DOES ANXIETY AFFECT ACADEMIC PERFORMANCE IN MEDICAL HEALTH CARE PROFESSIONALS?

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ABSTRACT

Objective: To investigate the effect of state and trait anxiety on academic performance in medical health care professionals.

Study Design: Cross-sectional analytical study.

Place and Duration of Study: Study was conducted at Army Selection and Recruitment Center, Rawalpindi during February to March 2019.

Methodology: Total sample size (N = 152; female n = 116; male n = 36) of medical health care professionals participated in this research. State and Trait Anxiety Questionnaire was administered on candidates of General Duty Medical Officers (GDMOs) course (doctors) before their preliminary test. The data from participants were analyzed by using bivariate correlation and stepwise multiple regression through SPSS-22.

Results: Results indicated that there was significant positive relationship between state anxiety and trait anxiety; intelligence quotient and academic performance. Trait anxiety was significantly correlated with intelligence quotient, whereas, state anxiety was nonsignificantly related with intelligence quotient. Moreover, there was non-significant relationship between state and trait anxiety with academic performance. Furthermore, trait anxiety (β = -.22, p < .01) and age (β = -.23, p < .01) were significant negative predictors of intelligence quotient. Age (β = -.45, p < .001) was significantly negative but intelligence quotient (β = .15, p < .05) was significant positive predictor of academic performance.

Conclusion: The medical health care professionals might be resilient enough that they easily cope with the situation and perform effectively in their daily activities.

Keywords: State Anxiety, Trait Anxiety, Academic Performance, Medical Health Care Professionals.

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INTRODUCTION

The prevalence of anxiety and depressive symptoms are common among medical health care professionals. Mental health of medical health care professionals affects their professional performance[1]. The incidents of anxiety and depressive symptoms were higher than average among medical students as compared to general population[2]. Anxiety is an emotional state consists of feeling, tension, apprehension which effects the nervous system of an individual. These are distinguished into state and trait anxiety[3]. The emotional state of an individual's interpretation of a stressful situation at a particular period of time is called state anxiety, whereas, enduring personality characteristic that characterize individual's feeling of anxiety. Spielberger's theory of anxiety states that when a person having certain level of anxiety leads to interference in the performance through cognitive interference, worries and fears induced by anxiety[4]. The Medical health care professionals who are dealing with emergency patients in emergency departments are considered to be more stressful as compared to all other departments. As they are predisposed of prolong stress which leads to physical and inconsequential psychiatric problems. The most commonly found psychiatric manifestation was anxiety and depression among emergency health care professionals[5].

Medical students commonly reported depression and anxiety among all mental health

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problems which are associated with poor academic performance and quality of life[6]. Furthermore, previous research also indicated that there is negative relationship between test anxiety and academic achievement among nursing students. Evidence suggests that there is a negative relationship between test anxiety and exams performance. Worry and emotionality were the significant negative predictors of written exams scores among chiropractic students. Anxiety and depression negatively affect academic performance among Pakistani medical students. Negative emotionality also has negative impact on academic achievement of medical students. The previous research indicated that the higher prevalence of anxiety as reported by medical students therefore, present research was conducted on medical graduates and postgraduate professionals to study the effect of state and trait anxiety on academic performance[7,8].

Gender difference was also reported as female medical students experience more symptoms of anxiety. Depressive symptoms negatively affect the academic performance of both genders. A systematic review also revealed that assessment related anxiety experienced more among female medical students and negatively affects their performance. Depressiveness and test anxiety positive correlated with perceived imbalance between efforts spent and rewards received. Furthermore, trait anxiety positively related with state anxiety and feeling of overcommitment[6,8].

Intelligence is the capability to see the meaningful relationship of anything in the world through perceiving, knowing, reasoning and remembering. There is a significant relationship between degree of intelligence and level of achievement of an individual. Terman and Gessel defined intelligence as it is an ability to solve any problem by using abstract ideas. Research evidence suggests that both verbal and nonverbal intelligence predict future academic performance. Verbal intelligence are associated with readiness to learn, whereas nonverbal intelligence associated with potential to learn. Academic anxiety inversely affects the academic achievement. There is a significant difference between academic achievements of high and low academic anxiety groups of students. A large group of students experience anxiety in test situations which negatively affects their educational effectiveness which consequently society deprived from significant proportion of its workforce[9,10].

In previous literature it is indicated that the medical students experience anxiety from their entrance into the medical field. Therefore, the purpose of present study was to understand that whether state and trait anxiety effects academic performance in medical health care professionals. On the basis of previous literature it was assumed that state and trait anxiety negatively correlated with academic performance. It was also asssumed that state anxiety negatively predicts academic performance in medical health care professionals. Theoretically, present research provided a better understanding of the phenomenon that how state and trait anxiety affect the academic performance in medical health care professionals to the existing body of literature. The present research will be helpful for medical professionals and students for their well-being.

METHODOLOGY

A cross-sectional analytical research design was used to conduct present research. In order to collect the data of present study, formal institutional review board (IRB) approval and permission from the concerned authorities was obtained. Participants were approached before their preliminary subject test for selection in Pakistan Army. The participants were approached from February to March 2019 at Army Selection and Recruitment Center Rawalpindi who applied for GDMOs course (doctors) by using convenience sampling technique. The inclusion criteria of sample having minimum graduates in medical sciences and applied for recruitment in Pakistan Army. Total sample size (N = 152; female n = 116; male n = 36) medical health care professionals were participated in present research. Before administration of questionnaires, participants

were briefed pertaining to topic, objectives and significance of the research, thus rapport was built. After taking signatures on informed consent form for voluntary participation, demographic sheet and State and Trait Anxiety Inventory were given to the participants manually for completion with this assurance that their information would be kept confidential and anonymity would be maintained. During data collection, participants were provided guidance for completion of questionnaire and they were requested for genuine responses. After collection of data, participants and their concerned authorities were thanked for doing the needful. Therefore, online verbal, non-verbal intelligence test and preliminary subject test were conducted.

Following three assessments tools were used to measure the study variables. First, Sate and Trait Anxiety was measured by using State-Trait Anxiety Inventory (STAI) consisted of two subscales including state anxiety and trait anxiety[11]. The STAI consists of 40 items, 20 items for State Anxiety (item 1 to 20) and 20 items for Trait Anxiety (item 21 to 40). Item 1, 2, 5, 8, 10, 11, 15, 16, 19, 20, 21, 23, 26, 27, 30, 33, 34, 36, 39 are reverse scored. It is 4-point Likert scale for subscale of state anxiety response option is 1 = not at all, 2 = somewhat; 3 = moderately so; 4 = very much so, whereas, response option for subscale of trait anxiety is 1 = almost never; 2 = sometimes; 3 = often; 4 = almost always. The score ranges are from 20 to 80. High scores on subscale of state anxiety and trait anxiety indicates more state and trait anxiety[12,13]. Second Intelligence Quotient was measured by using verbal and non-verbal Intelligence test, and third Academic Perfor-mance was measured by taking preliminary subject test for recruitment in short service commission Pakistan Army.

Data was analyzed through SPSS-22 using descriptive and inferential statistics. Internal consistency was established using Cronbach's alpha coefficient value of State and Trait Anxiety Inventory is .81 and .78 respectively. Descriptive analysis including means standard deviation, skewness, kurtosis were computed which revealed that the data were normally distributed therefore, parametric test was used for further analyses. Bivariate correlation was computed to see the relationship between variables and stepwise multiple regression analysis was calculated to study the prediction of independent variable on dependent variable.

RESULTS

Total sample size (N = 152; female n = 116; male n = 36) having age range 22 to 34 years (M = 26.26 ± 2.68 years) medical health care professionals participated in present research. Out of all sample 120 (78.9) participants were MBBS, 10 (6.6%) BDS, 12 (7.9%) Postgraduates, 7 (4.6%) other medical sciences and 3 (2.0%) were not reported their education. Among all participants 98 (64.5%) were single, 46 (30.3%) were married, 5 (3.3%) were engaged, 1 (.7%) was divorced, 2 (1.3%) were not reported their marital status.

Bivariate correlation was computed, to investigate the relationship between study variables (table-I). The findings of present research indicated that there was significant positive relationship between state anxiety and trait anxiety; intelligence quotient and academic performance. Trait anxiety was significantly negatively correlated with intelligence quotient whereas, state anxiety was non-significant relationship with intelligence quotient. Moreover, there was non-significant relationship between state and trait anxiety with academic performance which rejects the research hypothesis (table-I).

Table-I: Bivariate correlation between study variables (N = 152).

S.no.	Variables	1	2	3	4
1	State anxiety	-	.35**	-.09	.02
2	Trait anxiety		-	-.24**	.08
3	IQ			-	.27**
4	AP				-
	Mean	38.49	37.17	109.73	42.37
	SD	10.10	8.58	18.77	11.75

IQ = Intelligence Quotient; AP = Academic Performance **p < .01.

Stepwise multiple regression analysis was computed to see the prediction of age, trait and state anxiety on performance on intelligence

quotient test. Table-II indicated that trait anxiety in Model 1 appeared as the strongest predictor showing 5.2% of the variance in intelligence quotient. In Model 2, age increased variance to 5.6%. Thus, a variance of .4% was added to the model, age was found negatively predicting intelligence quotient.

Moreover, prediction analysis was computed to see the effect of age, trait and state anxiety,

Table-II: Step-wise multiple regression for trait anxiety and age on predicting performance on intelligence quotient test (*N* = 152).

Predictors	Intelligence Quotient					
	R2	ΔR2	β	F	95% CI	
					Lower limit	Upper limit
Model 1	.05	.052				
Constant				7.94**	115.16	142.08
Trait Anxiety			-.22**		-.85	-.15
Model 2	.10	.056				
Constant				8.69***	141.87	208.70
Trait Anxiety			-.25**		-.91	-.21
Age			-.23**		-2.80	-.57

**p < .01, ***p < .001.

Table-III: Step-wise multiple regression for age and intelligence quotient on predicting academic performance (*N* = 52).

Predictors	Academic Performance					
	R2	ΔR2	β	F	95% CI	
					Lower limit	Upper limit
Model 1	.21	.21				
Constant				36.51***	82.22	121.18
Age			-.45***		-3.02	-1.53
Model 2	.23	.02				
Constant				20.70***	58.89	110.08
Age			-.41***		-2.81	-1.27
IQ			.15*		-	.20

*p < .05. ***p < .001.

intelligence quotient on academic performance. Table-III showed that age in Model 1 appeared as the strongest predictor showing 2.1% of the variance in academic performance. In Model 2 intelligence quotient increased variance to .2%. Thus, a variance of 1.9% was added to the model, intelligence quotient was found positively predicting academic performance (table-III).

DISCUSSION

The present research indicated that state and trait anxiety are nonsignificant predictor of academic performance as evidence suggests that a medical student's wellbeing is affected by a number of stressors and on the other hand positive aspects of medical training is to enhance coping skills and maintain their well-being throughout their career to minimize burnout and enhance resilience and professionalism among medical health care students[14-16]. In present research, age was the significant predictor of intelligence quotient and academic performance these findings were consistent with the view that fluid intelligence decreases with the age as compared to crystallized intelligence[17-20]. Earlier researches were consistent with the findings of present research that Intelligence quotient is positively related with academic achievement[21,22].

It assumed that medical students have high intelligence quotient and when they start applying theoretical knowledge into practice it is important to study their emotional quotient as well, therefore, previous research was conducted and findings indicate that there was nonsigni-

ficant relationship between intelligence quotient and emotional quotient among medical intern[23]. Thus, this might be the reason that in present research state and trait anxiety have nonsignificant relationship with academic performance which rejects our primary research hypothesis. As the participants have applied for short service commission, therefore, they performed in subject test with full devotion, keen interest and up to the maximum possible capability to qualify for final selection.

The cross-sectional research design was used to carry out present research and extraneous variables were not controlled which could affect the findings of research, therefore, it should be studied in future research. Longitudinal study could also be designed to understand the phenomena in medical health care professionals. The findings of study were less generalizable due to small sample size and data was collected from only single batch of candidates those applied to join Pakistan Army. Thus, data should be collected from medical health care students and professionals from other cities as well, to compare their findings.

CONCLUSION

State and trait anxiety have no significant effect on academic performance in medical health care professionals. Therefore, it is also suggested to explore that medical health care professionals are resilient enough that they easily cope with the situation and perform effectively in their daily activities.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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