

Original Research Article

An Exploration Into the Inter Relationship between Personality and Metacognitive Awareness of I Year Medical Students

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ABSTRACT

Introduction: Academic stress is the hallmark of present day medical education. To facilitate the learning process, stress alleviation either in the form of therapy or strategies should be implemented. Personality and metacognitive awareness are well known predictors of academic success. Of these two predictors, metacognitive awareness can be inculcated by using specific strategies while moulding the personality of an adult learner is challenging. Hence it can be hypothesized that by improving the metacognitive awareness, a medical student irrespective of personality can be trained and nurtured into an excellent learner and a competent, compassionate doctor provided an interrelationship exists between the two.

Aim: The aim of this study was to find out the prevalent personality types, the metacognitive awareness levels in the first year medical students and an interrelationship if any between these variables.

Material and methods: Validated questionnaires to assess personality (big five personality test) and metacognitive awareness inventory were administered to the first year medical students. Statistical tests involved were ANOVA and spearman's correlation tests on SPSS version 22.

Results: Of the 80 students who consented to participate, conscientiousness was the predominant personality followed by openness, neuroticism, extroversion and agreeableness. Our students were moderately metacognitively aware. The traits of conscientiousness, openness and neuroticism ($p < 0.01$) were positively correlated with metacognitive awareness while extroversion and agreeableness were negatively correlated.

Conclusion: Personality exert a profound influence on the metacognitive awareness of the learners. Metacognitive awareness can be taught and strategies can be implemented to improve the awareness in students which may be of particular use in extroverted and agreeable student in order to optimize academic performance.

Key words: metacognitive awareness, big five personality, academic performance, medical student

INTRODUCTION

Stress is the hallmark of present day medical education and an individual's response to stress depends on his personality. ^[1] Personality in medical students though being an easy trait to measure is difficult to define and mould. ^[2] One of the current debates in medical

education is the role played by personality to help cope with stress. Personality has been defined as the 'dynamic organization within the individual of those psychological systems that determine his unique adjustment to his environment. ^[3] Of the various types of stress that a student faces like social related stress, inter personal

stresses; academic stress stands out as a negative factor hindering the academic progress of the learner. [1] Researchers have analysed various predictors of academic success and the role of metacognition is emerging as a strong positive determinant. [4] Metacognitive awareness, which is knowledge concerning one's own cognitive process differentiates an average from an expert learner. [5,6] Metacognitive awareness is said to bridge the gap between 'knowing what' and 'knowing how'; a dichotomy which is the fundamental weakness among learners. Metacognitive awareness can be inculcated using specific strategies while moulding the personality of an adult learner is challenging. Hence it can be hypothesised that by improving the metacognitive awareness among students, we have a path towards nurturing them into expert and efficient learners irrespective of the personality trait that dominates in them.

MATERIALS AND METHODS

This is a cross sectional study and was done on 100 I year medical students in a medical college in South India, of which 80 consented to participate in the study. After obtaining institutional ethics

clearance, the big five personality questionnaire and the metacognitive awareness inventory was administered to the students during class hours and it took them approximately one hour to fill the questionnaires. The results were tabulated and statistical analysis (ANOVA and Spearman's correlation tests) was done using SPSS version 22.

Personality questionnaire: IPIP Big Five Factor Markers: This validated tool has 50 questions graded on a 5 point Likert scale from 1 (disagree) to 5 (agree). The five traits of personality looked for include openness, conscientiousness, extroversion, agreeableness and neuroticism. The scores obtained are added and while all traits are generally present in everyone, one particular trait predominates which is used to identify a person's personality. [7]

Metacognitive awareness inventory: by Schraw and Dennison has 52 questions of the true or false variety. One mark is awarded for every option that is marked 'true' and the total marks calculated. [8] The students are grouped into categories of low awareness (<50% of maximum score obtainable), moderately aware (50-80%) and highly aware (>80%).

RESULTS

Table 1- Personality traits in the study population

	Extraversion	Conscientiousness	Neuroticism	Agreeableness	Openness
N	80	80	80	80	80
Mean	2.010	2.879	2.143	1.632	2.167
SD	0.718	0.567	0.750	0.747	0.514

Table 2: Personality traits in students with low, average and high metacognitive awareness

Metacognitive awareness		Extraversion	Conscientiousness	Neuroticism	Agreeableness	Openness
<50	N	11	11	11	11	11
	Mean	2.14	2.95	1.76	1.72	2.19
	SD	0.52	0.34	0.59	0.59	0.57
50-80	N	65	65	65	65	65
	Mean	2.00	2.85	2.16	1.60	2.13
	SD	0.75	0.61	0.75	0.77	0.50
>80	N	4	4	4	4	4
	Mean	1.83	3.18	2.93	1.85	2.70
	SD	0.69	0.25	0.46	0.92	0.45
p value		0.739	0.483	0.025*	0.746	0.10

*p<0.05 (ANOVA)

Table 3- Spearman's correlation of metacognitive awareness with personality traits

Spearman's rho	MA	Extraversion	Conscientiousness	Neuroticism	Agreeableness	Openness
Correlation Coefficient	1	-0.071	0.024	0.305**	-0.024	0.106
P value		0.529	0.832	0.006	0.832	0.347
N	80	80	80	80	80	80

**p<0.01

DISCUSSION

First year medical students experience a paradigm shift in their mental, emotional and academic outlook. The exhilaration of having secured admission into a professional course soon fades under the influence of multiple stressors namely social stresses, teaching related stresses, inter and intrapersonal related and academic stresses. With time, the student learns to adapt to most of the stresses, except academic stress. In this scenario, the innate personality of a student will distinguish his coping ability from that of his peers. Being aware of one's own strengths and weakness plays a key role in the coping process. The present study explores the inter relationship of personality and metacognitive awareness. The results of this study can be used to develop tools and techniques to alleviate stress and ensure academic progress which is the larger aim of this study.

On analysing the personality traits of first year medical students (Table 1), we note high levels of conscientiousness (mean = 2.87) in our students followed by openness (mean = 2.16) and neuroticism (mean = 2.16), while agreeableness (mean = 1.63) is the lowest. Many studies have revealed that conscientious students outperform the others. [9,10] Studies are contradictory in the type of personality spread among medical students with some researchers claiming that most of their students are agreeable, [11] while others claim that their students tend towards extroversion. [12]

Table 2 shows that most of our students have moderate metacognitive awareness (50-80%) and only 4 were highly metacognitively aware (>80%). The personality trait of students with high awareness was looked in to; conscientiousness and neuroticism stand out as their predominant traits with a mean of 3.13 and 2.93 respectively. Research has already proven that metacognitive awareness is a positive predictor of academic success. [13] This can be extrapolated to understand that those with

conscientious and neurotic personality will have an enhanced academic outcome. 81 % of the subjects were in the moderate metacognitive awareness category. These students scored high on conscientiousness followed by neuroticism, but the mean values were 2.85 and 2.16 respectively. The low metacognitive awareness group (n=11; mean <50%) has personality traits similar to the other groups, but the interesting find in them was the existence of a predominant extroversion trait and the absence of neuroticism. This further strengthens our belief that neuroticism has a positive impact on academic outcome. However, the role of neuroticism remains controversial and further research is needed to come to a consensus. Students with traits such as conscientiousness, neuroticism and openness have a desire for self improvement while high neurotics and extroverts require extrinsic motivation. [14] This to a large extent provides clarity in the role to be played by educators by identifying extroverts and high neurotics and providing them with constant motivation to prevent academic decline. The traits of extroversion and agreeableness are essential for communication with patients. [15] This calls to attention the fact that our students are in the first year of medicine and are not required to interact with patients. As researchers it will be interesting to study the student as a whole from his transition years in preclinical to clinical medicine and to note if patient exposure would help him mould his personality by inculcating the traits of extroversion and agreeableness which are at present deficient in him.

Table 3 analyses the correlation of metacognitive awareness with the five major personality traits. Conscientiousness, openness and neuroticism are positively correlated while agreeableness and extroversion are negatively correlated with metacognitive awareness. Neuroticism is the most hotly debated and controversial personality trait. The domain of neuroticism stands for a tendency to experience negative emotional affects. [16] Despite of all these

negative traits, the higher awareness in these subjects is in their favour. Being aware of their negatives will act as a motivating factor in the neurotics and help them develop strategies to overcome them, thus moulding their personality. In our study, we find that our neurotics are highly conscientious, a trait that was developed to counter the negative effects of neuroticism or it exists independently, remains to be seen. Many studies claim a negative relationship of neuroticism with metacognitive awareness and academic performance, which is not seen in this study. [17- 19]

Conscientiousness domain highlights the tendency to show self discipline and aim for accomplishment. [16] Can too much conscientiousness lead on to neuroticism? This remains to be explored. Openness is the tendency to be curious and to explore both the inner and outer world. [16] This trait was found to be positively correlated in our students with metacognitive awareness. Agreeableness and extroversion traits were negatively correlated with metacognitive awareness. Extroverts need external stimulation to work and the company of others. They are highly social beings. Agreeable individuals build harmony in social situations. But both these traits were found to be negatively correlated with metacognitive awareness, giving rise to further avenues for research.

CONCLUSION

Metacognitive awareness is known to be a predictor of academic success, but the point remains whether all students should be equally trained in developing awareness or should the awareness development be individualised, since they all have varying amounts of metacognitive awareness. Personality is found to have an intricate relationship with metacognitive awareness and hence identifying students with personality traits known to be deficient in metacognitive awareness and devising personality specific metacognitive awareness strategic tools for overall

academic well- being may be a wiser and more practical path.

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