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Original Article

Ear, Nose and Throat Section

Influence of Motivation on Academic Progression of Students: A Cross-sectional Study

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ABSTRACT

Introduction: Motivation plays a vital role in learning and is a great enabler as it functions on multiple dimensions and paves way to conquer impediments in the path of success. An attempt has been made through this study to scrutinize the convictions related to motivation and the deployment of strategies in the learning process of students.

Aim: To find the relation if any, between academic achievement and the motivation level with the students of College of Medicine, Majmaah University, Majmaah, Saudi Arabia.

Materials and Methods: The cross-sectional study was carried out among pre-medical and medical students of Majmaah University. Academic Motivation Scale (AMS) questionnaire was distributed to 250 students who were selected based on simple random sampling. There were 233 students who participated in the study out of which there were 147 males and 86 females who completed the questionnaire. Motivation of student towards education was assessed in three domains, namely Intrinsic, Extrinsic and Amotivation. After ethical approval from institutional review board, questionnaire was distributed and results recorded in Statistical Package for the Social Sciences (SPSS) version 25. Qualitative variables were represented with frequencies and percentages and quantitative variables with mean and standard deviation. Student's t-test and Analysis of Variance (ANOVA) were applied to compare the means.

Results: Comparison of motivational scores between students in different years showed no significant difference in the mean scores across all dimensions of motivation except Extrinsic Motivation-Regulation. The mean score of 2nd year students was 16.63 and it increased over the years. The mean score at 6th year was 22.03 and it decreased during internship with mean score of 20.58.

Conclusion: The study of various stimulators which affect the learning experience of the student provides good insight on motivation and its influence on academic performances.

Keywords: Academic motivation scale, Academic performance, Majmaah

INTRODUCTION

The concept of motivation is considered as a vital factor that plays a key role in students' behaviour and performance. It has a very momentous function to play in one's life, which enables and stimulates a person to make efforts to accomplish certain goals in a desired field of interest [1]. In other words, motivation can be termed as a core recipe of success for students as rightly argued that "motivation is what gets you going, keeps you going and determines where you're trying to go" [2]. It explains why a person decides to do something [3].

Motivation has an immense impact on the psychology that decides the engagement and action of the learner to achieve certain objectives. The perception of motivation is serviceable in nature and its influences; hence it directs an individual to achieve desired targets [4]. There is a wide range of educational psychologists who are of the view that motivation is very much obligatory for proficient education and learning [5]. The conciliating motivation might result in mediocre or inadequate learning [6], and there can be various perspicacity to look at the concept of motivation, however, the core of all the discussions conclude with the fact that motivation keeps the ball rolling and sets means to accomplish targets [7]. Arguments can be made on the configuration and development of motivation in individual characters as they may get influenced by various factors.

The controlling influences may comprise of the demographic setups in which an individual was brought up in, the mentors which he/she got an opportunity to be exposed with, education, moral insights, or even clandestine perceptions about persons or objects around at large. Therefore, it is advisable too not to perceive the motivating influences in a straight line as drawn from various sets of psychosomatic practices resulting finally into actions [8]. Motivation to excel in academics has an undeviating rapport with the scholastic advancement of learners. Also, it is binding to possess consideration to central concern in forming a thriving enlightening structure. There is a strong and unswerving affiliation between motivation and educational attainment [9]. Motivation is, therefore considered to be a central clincher of scholastic progression. It is not something that is to be viewed separately, rather, there has to be a comprehensive perception about viewing the motivation which may comprise multiple aspects like conviction, attainment intention, assignment ideas, and objective etc., [10].

Motivation has been defined and argued by various theorists in their works. The primary division of motivation can be seen as quantitative motivation and qualitative motivation. The variation in degree in terms of quantitative motivation is very obvious. That could be high, low, or moderate. On the other side, qualitative motivation is very much dependent upon the various type of motivation one is influenced with. The source of qualitative motivation could either be internal or drawn from external sources. The type of motivation can be measured by another practice too which is marked as self-determination. This practice could be associated as an extension of the qualitative motivation [11]. Qualitative motivation largely influences the being of an individual and directs to proceed in the indented direction to attain a goal. Keeping in view the significance of motivation and its influence on learners, this work aims at bringing out the impact of motivation on academic excellence as well as the liaison of motivation with the scholastic performance amongst the students of the college of Medicine, Majmaah University, Majmaah, Saudi Arabia. Very few studies are carried out in Saudi Arabia and there was a need to assess the motivation level among medical students, who go through a long duration of course and require controlled and autonomous motivation for academic excellence.

The present study was carried out with an aim to know the:

1) Motivation scores of poor performers with the students performing well.
2) Comparison of motivational scores in increasing years of college.

MATERIALS AND METHODS

The cross-sectional study was carried out among pre-medical and medical students of Majmaah University, Majmaah, Saudi Arabia in May-June 2020. The course in the school of Medicine, Majmaah University is of six years span which incorporates pre-clinical courses (preliminary year) of one year. This is trailed by two years of fundamental clinical sciences, three years of clinical and one year of pivoting entry-level position. The co-ordinated educational plan is instructed in every one of the six years with two semesters for one year. Every semester has the credit of 16 to 18 hours with mid and end module tests. These students are evaluated depending on the summative and developmental appraisal methods. A total of 250 participants were chosen from a general pool of students from each class randomly by using simple random sampling by lottery method, out of which 235 participants consented to be part of the examination. Students who gave consent and completed the questionnaire were included in the study. Some students were excluded from the study based on their incomplete questionnaire and unwillingness.

An informed consent was taken from the participant, after which they were asked to fill the questionnaire. The class representative from each year was asked to inform all their respective batch mates one day prior to the survey regarding timing of distribution of questionnaire. A unique ID number was given to the selected students who agreed to participate in this study; this was done to maintain the anonymity and the privacy of the participants.

In present study, AMS [12] English version, which was derived initially from French Motivation questionnaire, Echelle De Motivation en Education (EME) [13], was used to assess motivation among the participants. The questionnaire comprised of 28 items, which were subdivided into six subscales evaluating three types of motivation namely, Intrinsic Motivation (IM), Extrinsic Motivation (EM) and Amotivation. The AMS had satisfactory internal validity and consistency with Cronbach's alpha value of 0.79 [12]. Each of the subscale to measure motivation relates to different dimensions of psychosocial concept in education. IM refers to doing the activity by himself or herself and derives satisfaction from participation. The IM with the subscale of IM to know, IM towards accomplishments and IM to experience stimulation had four items each. IM to know assesses the constructs like intrinsic intellectuality and curiosity to learn and IM towards accomplishments relates to individuals interaction with the surrounding environment to feel competent and accomplish things. Whereas, IM to experience stimulation operates when someone engages in activities leading to stimulating sensation to one self and has four items to evaluate.

Diametric to internal motivation, EM is governed by rewards and constraints and is assessed by four items each in three subdomains such as EM identification, EM introjection and External regulation. Lastly Amotivation, which is also a vital domain for understanding human behaviour. People are amotivated when they don't see possibilities among results and their own activities. They are not intrinsically nor extraneously motivated and is assessed by last four items in AMS. The questionnaire included 7 point Likert scale with scores of indicating 1=Does Not correspond at all, 2-3=Corresponds a little, 4=Corresponds moderately, 5-6=Corresponds a lot and 7=Corresponds exactly was used to scale to what extent students believe reasons why they go to college across different dimensions.

All participants were well briefed in advance before the circulation of the questionnaire. In order to execute the study, proper approval was sought from the Ethical approval committee of Majmaah University with Ethical approval No. MUREC-17/COM-2020/33-4. Out of 235 students who gave consent and participated in study, two students dropped out in between study and the analysis was done on 233 students.

STATISTICAL ANALYSIS

The responses were recorded and analysed on SPSS version 25.0 for all statistical computation. Comparison of scores between students who repeated and not repeated in any year in college were analysed. Mean, and standard deviation were calculated and independent student's t-test was applied to know the difference between means of groups. To compare mean motivational scores between students studying in different academic years for all different domains, ANOVA test was applied. The p-value <0.05 was considered statistically significant.

RESULTS

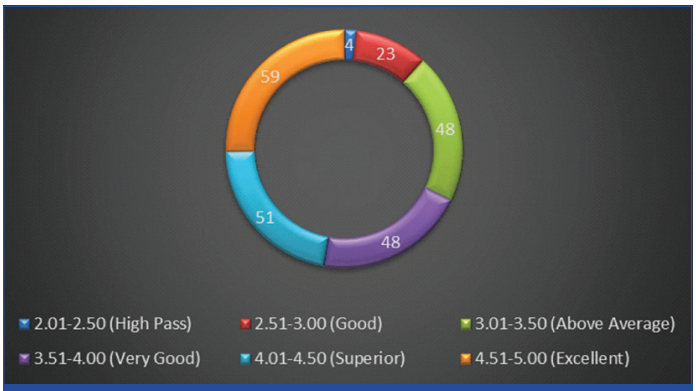
There were 233 students who participated in the study out of which there were 147 males and 86 females. Majority of the students were single 227 (97.4%), 3 (1.3%) were married, 2 (0.9%) divorced and 1 (0.4%) widowed. Mean age was 22.07±1.92. Majority of the students who participated were 3rd year students 47 (20.2%). Out of the total 233 students, 63 (27%) students were repeaters and of the repeaters, 43 (68.3%) had repeated only once and 17 (27%) repeated twice. The graduation grades from high school of majority of the students were between 97-99 (70.8%) [Table/Fig-1].

Characteristics		Frequency	Percent
Gender	Male	147	63.1
	Female	86	36.9
Marital status	Single	227	97.4
	Married	3	1.3
	Widowed	1	0.4
	Divorced	2	0.9
Mean age±SD		22.07±1.92	
Region of origin	Majmaah city	84	36.1
	Outside Majmaah city	149	63.9
Academic year	1st year (Premedical)	6	2.6
	2nd year (1st Basic sciences preclinical year)	41	17.6
	3rd year (2nd Basic sciences preclinical year)	47	20.2
	4th year (1st Clinical year)	38	16.3
	5th year (2nd Clinical year)	31	13.3
	6th year (3rd Clinical year)	34	14.6
	Internship	36	15.5
Have you repeated any year in college	No	170	73.0
	Yes	63	27.0
If yes, specify how many	1	43	68.3
	2	17	27.0
	3	3	4.8
Graduation grade from high school	90-91	4	1.7
	91-92	2	0.9
	92-93	1	0.4
	93-94	8	3.4
	94-95	7	3.0
	95-96	15	6.4
	96-97	18	7.7
	97-98	37	15.9
	98-99	128	54.9
	100	13	5.6

[Table/Fig-1]: General characteristics of study participants.
*SD: Standard deviation

GPA (Grade Point Average) grades of 59 students were excellent {(4.51-5.00), 25.3%} [Table/Fig-2]. A total of 51 students were Superior {(4.01-4.50), 21.9%} and only four students had GPA

grade of {(2.01-2.50), 1.7%}. The overall average GPA score of all the students was 3.91±0.70. Most of the students have not published any paper 170 (73%) while 42 of them had published one paper (18%) and five students published 5 (2.1%) or more.



[Table/Fig-2]: Distribution of students based on GPA score.

In present study, for under IM to know, IM towards accomplishments and IM to experience stimulation were found to be 20.28±5.87, 18.81±7.16 and 18.69±6.87, respectively (p<0.05). The mean scores of most of the dimensions under 'IM' between those students who repeated in any academic year and those who did not repeat were found significantly different (p<0.05) [Table/Fig-3]. No significant differences were obtained between the mean total scores of extrinsic motivation and amotivation [Table/Fig-4,5].

Intrinsic Motivation (IM)- To Know

The IM factors for the students to go to college were 'The pleasure they experience when they discover new things never seen before' were 166 (71.2%), followed by 'Because their study allow them to continue to learn about many things that interest them,' 151 (64.8%).

IM-Towards Accomplishment and Experience Stimulation

Major IM factors- towards accomplishment were 'The satisfaction they feel when they are in the process of accomplishing difficult academic activities was 143 (61.4%). 'The pleasure that they

Have you repeated any year in college	No (N=170)		Yes (N=63)		Total (N=233)		t-value	p-value
	Mean	SD	Mean	SD	Mean	SD		
Intrinsic motivation - To know								
1. Because I experience pleasure and satisfaction while learning new things	5.16	1.70	4.54	1.84	4.99	1.76	2.411	0.017
2. For the pleasure I experience when I discover new things never seen before	5.24	1.67	5.06	1.75	5.19	1.69	0.711	0.478
3. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me	5.14	1.64	4.63	1.83	5.00	1.70	2.009	0.046
4. Because my studies allow me to continue to learn about many things that interest me	5.24	1.64	4.73	1.85	5.10	1.71	2.041	0.042
Intrinsic motivation- To know - Total	20.77	5.64	18.97	6.31	20.28	5.87	2.098	0.037
Intrinsic motivation - Toward accomplishment								
5. For the pleasure I experience while surpassing myself in my studies	4.96	1.72	4.24	1.76	4.76	1.75	2.827	0.005
6. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments	5.05	1.72	4.46	1.77	4.89	1.75	2.296	0.023
7. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities	5.06	1.77	4.41	1.93	4.89	1.83	2.435	0.016
8. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies	4.44	1.80	3.79	1.82	4.27	1.83	2.430	0.016
Intrinsic motivation - Toward accomplishment-Total	19.51	7.01	16.9	7.28	18.81	7.16	2.498	0.013
Intrinsic motivation- To experience stimulation								
9. For the intense feelings I experience when I am communicating my own ideas to others	4.86	1.71	4.52	1.79	4.77	1.73	1.336	0.183
10. For the pleasure that I experience when I read interesting authors	4.71	1.73	4.19	1.87	4.57	1.78	1.975	0.049
11. For the pleasure that I experience when I feel completely absorbed by what certain authors have written	4.59	1.67	4.24	1.78	4.49	1.71	1.393	0.165
12. For the "high" feeling that I experience while reading about various interesting subjects	4.97	1.65	4.56	1.61	4.86	1.65	1.714	0.088
Intrinsic motivation-To experience stimulation-Total	19.13	6.76	17.51	7.05	18.69	6.87	2.685	0.008

[Table/Fig-3]: Comparison of Intrinsic Motivation (IM) between students who repeated in college and students who never repeated.
*SD: Standard deviation; p<0.05 considered statistically significant

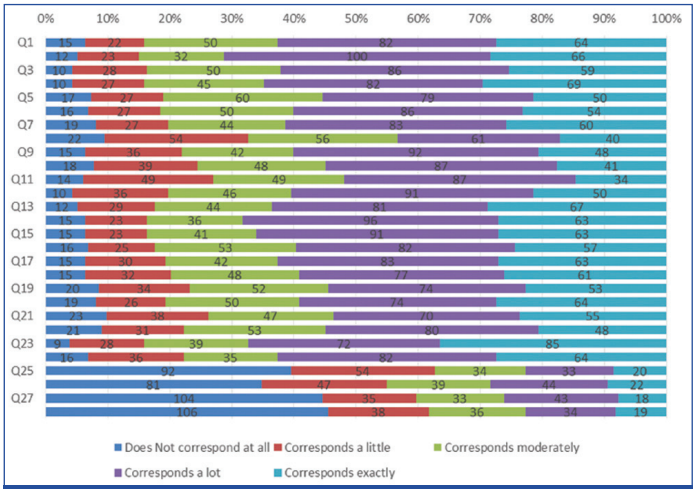
Have you repeated any year in college	No (N=170)		Yes (N=63)		Total (N=233)		t-value	p-value
	Mean	SD	Mean	SD	Mean	SD		
Extrinsic motivation - Identified								
13. Because I think that a college education will help me better prepare for the career I have chosen	5.12	1.77	4.83	1.69	5.04	1.75	1.133	0.258
14. Because eventually it will enable me to enter the job market in a field that I like	5.18	1.73	4.95	1.74	5.12	1.73	0.877	0.382
15. Because this will help me make a better choice regarding my career orientation	5.10	1.73	5.03	1.80	5.08	1.74	0.265	0.791
16. Because I believe that a few additional years of education will improve my competence as a worker	4.96	1.75	4.79	1.81	4.92	1.77	0.656	0.513
Extrinsic motivation - Identified - Total	20.36	6.07	19.60	6.05	20.15	6.06	0.844	0.399
Extrinsic motivation - Introjected								
17. To prove to myself that I am capable of completing my college degree	5.07	1.75	4.63	1.89	4.95	1.80	1.648	0.101
18. Because of the fact that when I succeed in college I feel important	4.89	1.82	4.76	1.78	4.86	1.81	0.496	0.621
19. To show myself that I am an intelligent person	4.65	1.85	4.76	1.81	4.68	1.83	-0.424	0.672
20. Because I want to show myself that I can succeed in my studies	4.90	1.86	4.78	1.90	4.87	1.87	0.442	0.659
Extrinsic motivation - Introjected - Total	19.51	6.13	18.94	6.43	19.36	6.21	0.628	0.531

[Table/Fig-4]: Comparison of Extrinsic Motivation between students who repeated in college and students who never repeated.
*SD: Standard deviation; p<0.05 considered statistically significant

Have you repeated any year in college	No (N=170)		Yes (N=63)		Total (N=233)		t-value	p-value
	Mean	SD	Mean	SD	Mean	SD		
Extrinsic motivation - External regulation								
21. Because with only a high-school degree I would not find a high-paying job later on	4.81	1.92	4.11	1.83	4.62	1.92	2.503	0.013
22. In order to obtain a more prestigious job later on	4.79	1.85	4.30	1.60	4.66	1.80	1.867	0.063
23. Because I want to have "the good life" later on	5.24	1.80	5.22	1.66	5.23	1.76	0.050	0.960
24. In order to have a better salary later on	4.99	1.87	4.68	1.73	4.91	1.84	1.130	0.260
Extrinsic motivation - External regulation - Total	19.83	6.05	18.32	5.74	19.42	5.99	1.718	0.087
Amotivation								
25. Honestly, I don't know; I really feel that I am wasting my time in school	2.91	2.05	2.81	1.93	2.88	2.02	0.343	0.732
26. I once had good reasons for going to college; however, now I wonder whether I should continue	3.09	2.06	3.37	2.07	3.17	2.06	-0.892	0.373
27. I can't see why I go to college and frankly, I couldn't care less	2.91	2.06	2.87	2.02	2.90	2.05	0.109	0.914
28. I don't know; I can't understand what I am doing in school	2.84	2.10	2.78	1.93	2.82	2.06	0.209	0.835
Amotivation - Total	11.75	7.26	11.83	7.07	11.77	7.20	-0.068	0.946

[Table/Fig-5]: Comparison of motivation between students who repeated in college and students who never repeated.
*SD: Standard deviation; p<0.05 considered statistically significant

experience while they are surpassing themselves in one of their personal accomplishments, 140 (60.1%) and 'The intense feelings they experience when they are communicating their own ideas to others' was 140 (60.1%) [Table/Fig-6].



[Table/Fig-6]: Motivation levels across different dimensions (Intrinsic, Extrinsic and Amotivation).

Extrinsic Motivation- Identified

Most of the students, 159 (68.2%) were of the opinion that 'It will enable them to enter the job market in a field that they like' and 154 (66.1%) students said 'This will help them make a better choice regarding their career orientation. A small proportion of students 41 (17.60%) said it either 'does not correspond at all' or corresponds a little when it comes to 'Think that a college education will help them better prepare for the career they have chosen'.

Extrinsic Motivation- Introjected

Major extrinsic motivational factors were 'To prove to themselves that they are capable of completing their college degree' in 146 (62.6%) students. They want to show themselves that they can succeed in their studies' in 138 (59.30%) and 34 students believe that, the factor 'To show themselves that they are intelligent person' corresponds a little 34 (14.6%).

Extrinsic Motivation-External Regulation

The factors that 'They want to have "the good life" later on' and' To have a better salary later on' corresponds a lot with 157 (67.4%) and 146 (62.7%) respectively for the students.

Amotivation

It does not correspond at all for students that 'They can't see why they go to college and frankly, they couldn't care less' 104 (44.6%) and 'They don't know; they can't understand what I am doing in school' in 106 (45.5%) [Table/Fig-6].

Analysis showed that, there was no significant difference in the mean scores of motivations in all dimensions except 'Extrinsic Motivation-Regulation' p-value=0.006. There was a mean score of 16.63 in the 2nd year and it increases over the years. The mean score at 6th year was 22.03 and it decreases during internship with mean score of 20.58 [Table/Fig-7,8].

Dimensions	Academic year	N	Mean	Std. deviation	F-value	p-value
Intrinsic motivation - To know	1st year (Pre-medical)	6	20.67	6.250	1.233	0.290
	2nd year (1st Basic sciences preclinical year)	41	19.29	5.989		
	3rd year (2nd Basic sciences preclinical year)	47	19.40	6.279		
	4th year (1st Clinical year)	38	21.11	6.281		
	5th year (2nd Clinical year)	31	19.65	5.219		
	6th year (3rd Clinical year)	34	22.29	4.296		
	Internship	36	20.28	6.336		
	Total	233	20.28	5.868		
Intrinsic motivation - Towards accomplishment	1st year (Pre-medical)	6	42.67	10.270	0.631	0.706
	2nd year (1st Basic sciences preclinical year)	41	36.22	10.841		
	3rd year (2nd Basic sciences preclinical year)	47	37.43	11.049		
	4th year (1st Clinical year)	38	36.03	12.740		
	5th year (2nd Clinical year)	31	37.90	9.565		
	6th year (3rd Clinical year)	34	39.47	9.897		
	Internship	36	37.53	10.533		
	Total	233	37.50	10.819		
Extrinsic motivation - identified	1st year (Pre-medical)	6	22.83	5.154	1.158	0.330
	2nd year (1st Basic sciences preclinical year)	41	19.51	5.754		
	3rd year (2nd Basic sciences preclinical year)	47	19.17	6.141		
	4th year (1st Clinical year)	38	21.11	6.559		
	5th year (2nd Clinical year)	31	21.35	4.454		
	6th year (3rd Clinical year)	34	20.91	5.895		
	Internship	36	18.97	7.073		
	Total	233	20.15	6.064		

[Table/Fig-7]: Comparison of Motivational scores between students studying in different academic years across different dimensions.
*p<0.05 considered statistically significant

Dimensions	Academic year	N	Mean	Std. deviation	F-value	p-value
Extrinsic motivation-Introjected	1st year (Pre-medical)	6	20.67	4.320	0.613	0.719
	2nd year (1st Basic sciences preclinical year)	41	18.63	6.131		
	3rd year (2nd Basic sciences preclinical year)	47	19.96	4.903		
	4th year (1st Clinical year)	38	18.55	6.892		
	5th year (2nd Clinical year)	31	19.42	6.816		
	6th year (3rd Clinical year)	34	20.65	6.119		
	Internship	36	18.75	6.979		
	Total	233	19.36	6.207		
Extrinsic motivation-External regulation	1st year (Premedical)	6	20.00	6.870	3.118	0.006
	2nd year (1st Basic sciences preclinical year)	41	16.63	5.200		
	3rd year (2nd Basic sciences preclinical year)	47	18.89	5.506		
	4th year (1st Clinical year)	38	18.97	6.149		
	5th year (2nd Clinical year)	31	20.13	5.982		
	6th year (3rd Clinical year)	34	22.03	6.113		
	Internship	36	20.58	6.030		
	Total	233	19.42	5.991		
Amotivation	1st year (Premedical)	6	14.00	9.633	0.729	0.627
	2nd year (1st Basic sciences preclinical year)	41	12.07	6.922		
	3rd year (2nd Basic sciences preclinical year)	47	12.17	6.982		
	4th year (1st Clinical year)	38	10.66	7.049		
	5th year (2nd Clinical year)	31	12.35	7.378		
	6th year (3rd Clinical year)	34	10.12	7.729		
	Internship due	36	12.78	7.011		
	Total	233	11.77	7.196		

[Table/Fig-8]: Comparison of Motivational scores between students studying in different academic years across different dimensions.
*p<0.05 considered statistically significant

DISCUSSION

Overall, it becomes clear from the study that both intrinsic and extrinsic factors of motivation play an important role on academic performance of students. The results of this study support the previous studies that showed such a relation between motivation and academic performance [14-17]. In observations, it has been established that the score of motivation was slightly over than the mediocre range. The learners having extrinsic type of motivation have been observed to have good scores which indicates a behavioural pattern for the individual academic gains [18]. The core objective behind the work lies in establishing the relation between the motivation and academic performances of the students. There have been resemblances with the studies conducted earlier in this regard [19].

A similar study done in University of Brasilia on 297 medical students from consecutive classes in four year time frame using AMS showed similar values for subdomains of internal motivation and EM, except for Amotivation which was found to be less 5.68±2.63 compared to Amotivation in present study (11.77±7.19). Classification analysis identified distinct pattern of motivation across classes which is in congruous with present study, where there was high levels of Intrinsic and extrinsic motivation on entering the medical course which fluctuates as students' progress to higher grades and strikingly low in internship. One of the reason for plummeting of motivation in internship can be attributed to absence of evaluation exams [20]. The current study adds to the existing study by Christopher OW et al., in Oklahoma which used AMS, noted IM, EM and Amotivation to be 4.04±0.85, 4.19±1.87 and 4.39±0.73, respectively [21].

There might be different opinion about the results found in the study. However, facts remain consistent that there are various influencing factors which affect motivational levels, learning and the desired outcomes of the study. There can be data differences in this regard too [20]. Nonetheless, whatsoever the case be, after all the finding remains intact that the gender differences too play a significant role in motivation and its impact on learning.

Limitation(s)

Present study attempted to know the different motivational dimensions across students in different years of college and between students who repeated any year and didn't repeat, but fails to compare different motivations dimensions with respect to gender. Study findings did not correlate distinct patterns of motivation with GPA levels.

CONCLUSION(S)

The present study supplies an insight on motivation and its influence on academic gains in the academic career of students. There are various stimulators which affect the learning experience of the student. This research enables to identify the possible barriers in the entire process of the learning experience of the student. The psychological research into educational motivation focuses on mainly improving the students' academic performance based on either need based analysis or behavioural approach. Subjective differences are crucial for understanding motivation. Prompt efforts are needed with further research on micro level behaviour to compliment their academic grades and macro level analysis.

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