

Unraveling Motivation: What Drives Medical Students to Perform at Their Best?

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Abstract

Background: Given the rigorous and demanding nature of medical education, understanding student motivation is crucial for educators and policy makers to optimize learning environments and effectively cultivate future doctors. Hence this study was aimed to identify the predominant type of motivation among phase I medical students, including their subscales along with the gender-based variations in motivational drives. **Materials and methods:** This cross-sectional study was conducted among 100 phase-I MBBS students at a tertiary medical college. The validated Academic Motivation Scale - College version (AMS-C 28) was used for identifying the motivational profile of the students. Data was analysed using IBM SPSS version 27. Mean scores were calculated using the AMS-C scoring key to determine the distribution of students across motivational types and their subscales. Fisher's exact test was used to find association between gender and motivational types. $p < 0.05$ was kept as significant. **Results:** The study included 100 phase I MBBS students, comprising 63 females and 37 males. The mean age of the participants was 19.35 ± 0.88 . In our study, the majority of the students were extrinsically motivated (64%), with identified regulation being the most frequent extrinsic motivation subscale (51.5%). Intrinsically motivated students constituted 30% of the sample. Additionally, 5% of participants demonstrated both intrinsic and extrinsic motivation, while 1% reported amotivation. No significant association was found between students' motivational type and gender. **Conclusion:** Medical students exhibit distinct motivational profiles. By acknowledging and addressing these individual motivational differences, educators can create more effective pedagogical strategies that leads to enhanced learning and professional satisfaction.

Keywords: Academic motivation, medical education, medical students

Introduction

Motivation is the internal process that initiates, directs, and sustains goal-oriented behaviour. It is the driving force that propels individuals to take action, pursue goals, and achieve desired outcomes. Motivation plays a crucial role in students' learning and academic performance.

According to Deci and Ryan's Self-Determination Theory, motivation can be categorized into three constructs: amotivation, intrinsic motivation, and extrinsic motivation ^[1]. Building on the framework established by Self-Determination Theory, Vallerand *et al.* developed a comprehensive measure of academic motivation -the Academic motivation Scale (AMS). This scale evaluates different types of motivation that drive academic behaviours. The Academic Motivation Scale - College Version (AMS C-28) is a modified version of this scale to assess the different types of motivation that influence college students' academic behaviours. It includes 28 items that allow for the measurement of these motivational constructs,

providing a detailed understanding of how students' motivation may vary across different academic and personal contexts.

Vallerand's Academic Motivation Scale (AMS) delineates three distinct forms of intrinsic motivation: intrinsic motivation to know, intrinsic motivation to accomplish and intrinsic motivation to experience stimulation. Intrinsic motivation to know, is when the pleasure of learning and understanding motivates individuals to acquire new knowledge. Intrinsic motivation to accomplish refers to the satisfaction derived from the process of creating or achieving something. The focus is on the inherent reward and the outcome, and the intrinsic motivation to experience stimulation involves engaging in activities for the sensory or aesthetic pleasure they provide.

Extrinsic motivation is also further broken down into 3 subscales encompassing external regulation, introjected regulation and identified regulation. External regulation is the most external form, where behaviour is driven by external rewards or punishments. Introjected Regulation is when individuals internalize external pressures but without fully accepting them. Identified regulation

represents a more internalized form of extrinsic motivation. Individuals perform an activity because they recognize its value and align it with their personal goals, even if the activity itself isn't inherently enjoyable. Amotivation is the lack of perceived intrinsic or extrinsic motives in relation to one's activities [2].

Numerous factors influence an individual's decision to pursue a career in medicine. Medical students' drive to become doctors stems from a complex interplay of factors, including the pursuit of social status, a deep intellectual curiosity, and the potential for personal validation [3]. These factors, coupled with the demanding nature of medical education, underscore the critical role of motivation in successfully navigating the path to becoming a doctor.

Medical education typically requires years of rigorous study, clinical practice, exams, and a continual push to master complex topics, all while balancing practical and emotional demands. The motivation of students can be shaped by many factors, and understanding these can help educators create environments that foster stronger engagement and achievement. Research on academic motivation among Indian medical students, while growing, remains relatively limited. Understanding these motivational drivers is crucial for educators and policymakers to optimize medical education and support the development of future generations of doctors. This study was designed to identify the dominant motivational profiles of phase I medical students, including their subscales with a particular emphasis on examining gender-based variations in motivational drives.

Methods

This cross-sectional study was conducted in a private medical college in south India after obtaining approval from institutional ethics committee. Our study was mainly focused on Phase I MBBS students as we aimed to assess their motivational profile at the entry level into medical school. All 100 eligible Phase I MBBS students were provided with a detailed information sheet and gave informed written consent to participate, resulting in a 100% participation rate.

General demographic information, including age and sex was collected from all participants. The validated AMS -C 28 questionnaire was used to determine the motivational orientation of newly admitted MBBS students. The scale provides both a general measure of academic motivation and insights into the various dimensions of motivation that drive student academic behaviours. The scale consists of 28 items with a 7- point Likert (1= doesn't correspond at all ,2-3 = corresponds a little ,4 = corresponds moderately,5-6 = corresponds a lot, 7 = corresponds exactly). The items are arranged into seven subscales with 4 items belonging to each subscale.

1. Intrinsic motivation - to know
2. Intrinsic motivation - to accomplish
3. Intrinsic motivation - to experience stimulation

4. Extrinsic motivation - External regulation
5. Extrinsic motivation - Introjected regulation
6. Extrinsic motivation - Identified regulation
7. Amotivation

The AMS C-28 was administered to students in paper format. Participants were provided with clear instructions on how to complete the scale and given an explanation of the study's purpose. Scoring was conducted according to the AMS C-28 scoring key. Scores were calculated for each of the seven subscales, with higher scores indicating greater levels of intrinsic motivation, extrinsic motivation, or amotivation.

Statistical analysis

The data collected from the Academic Motivation Scale - College Version (AMS-C 28) was entered in MS Excel, and statistical analysis was done using IBM SPSS version 27. To determine which type of motivation the students were oriented toward, the mean scores for each motivational dimension was calculated. The type of motivation with the highest mean score for each student was considered their predominant motivational orientation. The results were presented as frequencies and percentages of students belonging to each motivational group. Additionally, to explore potential gender differences in motivational patterns, Fisher's exact test was used to assess the distribution of motivational orientations (intrinsic, extrinsic, and amotivation) across male and female students. p value <0.05 was considered to be significant. We have also assessed to which specific subscales of intrinsic and extrinsic motivation students are most strongly aligned with. The subscale with the highest mean score for each student indicates the type of motivational subscale they are most strongly aligned with. This data was presented as a frequency distribution of students belonging to each subscale, to highlight the most prevalent dimensions of intrinsic and extrinsic motivation within the sample.

Results

Demographic characteristics of study population

The study population consisted of 100 Phase I MBBS students, out of which 63 were females and 37 were males. The mean age of the population was 19.35 ± 0.88 .

Academic Motivation of the participants

Students' academic motivation was assessed using the validated AMS-C 28 questionnaire. Based on the response to the AMS C-28, the students belonged to 4 different types of motivation -intrinsic motivation, extrinsic motivation, both intrinsic & extrinsic motivation, amotivation (**Figure I**).

Table I shows the percentage distribution of students across the different subscales of motivation. Some students have shown to belong to 2 different subscales of a motivation type.

Table II summarizes the effect of gender on the type of motivation.

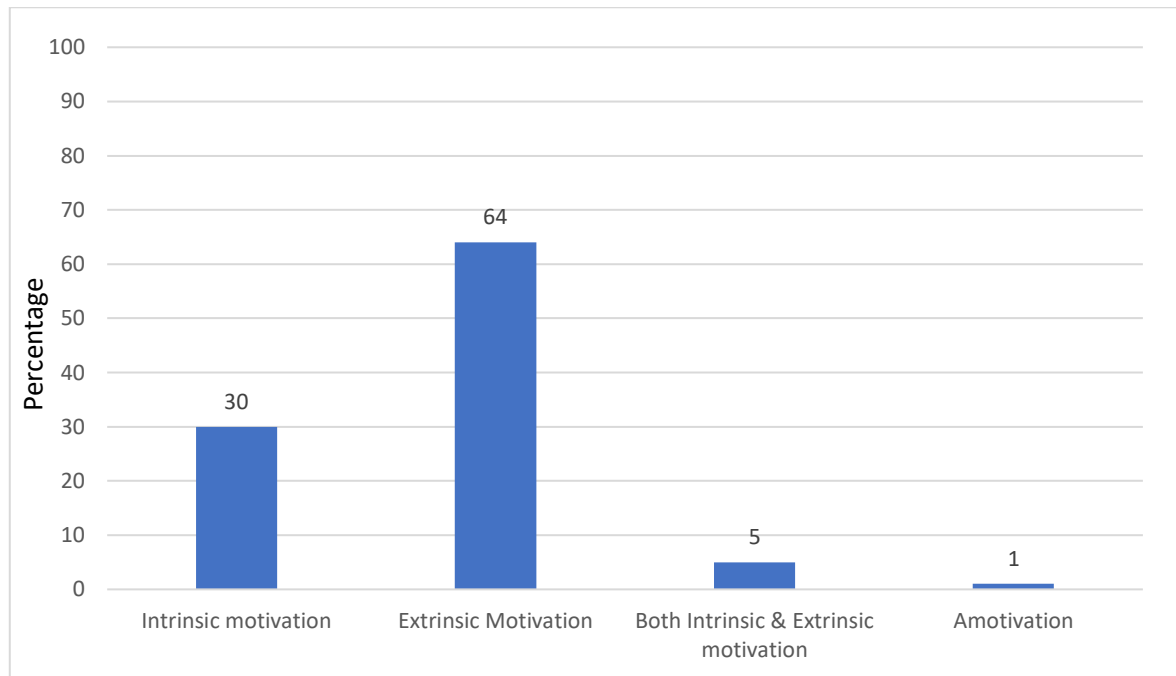


Figure 1: Distribution of motivation types among study population (n=100)

Table I: Participant distribution across motivation subscales

Motivation type	Subscales	Frequency (n)	Percentage (%)	Total (n)
Intrinsic motivation (IM)	IM-To Know	22	73.3%	30
	IM-To Accomplish	3	10%	
	IM- To experience stimulation	0	0%	
	IM -To Know&To Accomplish	4	13.3%	
	IM-To Know & IM-To experience stimulation	1	3.3%	
Extrinsic motivation (EM)	EM - Identified regulation	34	51.5%	64
	EM - External regulation	17	27.3%	
	EM - Introjected regulation	2	3%	
	EM - External & Identified regulation	10	16.7%	
	EM - Identified & Introjected regulation	1	1.5%	
Both Intrinsic & extrinsic motivation	IM-To Know & EM- Identified Regulation	3	60%	5
	IM -To Know & EM – External Regulation	2	40%	
Amotivation		1	100%	1
				100

Table II: Association between motivation types and gender

Gender	Intrinsic motivation n(%)	Extrinsic Motivation n(%)	Intrinsic & extrinsic motivation n(%)	Amotivation n(%)	Total n(%)	Fisher's exact test p value
MALES	10 (27%)	26(70.3%)	1 (2.7%)	0 (0%)	37(100%)	0.795
FEMALES	20(30.8%)	38 (60.3%)	4 (6.2%)	1 (1.5%)	63(100%)	
Total	30 (30%)	64 (64%)	5 (5%)	1 (1%)	100(100%)	

Discussion

Motivation plays a vital role in medical education, as it drives learning, academic achievement, commitment to the profession, and the development of professional identity [4,5]. Assessing motivation at the point of entry into medical school is particularly important, as students are typically enthusiastic and have not yet been significantly affected by the chronic stressors of medical training. This study aimed to identify the predominant types of motivation among Phase I MBBS students. The Academic Motivation Scale College Version was used to identify students' academic motivation profiles.

In our study, majority of students (64%) were found to be extrinsically motivated (Figure 1). Out of the 64 students who showed extrinsic motivation, 34 (51.5%) demonstrated extrinsic

motivation by identified regulation (Table I). Extrinsic motivation by identified regulation, as measured by the AMS C-28 scale, refers to engaging in academic activities because one personally values them and sees them as important for achieving their goals. Identified regulation is a more autonomous form of extrinsic motivation [1]. Other forms of extrinsic motivation, like external regulation (driven by rewards or avoiding punishment) and introjected regulation (driven by guilt or ego), are considered more controlled. While these can drive behaviour, they are often associated with negative outcomes such as increased anxiety and a poorer ability to cope with failures [6,7]. While intrinsic motivation is still considered the most optimal form of motivation, a predominance of identified regulation signifies that students have internalized the reasons for their studies and see them as their choice, even though the motivation originates from an external factor. For medical students, this means they

understand and value their coursework and training as essential steps towards becoming competent doctors in their chosen field. This is a more mature and self-directed form of motivation compared to being driven solely by external pressures or internal guilt. Therefore, it is a positive sign for their engagement and potential success in medical school.

An important nuance emerged with the 10 participants exhibiting a mixed profile of both identified and external regulation (**Table I**). This co-occurrence highlights a complex motivational dynamic. On one hand, the presence of identified regulation signifies a degree of personal endorsement and value attached to their medical studies. The concurrent influence of external regulation suggests their motivation is not fully autonomous. These students likely still experience significant pressure from external contingencies, such as grades, examinations, or expectations, which can potentially increase stress and orient behaviour towards meeting external benchmarks rather than solely towards deep learning. This mixed profile may reflect the demanding nature of the MBBS program where personal aspirations and external pressures often coexist, or perhaps a transitional phase in motivational development for these students. While more adaptive than pure external regulation, this profile is likely less optimal for sustained engagement and well-being than more fully internalized forms of motivation.

Furthermore, 17% of the students were found to be driven exclusively by extrinsic motivation by external regulation (**Table I**). This implies their engagement with the MBBS curriculum is primarily controlled by external contingencies rather than any internalized value or interest. While this form of motivation can be effective in the short term, it is less likely to lead to deep learning, long-term engagement, and overall well-being compared to more autonomous forms of motivation like identified or intrinsic motivation^[8]. For this group, highlighting the practical application of their learning is key. Instead of solely focusing on assessment outcomes, emphasize that understanding the 'why' behind learning tasks and assessments is about building the critical skills and acquiring the necessary knowledge. Discuss how these competencies are directly transferable to their future roles, enabling them to confidently and effectively contribute to patient care and achieve meaningful results in their careers.

Analysis of student motivation indicated that while overall intrinsic motivation was present in only 30% of the cohort, 'Intrinsic Motivation to Know' predominated within this subgroup, reported by 73.3% of these students (**Table I**). This form of motivation, driven by the inherent satisfaction of learning and understanding, aligns particularly well with the pedagogical demands of the MBBS course. The curriculum's requirement to acquire a comprehensive knowledge base over several years necessitates sustained effort. Students possessing strong intrinsic motivation 'to know' may therefore exhibit greater resilience and consistency when facing these academic challenges. This potential for sustained engagement is crucial not only for successfully navigating the course but also for developing the highly knowledgeable clinicians required by the medical profession.

According to our study, the prevalence of amotivation was very low (1%). Although the low prevalence of amotivation in this sample is encouraging, it is imperative not to overlook the individual student identified. Amotivation represents a significant barrier to effective learning and persistence. In a field as demanding as medicine, understanding the reasons behind this student's lack of motivation and ensuring they receive appropriate attention and support is essential for both their personal academic journey and their potential future in healthcare.

In our study 5% of students showed a mixed profile of both intrinsic and extrinsic motivation (**Figure I**). This suggests that while these students find intrinsic satisfaction in learning, their motivation is also strongly shaped by extrinsic factors such as grades, career prospects, competition, and expectations. In their study Mamun MMAA *et al.* found that a combination of intrinsic & extrinsic motivation drove the majority of their students. Understanding this dual motivation is crucial^[9]. Educational strategies ought to cultivate intrinsic interest while also skillfully managing and recognizing the extrinsic influences that play a major role for these learners.

Overall most predominant subscales among the study population was extrinsic motivation by identified regulation (34%) followed by intrinsic motivation to know (22%) and then extrinsic motivation by external regulation (17%) with low prevalence of amotivation. This finding resonates with the results of the study by Zawislak *et al.*, Del-Ben *et al.*, Atalay *et al.*, where extrinsic motivation by identified regulation was the highest scored subscale, followed by intrinsic motivation to know & then extrinsic motivation by external regulation^[10,11,12]. Sobral *et al.*, also in their study done among medical students found that the dominant motivational type was extrinsic motivation by identified regulation, followed by intrinsic motivation to know, and the lowest score was for amotivation^[13].

Table II shows no statistically significant association between motivation types and gender ($p=0.795$). This is similar to the findings by Mamun MMAA *et al.* and Bin Abdulrahman KA *et al.*^[7,14]. This result contrasts with the findings reported by Kusurkar *et al.* and Kunanithaworn *et al.* whose research indicated a significant correlation between academic motivation and gender. However, some observable patterns emerged within our sample. Female students demonstrated a slightly higher percentage of intrinsic motivation (30.8%) compared to males (27%). Conversely, male students exhibited a greater percentage of extrinsic motivation (70.3%) than females (60.3%). Overall, extrinsic motivation was more prevalent across both genders, accounting for 64% of the total sample.

Conclusion

Understanding the complex interplay of motivational factors is paramount in medical education. This study highlights a clear hierarchy of motivation among Phase I medical students, with extrinsic motivation by identified regulation being most prominent, followed by intrinsic motivation to know and extrinsic motivation by external regulation with low levels of amotivation. Although gender differences were not statistically significant, there was a tendency for females to be more intrinsically motivated and males more extrinsically motivated. Therefore, effective pedagogical strategies must concurrently foster internal curiosity by emphasizing the relevance and practical application of course material to future medical careers and patient care, helping students internalize the value of their learning beyond mere grades. Educators should promote a sense of competence through constructive feedback and opportunities for mastery, and, where possible, offer students choices in learning activities to enhance autonomy and engagement. While recognizing the role of grades, it is crucial to prioritize a growth mindset and cultivate a supportive learning environment that reduces anxiety. Integrating role models, real-world examples, and collaborative learning can further reinforce the intrinsic value of the medical profession. For male students, explicitly linking academic knowledge to career success and providing meaningful extrinsic recognition may be particularly motivating, while also encouraging

reflection on intrinsic aspects of patient care. By tailoring interventions to distinct motivational profiles, educators can foster deeper and more sustainable engagement, ultimately enhancing learning outcomes and professional satisfaction.

Limitation

A significant limitation of this study is its reliance on a single institutional cohort of first-year medical students. This single-centre approach restricts the generalizability of our findings to a broader population of medical students. Consequently, a multicentric approach, encompassing a wider range of medical colleges and diverse student populations, is strongly warranted in subsequent research to validate and broaden the applicability of these findings.

Declarations

Conflict of interest

The authors have no conflicts of interest to declare.

Source of funding

The research is not funded by any funding agency.

Ethical Clearance

Ethical clearance was obtained from the institutional ethics committee (Ref. No: 41/25/IEC/JMMC&RI)

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