A CROSS SECTIONAL STUDY ON PSYCHOLOGICAL CAPITAL AND ITS RELATION WITH ACADEMIC ADJUSTMENT AMONG MEDICAL STUDENTS

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ABSTRACT

Background:

Several students enter universities from diverse socioeconomic backgrounds. It is a widespread notion that Medical Students experience extreme stress to perform academically, which predisposes them to various psychological issues. However, the psychological capital of a medical student and its direct relation to academics has been sufficiently under-researched. This study aims to provide a relation between psychological capital and academic adjustment among medical students to better understand the factors affected by their psychological status.

Methods:

We searched Google Scholar databases along with those from MedLine for original articles finding any correlation between PsyCap and Academic Adjustment. One such article attempted to do so amongst University students. However, research which explicitly included medical students was a rarity.

Results:

The number of students eligible for the study was 229. The most number of students (60.7 out of 100 or 60.7%) scored between 50-65%, ie above the passing grade, while only 1.3 out of 100 (1.3%) scored below the passing grade of 50%. The sub scales of PsyCap positively correlated with one another, as did those of Academic Adjustment. However, a definitive correlation of the PsyCap sub scales was found to be only with the "personal-emotional" sub scale of the Academic Adjustment questionnaire.

Conclusion:

Strong bonds between medical students resulted in a better psychological capital as well as adjustment to their academic environment. PsyCap can be used as an effective tool to qualitatively give an idea about the mental status of a medical student and how that would affect their attrition into university.

INTRODUCTION

It has been emphasized by Western society that in satisfactory social and professional amalgamation, academic excellence is at its foundation.[1] For achieving this goal, there is a huge part played by universities.

Universities are a common ground for students of diverse socio-economic backgrounds and cultures to come together, and thus they differ from each other in terms of basic potential, prior education, exposure to extracurricular activities, and motivation.[2] Some enter university equipped with better cognitive and economic resources, while others may not be privy to such advantages. The latter can thus be prone to stress and anxiety.[3]

Mackenzie, Kristen, and Schweitzer in their publication analyzed the factors which predicted academic performance of first year University students. They argued that increasing diversity among students with regards to their social, economic, and cultural backgrounds played a role in shaping and predicting how well they performed in university, among other aspects. Their study took into account the psychosocial, cognitive and demographic predictors in addition to academic factors which influenced the performance in first year University students.[2]

It has been widely accepted that Medical School is an extremely stressful environment.[4] Various factors affect a medical student's psychological well being, viz. a vast syllabus, a huge competition, difficulty in coping with parents 'and teachers', perhaps at times their own academic expectations, and to some extent even the fear of failure. These factors may lead to stress, which in turn causes other disturbances. These range from inadequate sleep, changes in dietary habits, a sense of resentment towards peers, teachers, parents, and sometimes oneself. In extreme cases, symptoms of anxiety and/or depression and the advent of substance abuse may be encountered.[5] According to a study conducted in JSS College, Mysore, the prevalence of anxiety and stress among a 100 medical students was 52.1 and 33.7 (52.1% and 33.7%) respectively. Also, a study in Surat showed that 55.6 and 41.2 out of 100 students (55.6% and 41.2%) experienced moderate and severe stress respectively.[6] Additionally, a number of studies conducted in western countries have inferred that out of 100, 12 (12%) medical students show feelings of anxiety or depression.[7]

This study attempted to examine the correlation between Psychological Capital (PsyCap) and Academic Adjustment (AA) among Medical Students. It tried to determine if a positive PsyCap brought about favorable results in the students' academic achievements.

PsyCap consists of four capacities: (1) self efficacy: the assertiveness and confidence that an individual takes on a particular task and puts in the required efforts to accomplish it; (2) optimism: a positive outlook towards present and future goals, even in the face of adversity; (3) hope: perseverance in reaching one's goals, and the adeptness to redirect paths towards goals for success; and (4) resilience: in the event of problems or setbacks, whether an individual is able to bounce back into action for attaining success.[8,9] A number of studies showed a positive link across three domains, those being satisfaction, productivity, and well being within the management.[10,11,12] Among them, a few researchers studied the relation between PsyCap and GPAs of students. These indicated PsyCap to be a positive influence on their GPAs.[13,14] Interestingly, although there is good documentation of the impact of psychological well being, such studies are quite uncommon among university students.[15]

There are multiple aspects to **AA**, wherein it focuses on a student's capacity to learn as well as their motivation. In addition to this, their ability to turn their academic goals into reality and the strategies involved in the process along with academic environmental satisfaction also play a role. Academic Adjustment has four distinct domains.[16, 17] They are: (1) academic achievement: it places emphasis on the motivation of a student towards learning, and the use of their study skills to achieve their desired grade; (2) social adjustment: wherein the involvement of students with their environment and social qualities are taken into account; (3) personal emotional adjustment: which reflects on the psychological status of a student. It indicates a student's ability to cope with challenges posed by studies, which may lead to stress and anxiety in them; and (4) institutional adjustment: which demonstrates a student's happiness within the academic institution and the academic environment.

The impact of Psychological well being on an individual's work life has been well documented in various studies. However, this has been rarely done on university students. Studies by Luthans and Vanno [13,14] made a comparison between PsyCap and students' GPAs, which concluded that higher PsyCap showed higher GPA. Studies for the same have been even rarer amongst students enrolled in Medical Colleges, and thus it becomes necessary to discuss the impact a medical student's psychological well being might have on their academic endeavors. Our prediction was that a good Psychological Capital would correlate with Academic Adjustment in a positive manner.

METHODOLOGY
Profile of study area:
The study was conducted in a Medical College where majority of the sample was available.

Study design: It was a cross sectional study.

Inclusion criteria:
1. All students from 2nd year to internship attending Medical College were included.

Exclusion criteria:
1. The students unwilling to participate in the study.
2. First year students were not considered, due to their limited exposure to the Medical field and because of the difficulty in assessing their academic adjustment.
3. Students having any known learning disability.

Sample design:
Sampling unit:
Sampling unit was an individual Medical Student.

Sample size:
Sample size was calculated by using the software OpenEpi version 3.01 and considering the prevalence of stress among medical students in India as 33.7 out of 100 (33.7%) [4], population as 600 (students of 4 batches).

Sample Size for Frequency in a Population:
Population size (for finite population correction factor or fpc)(*N*): 600
Hypothesized % frequency of outcome factor in the population (*p*): 33.7+/-5
Confidence limits as % of 100(absolute +/- %)(*d*): 5%
Design effect (for cluster surveys-*DEFF*): 1
Sample size $n = [DEFF*Np(1-p)] / [(d^2/z^2\alpha/2*(N-1)+p*(1-p)]$
Thus, the minimum sample size required for 95 out of 100 (95%). Confidence level was 219.

Sampling technique: Simple random sampling.

Data Collection:

Study tools:
Data was collected using two questionnaires, viz. versions of the PsyCap questionnaire, and the Academic Adjustment questionnaire[15], which had been modified from the original ones, those being the Luthans 'PsyCap questionnaire[16], and the SACQ questionnaire by Baker and Syrik.[17]

(i) Modified version of the PsyCap questionnaire:
This questionnaire is formulated in a way that reflects the four capacities of Psychological Capital, viz. self efficacy, optimism, hope, and resilience.[18] The modification used here, was the reduction of the six-point Likert scale[16] to a five-point scale. This ranged from (1) Strongly disagree to (5)Strongly agree.[15]

The questionnaire consists of 24 questions, each divided into four six-item sub scales as: **self efficacy** (1, 6, 10, 16, 21, 24) ; **hope** (2, 7, 12, 15, 20, 23) ; **optimism** (5, 9, 11, 14, 17, 19) ; and **resilience** (3, 4, 8, 13, 18, 22).[15] The score ranges from 24-120. The higher the score, the better would be the Psychological Capital of the individual.[15]

(ii) Academic Adjustment questionnaire (AAQ):
The original questionnaire comprised of 67 questions [17], but it had been modified to comprise of 28 questions. The scoring will be based on a 9-point Likert Scale from (1)Suits me very much to (9)Doesn't suit me at all. This questionnaire again consisted of four sub scales. The students 'academic achievements and management of academic requirements were measured in the first sub scale (2, 8, 15, 19, 21, 22).[15] There were eight items in the second sub scale, which measured the students social skills as a function of their interpersonal relations (3, 5, 7, 11, 16, 20, 24, 25)(15). The third sub scale assessed the personal emotional well being of the student (1, 4, 9, 12, 14, 17, 26), and the final sub scale assessed the students' satisfaction with their academic institution (6, 10, 13, 18, 23, 27, 28).[15] The score ranged from 28-252. The higher the score, the higher would be the academic adjustment of the student.

RESULTS
Table 1 illustrates the basic characteristics of those who participated in the study. The average age of the students was 21.9 years, with a minimum and maximum of 18 and 27 years respectively. The distribution of male and female students was roughly equal, with each accounting for 51.5 and 48.5 out of 100 (51.5% and 48.5%) respectively. The maximum number of students came from the third academic year of Medical School, which was 73 (31.9 of 100; 31.9%), which was followed by final year which made for 63 (27.5 out of 100; 27.5%) of the total number of students. The number of interns who took part in the study was 54 (23.6 out of 100; 23.6%), while the least amount of participants who provided information came from the second year, which was 39 (17 out of 100, ;17%).

As far as their previous University Examinations were considered, the major demographic fell in the category of those scoring between 50-65 out of 100 (50-65%). These students accounted for 60.7 of 100 (60.7%) of the total number. The least number of students came from those who scored less than 50 out of 100 (50%), which is the score required to pass the University Exam. They constituted roughly 1.3 out of 100 (1.3%) of the entire sample size.

Table 1 Basic characteristics of the participants

Variable	Statistics	Value
Age	Mean	21.9 years
	S. D.	1.34
	Minimum	18 years
	Maximum	27 years
Variable	Categories	Frequency (%)
Sex	Male	118 (51.5%)
	Female	111 (48.5%)
Academic year	Second	39 (17%)
	Third	73 (31.9%)

	Final	63 (27.5%)
	Internship	54 (23.6%)
Marks obtained in last University exam	> 75 %	6 (2.6%)
	65-75%	81 (35.4%)
	50-65%	139 (60.7%)
	< 50%	3 (1.3%)

Table 2 gives information regarding the questionnaire averages and standard deviations of the two research variables ie Psychological Capital (PsyCap) and Academic Adjustment (AA). PsyCap has been divided into four sub-categories based on different parameters. Similarly, AA too has been divided into four sub-categories. The mean and standard deviation values were calculated for both the variables individually, by considering the variable as a whole and then calculating the values based on the different categories one by one.

For **PsyCap**, the mean of the responses to the questionnaire as a whole was 3.28, with a standard deviation of 0.74. While looking at the sub scales, any significant differences could not be appreciated from the table. All the four sub scales, viz. "self efficacy", "hope", "optimism", and "resilience" had mean values which fell within the range of 3.20 to 3.35, with the standard deviation values ranging from 0.70 to 0.85.

On the other hand, some differences could be appreciated in the **AA** questionnaire. The mean for all the questions put together was 4.16, and the standard deviation stood at 1.53. The sub scale "academic achievement" had a mean on 3.94 while the standard deviation was 1.60. The sub scale "personal-emotional" showed a mean of 4.41 with a standard deviation of 2.10. The means of the remaining two sub scales viz. "social" and "institutional" were closer to the 4.00 mark, being 4.10 and 4.17 respectively. The standard deviations for the two were 1.62 and 1.72 respectively.

Table 2 Questionnaire averages and standard deviations of the two research variables

Variables	Subscale	Mean	S.D.
Psychological capital	General	3.28	0.74
	Self-efficacy	3.26	0.82
	Hope	3.35	0.82
	Optimism	3.24	0.75
	Resilience	3.27	0.76
Academic adjustment	General	4.16	1.53
	Academic achievement	3.94	1.60
	Social	4.10	1.62
	Personal-emotional	4.41	2.10
	Institutional	4.17	1.72

Table 3 shows Pearson correlations between the sub scales of PsyCap and Academic Adjustment. A strong positive correlation was observed among the individual sub scales of PsyCap with $r \geq 0.79$ & $p < 0.001$. Similarly, all the sub scales of academic adjustment were significantly and positively correlated with one another, $r \geq 0.54$ & $p < 0.001$.

Among the academic adjustment sub scales, personal-emotional was the only sub scale which was strongly and positively associated with the PsyCap sub scales, $r \geq 0.22$ & $p < 0.001$. All other sub scales of academic adjustment showed either very weak or non-significant correlation with all the PsyCap sub scales, $r \leq 0.15$ & $p < 0.05$.

Table 3 Intra and inter Pearson correlation between PsyCap and Academic Adjustment sub scales

Variable	Subscale	1	2	3	4	5	6	7	8
Psychological capital	1. Self-efficacy	1	-	-	-	-	-	-	-
	2. Hope	0.87***	1	-	-	-	-	-	-
	3. Optimism	0.79***	0.86***	1	-	-	-	-	-
	4. Resilience	0.82***	0.87***	0.86***	1	-	-	-	-
Academic adjustment	5. Achievement	0.09	0.15*	0.09	0.13*	1	-	-	-
	6. Social	0.02	0.09	0.04	0.06	0.77***	1	-	-
	7. Personal-emotional	0.34***	0.31***	0.22***	0.26***	0.67***	0.54***	1	-
	8. Institutional	0.08	0.13*	0.06	0.12	0.78***	0.82***	0.56***	1

*** $p < 0.001$, * $p < 0.05$

DISCUSSION

The aim of this study was to determine a connection between PsyCap and Academic Adjustment, and if a higher PsyCap score warranted good Academic Adjustment scores. Academic success is intrinsically associated with academic adjustment, and it forms the foundation of an individual's professional and social integration into society. Conducting an investigation of students' ability to utilize resources which will likely help them in their academic life thus garners a lot of significance. As stated before, studies explicitly linking PsyCap and its potential to influence academic adjustment have been quite rare; perhaps none has been conducted in India, among medical students, or other tertiary education courses. We hypothesized that PsyCap would prove to positively relate with academic adjustment.

Medical Students have always been under pressure to perform satisfactorily-not only from the perspective of examinations, but also to hone their skills for them to emerge as better doctors[5], which has led them to put in a few extra hours of study, thus enabling most of them to perform well above the passing grade. Findings yielded that although the number of students who scored above 75% was small, those who could collectively score above the passing grade was much higher than those who couldn't is well worth noticing. This suggests that Medical Students are generally motivated in their endeavors, and this perseverance towards achieving their short and long term goals translates into success in examinations, thus agreeing to the inherent quality of Academic Adjustment-motivation. Therefore, the aspect of motivation, pressure, and good study habits is a driving force behind any student's performance as observed in a number of studies. A model that has garnered significant support within literature is the one by Vincent Tinto.[19] His model proposed that academic talent and a student's willingness and enthusiasm paved the way for his or her integration into the institution, thus helping with their academic ambition.

While this model does take into account the a student's academic history, it does not deem the same to be an element responsible for student withdrawal. Pantages and Creedon stated that poor study habits in students made them more likely to withdraw from University, or have problems adjusting academically, especially while transitioning from high school to University.[20]

Similarly, Cone and Owens stated that first year college students who lacked in study skills were more likely to be wary of their new academic setting, thanks to which their academic success would be further impaired. However, we must interpret this study with caution, since the researchers failed to measure study skills before or after the study skills course.[21] Abbott-Chapman, Hughes, and Wyld in their publication mentioned that those who performed better at university had an active liking to study than those who were not motivated to do the same.[22] However, the key academic factors that they highlighted in their study were secondary school grades and study skills of a student, which may not be entirely reliable[26]. The above studies were carried out among students enrolled into courses other than the Health Sciences, whereas our study focused

exclusively on Medical Students, due to the dearth of literature assessing their psychological capital.

The Pearson correlation showed that there was a strong compatibility between the sub scales of PsyCap. Similarly, the sub scales of Academic Adjustment also strongly correlated with one another. But "personal-emotional" component of the AA questionnaire was the only sub scale that was strongly associated with those of PsyCap. The rest of the comparative findings were insignificant. This goes on to suggest that the interpersonal relationships and the emotional component along with them played a pivotal role in a Med Student's life and building of their psyche. On the other hand, the study conducted by Liran and Miller showed a strong correlation between psychological capital and academic adjustment among university students of various disciplines, with hope and resilience playing an important role in the students' GPA.[15]

To conclude, evidence from this study implies that strong bonds formed between Medical Students lead them to have a better psychological capital, thereby contributing to healthy emotional status and thus motivating them to perform better in college. Also, PsyCap being a positive influence in enhancing an individual's well being, and attrition into university is also reinforced. Due to its dynamic status and malleability, [8,9,11,12] it can be easily utilized by medical universities to help students get incorporated into academic life, thus forging an all round development and improvement of their mental health.

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