from multiple medical colleges throughout Peshawar. Other studies that have researched the

difference in motivation scales between the genders also support our results. A notable study by Vallerand and Bissonette concluded that females would be more intrinsically motivated than males, and intrinsic motivation is likely to yield greater results [17]. This was similar to our result. In a cross-institutional study [18], the authors noted that females show more external motivation than males in lecture-based settings. Also described in our study was that amotivation was more in male students than in females with mean figures of 2.936±1.678240 (53.9%) and 2.5000±1.49677 (46.1%) respectively. The concurrence of our results with previous research makes it safe to presume that female medical students are more motivated than male medical students.

The year of study seems to play a significant role in motivation levels. Our hypothesis predicted that younger students would show more motivation as compared to older students in higher years based on the fact that recently selected medical students would feel more competent and connected to the study. However, our results showed that the highest motivation levels were seen in 4th-year and 2nd Year medical students and the lowest was in 5th-year students, with the lower 1st, and 3rd years showing variations in the middle. The 4th year and 2nd Year students scored the highest AMS score for intrinsic and extrinsic motivation while Final year students had the lowest mean score for both. In a study conducted in Azad Kashmir, there were fluctuations in the results between the years so no notable comparison can be made. On the other hand, a study conducted in the Netherlands by Wouters described how recently selected Year 1 medical students showed more motivation as compared to Year 4 students [19]. This study supports our results because in our research the final year medical students also felt significantly less motivated than their junior peers. In our results, Amotivation was highest in Final Year students with mean AMS scores of 3.05 1.64. This may be due to the uncertainty of the future after graduation, and medical students experiencing anxiety and stress over finding the correct and desirable career path for themselves post-grad [20]. Another study on Lebanese medical students showed that final-year students also had the lowest level of autonomous motivation, very similar to our results [21]. The peculiar variation in our study as compared to other research is that the 4th-year medical students showed the greatest level of motivation. We infer it may be due to the introduction of more notorious subjects such as Ophthalmology and Clinical Pathology as well as more hands-on experience in a hospital setting as clinical rotation hours increase by the 4th year. These factors expose the 4th-year students to engaging and interesting situations which may increase their autonomy for medicine, as a result increasing their motivation. In contrast to the 5th year, the 2nd year students in our study showed the least level of amotivation according to the AMS scoring. We infer this may be because after enduring a year of medical school, the students are more comfortable and accustomed to the studies. More research is needed to investigate the reasons behind different motivation levels based on the year of medical study to conclude any reasoning behind our findings.

In our study a total of 390 students were included and overall, 82% of the students were motivated while only 18% of the students were amotivated. Extrinsic motivation had the highest mean AMS score 5.15 ± 1.19. This means that most students throughout medical school were driven by external rewards such as praise, recognition, or money. Or, as also on the extrinsic regulatory continuum, they feared failure or punishment. Intrinsic motivation yielded an AMS score of 42.7% of the overall population indicating that these students got inherent satisfaction from studying in medical school.
Since our study on Motivation levels was conducted for Peshawar medical students only, the results do not accurately represent all Pakistan medical students, creating a limitation and should therefore not be generalized. Although one other study was conducted in Azad Kashmir, Pakistan using the AMS there are still various fluctuations between results that can be further explored in Pakistan. Another limitation to our study is the use of non-probability sampling, as we cannot control the margin of error. It is recommended that similar studies should be conducted throughout other institutions. The AMS is an easy-to-use scale available for research purposes and can be utilized to assess students in Pakistan.

Conclusion

According to our research, medical students in Peshawar were most typically motivated to study because they believe that their college education would enable them to effectively prepare for their desired careers and lead a more comfortable life in the future. As for gender, it was seen that females were more motivated than males and the most motivated year groups of the study were both 2nd year and 4th year with the final year being the least motivated. Further research should be conducted in this area of study.

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AI Disclosure

No AI and AI-assisted tools were used in this study.

Conflict of interest

The authors state no conflict of interest.

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