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ANXIETY AND EMOTIONAL REGULATION;

ANXIETY AND EMOTIONAL REGULATION AMONG PUPILS OF A STATE-OWNED MEDICAL INSTITUTION: A GENDER PERSPECTIVE.

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ABSTRACT: Medical education is the preference among the Pakistani students and families, despite the awareness that medical education is hectic due to massive knowledge to be acquired and multiple examinations to be cleared. Therefore, once entered to a medical college, only those students can pass with good grades, attain the degree, and enter in the field as qualified doctors who indulge in serious studious activities. Thus, the medical colleges trigger a lot of stress and anxiety for the students which eventually influences their emotions and emotion related abilities. **Objectives:** To explore the relationship of anxiety and emotional regulation among undergraduate medical students of Federal Medical and Dental College. **Study Design:** Descriptive research design. **Setting:** Federal Medical and Dental College, Islamabad. **Period:** 6 months from July 2015 to December 2015. **Method:** A sample comprising 300 medical students was selected from Federal Medical and Dental College. Consensus sampling was used for data collection. Relationship of anxiety and emotional regulation was analyzed using Beck Anxiety Inventory by Aaron Beck (BAI) (1988), Emotional Regulation Questionnaire (Gross & John, 2003). **Results:** The results show that there exists a substantial positive relationship between anxiety, expressive suppression and emotion regulation and noteworthy negative association between anxiety and cognitive reappraisal. Anxiety and emotional regulation are significantly related with gender. Females have higher anxiety as compared to males and female medical students use more expressive suppression emotion regulation strategy as compared to male medical students. **Conclusion:** Medical students have higher levels of anxiety which calls for appropriate measures so that their anxiety levels may be reduced and students may learn healthy emotional regulation to lead a better adjusted life.

Key words: Anxiety, Gender, Medical Students, Public Sector, Stress.

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INTRODUCTION

Anxiety is considered as a state of fear that may evoke avoidance behaviors and defense reactions. It can also be described as a precise feeling essential for the preparation to escape from a perceived danger or fearful condition. Anxiety is a subjective feeling of apprehension, nervousness, tension, and worry related to the arousal of automatic nervous system. Anxiety can gravely have a negative influence and can inhibit the ability of attentiveness and daily activities.[1]

Emotion regulation is defined as a method by which individuals control the nature and timings of their emotions and develop coping mechanisms.[2] Gross classified regulation strategies into antecedent-focused strategies, which are intended to attend the emotion-eliciting stimulus, and response-focused strategies, which tend to deal with the behavioral or physiological reactions evoked by a stimulus or situation.[3] Cognitive reappraisal is a type of the antecedent-focused strategies. We can define *cognitive reappraisal* as the effort to reinterpret an emotion evoking situation in such a manner that it modifies the meaning and alters the emotional influence.[4] It is the way that alters meaning and changes its emotional impact. Expressive suppression is a type of response-focused strategy. *Expressive suppression* is defined as the effort to conceal, inhibit or lessen the ongoing emotion expressive behavior.[5]

A mounting interest in emotion regulation research advocates that the concept of emotion regulation is imperative for comprehension of the commencement, continuance, and management of anxiety disorders. Research confirms that deficits in emotion regulation predicts the development and continuance of anxiety disorders.[6]

Furthermore, studies conducted on non-clinical adolescent population also reveal that deficits in emotion regulation can lead to anxiety symptoms.[7] College students with emotion regulation difficulties also reported prevalence of anxiety symptom severity.[8]

Research based on the Clinical population reveals that individuals diagnosed with generalized anxiety disorder (GAD) exhibit deficits in emotional clarity, a shoddier understanding of feelings, aggravated negative reactivity to sentiments, as well as a reduced amount of acceptance and reduced successful management of emotions.[9]

The emotion dysregulation model speculates that General Anxiety Disorder (GAD) is manifested by quick and intense emotions. Higher emotional reactivity in this disorder makes it difficult to regulate the emotions and this fosters the complications by making it difficult to identify and understand emotions.[10] Mennin and colleagues noticed that GAD patients showed signs of difficulties in order to understand emotions, negative emotional reactivity, and a failure in self-relaxation subsequent to the experience of negative emotions as compared to their healthy controls.[9]

Moreover research provides evidence that individuals with panic disorder utilize avoidant strategies more frequently while dealing with with anxiety-provoking situations[11] and ironically the usage of avoidant strategies enhances the anxiety symptoms[12] therefore, causative for the development and continuance of anxiety symptoms or disorders.[13] In contrast to healthy controls, people diagnosed with social anxiety disorder tend to have much more difficulty in identifying and describing emotions which gets intense when they have to face negative events. Correspondingly, the symptom severity and impairment among these individuals is linked with deficits of emotional intelligibility, underperformance of emotional acceptance, and complexity in holding goal-directed behavior and regulation of emotions.[14]

There is paucity of data regarding the relationship between emotional regulation and anxiety amongst medical students in the international research work. Also we could not find any local study stating this association so we explored the interrelation between the two variables.

The present study will provide a clear picture regarding prevalence rate of anxiety levels among medical students. It will help the public health specialists to formulate an effective behavior change plan and employ the correct emotion regulation strategies needed to focus on students' coping mechanisms and self-monitoring systems. It will help the medical science institutes and academia to design programs that focus on stress and burden free educational system. Programs may be developed to increase the emotion regulation abilities of medical students.

METHODS

The present study was conducted after getting approval from the ethical committee and written informed consent from the respondents. It was based on a descriptive research design. The sample of the study was collected from undergraduate medical students of Federal Medical and Dental College, Islamabad. It was a census study (All students enrolled in the college at that time were included in the study). The duration of the study was 6 months. A total of 300 students were requested to participate in the study. Five students did not give consent to fill the questionnaires and seven questionnaires were not completely filled so they were not included in the study. A data of 288 students was analyzed.

A demographic data sheet was developed to measure variables like age, gender, marital status, medical year, socio-economic status, family income, and boarding status. Tools used to

collect data included Beck Anxiety Inventory and Emotional Regulation Questionnaire.

The Beck Anxiety Inventory by Aaron Beck (BAI) is a 21-item self-report measure that has been developed to evaluate the symptoms of anxiety.[15] The scale provides the response categories that are scored on a 4-point Likert scale ranging from not at all = 0 to severely=3. The BAI is a reliable tool to be used. The Cronbach's alpha values ranges from .92 to .94 and test-retest reliability with one week interval is .75.

Emotional Regulation Questionnaire is a 10-item scale designed by Gross & John in 2003 to measure the tendency of an individual to regulate their emotions through two strategies: a) Cognitive Reappraisal and b) Expressive Suppression (101).[16] Each item is responded on a 7-point Likert-type scale scored a strongly disagree=1 to strongly agree = 7. The scale consist of two facets where Item no 1, 3, 5, 7, 8, 10 represent the Cognitive Reappraisal facet and Item no. 2, 4, 6, 9 represent the Expressive Suppression facet. The scoring of each facet is kept separate for the purpose of analysis. Cronbach alpha of the scale ranges from from .79 to .73 and test-retest reliability is .69.

Statistical Package for Social Sciences (SPSS) version 21 was used for the analysis. Pearson product moment correlation coefficient was calculated to assess relationship between anxiety and emotional regulation among undergraduate medical students of Federal Medical and Dental College. t-test was applied to study the gender difference in use of emotion regulation strategies among students of medical College.

RESULTS

Reliability Analysis of Beck Anxiety Inventory and Emotion Regulation Questionnaire for our study was done. Cronbach Alpha for Beck Anxiety Inventory and Emotion Regulation Questionnaire was found to be .88 and .74 respectively which shows that the items have a suitable internal consistency and thus are reliable to be used for study.

Table-I showing the demographics of our study revealed that most of the students were in the age range of 21-25 years with 130 female respondents and 158 male respondents participating in the study. Data revealed that 280 students were unmarried and 8 students were married. Majority of the students belonged to middle socioeconomic strata. Most of the students were found to have no medical or psychological history. 70.8% of the students were found to have no history of medical or psychological illness in their relatives while 29.2% of the students showed a positive history of medical and psychological illness in their relatives.

Our study indicates the prevalence of anxiety levels among the two age groups of medical students. The findings show that students with the age range of 21-25 years indicate higher trends of all anxiety levels as compared to students in the age range of 15-20 years. Amongst the students with higher trends of all anxiety levels 86 students showed low anxiety, 62 students depicted moderate anxiety whereas 13 students showed severe anxiety as depicted in Figure-1.

Moreover anxiety levels in day scholar students and boarders were also found. The findings mark that boarders had higher reported frequencies of low anxiety, moderate anxiety and severe anxiety i.e. 98, 66 and 17 respectively whereas day scholars reveal frequencies of low anxiety to be 66, moderate anxiety to be 33 and severe anxiety to be 8.

Anxiety levels amongst the students with different socio-economic backgrounds were also recorded. Students belonging to average socio-Economic strata indicate higher anxiety levels as compared to the students coming from the higher or lower socioeconomic strata. The frequencies of low, moderate and severe anxiety amongst the students coming from average socioeconomic strata were 121, 70 and 20 respectively.

Table-II specifies that the outcomes are very significant ($p \leq 0.01$). The results illustrate that there subsists a significant positive association between anxiety, expressive suppression and

emotion regulation and significant negative association between anxiety and cognitive reappraisal.

Results also reveal the prevalence of anxiety levels among the medical students of the public sector medical college. The students' range of anxiety levels is delineated as low anxiety to severe anxiety. 56.9% of the students were found to have low anxiety, 34% of the students suffered from moderate anxiety and 8.7% exhibited severe anxiety. The results did not reveal students with no effects of anxiety.

Table-III indicates that male and female medical students differ in anxiety, i.e. females have higher anxiety as compared to males. The results are significant at 0.01 level of significance. The results also reveal a gender difference about the use of cognitive reappraisal strategy, males tend to use more cognitive reappraisals as compared to females. The results are significant at 0.05 level of significance. The gender difference on expressive suppression indicates that female medical students use more expressive suppression emotion regulation strategy as compared to male medical students. The results are significant at 1% level of significance.

Figure-2 illustrates the prevalence of anxiety levels among the male and female medical students. Our results show that males tend to be high on Low Anxiety, whereas female tend to be high on moderate and severe anxiety.

Demographic Variables	F	%
Age 15-20	127	44.1
21-25	161	55.9
Gender		
Female	158	54.9
Male	130	45.1
Marital Status		
Single	280	97.2
Married	8	2.8
Medical or Psychological		
Illness in the respondents Yes	22	7.6
No	266	92.4
Socio-Economic Status below average	6	2.1
average	211	73.3
above average	71	24.7
Family Income 25000-34000	25	8.7
35000-44000	9	3.1
45000-54000	32	11.1
55000-64000	13	4.5
65000-74000	40	13.9
75000-84000	41	14.2
85000-100000+	128	44.4

	1	2	3	4
Anxiety	1	.502**	.745**	-.311**
		.000	.000	.000
		288	288	288
Emotion Regulation		1	.723**	.233**
			.000	.000
			288	288
Expressive Suppression			1	-.216**
				.000
				288
Cognitive Reappraisal				1

Table-II. Pearson's product moment correlation for anxiety and emotion regulation, expressive suppression and cognitive reappraisal (N=288)

	Gender	No.	Mean	SD	df	t	p	95% CI	
								LL	UL
Anxiety	Female	158	22.13	10.94	286	4.36	.000	3.04	8.05
	Male	130	16.58	10.49					
Cognitive Reappraisal	Female	158	24.62	6.94	286	2.29	.022	-3.58	-.27
	Male	130	26.55	7.29					
Expressive Suppression	Female	158	18.64	6.55	286	2.94	.004	.73	3.71
	Male	130	16.42	6.17					

Table-III. Mean, Standard Deviation and t-value of male and female medical students regarding anxiety, cognitive reappraisal and expressive suppression (N=288)

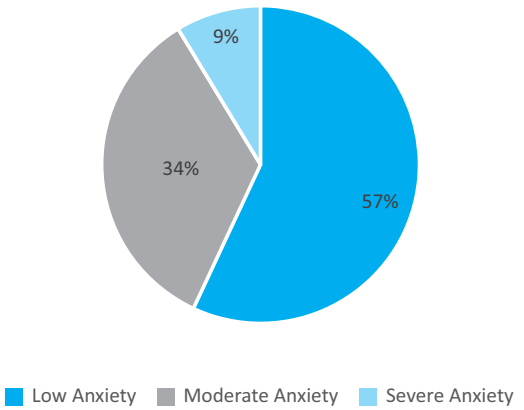

Figure-1. Prevalence of anxiety among Medical Students (N=288)

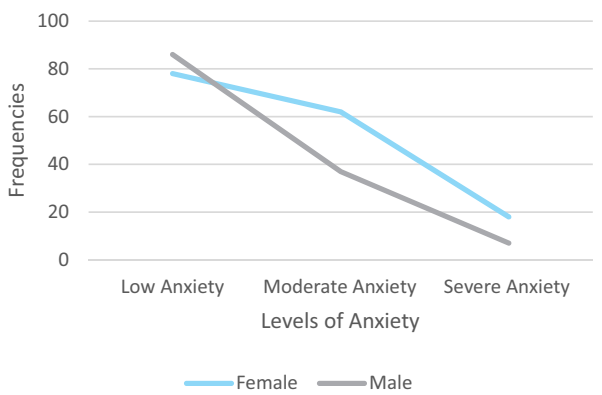

Figure-2. Prevalence of anxiety levels in male and female medical students (N=288)

DISCUSSION

The concept of emotion regulation has been explored progressively in the recent period, and this effort would have a significant impact on developing the prevention and treatment strategies for anxiety disorders. Emotion regulation practices can boost or weaken emotional responding, depending upon the utilization of the methodology. Emotion regulation appears to be a discrete concept that may have an influence on the expression of fear and anxiety. Individuals with anxiety disorders are characterized by the maladaptive patterns of emotion regulation. Furthermore, problems in emotion regulation remain meaningfully associated with the symptoms of anxiety disorder even when emotional regulation constructs, like general anxiety and depression, are measured.[10,11] Cisler et al proposed that an individual's approach and capability to control emotion is a chief element in the inception and management of anxiety disorders.[12]

Our study explored the prevalence of anxiety levels among the two age groups of medical students. The findings show that students with the age range of 21-25 years indicate higher trends of all anxiety levels with frequencies of 86, 62 and 13. There is paucity of data stating age range for increased levels of anxiety. However data related to variation in anxiety with reference to different years of medical college is available but that is in contrast to our study showing statistically insignificant differences in the anxiety levels with respect to different years. Unlike our study a mresearch reveals that anxiety is significantly decreased as the year of study is increased, except for the final year.[17]

In our research work we also investigated the prevalence of anxiety levels in the socio-economic strata. Average Socio-Economic strata indicate higher anxiety levels in all three types of anxiety. A study with similar results was conducted in India on a group of 460 adolescents (220 boys and 240

girls), aged 13-17 years showed that adolescents belonging to the middle class (middle socio-economic group) suffered more anxiety than those from both high and low socioeconomic groups.[18] In another research study 858 children from two different socioeconomic levels were compared. Outcomes show that children from lower socioeconomic levels had significantly higher anxiety scores, and girls were higher than boys on anxiety scales.[19] Very little work is done regarding the association of socioeconomic status and anxiety levels especially in the medical students.

Our study also reconnoitered the prevalence of anxiety levels in day scholar students and boarders. The findings mark that boarders had higher reported frequencies of low anxiety, moderate anxiety and severe anxiety i.e. 98, 66 and 17 respectively whereas day scholars reveal frequencies of low anxiety to be 66, moderate anxiety to be 33 and severe anxiety to be 8. Another study exhibiting similar results show that students living in university dormitories were significantly more depressed and anxious than those living at home.[20] Likewise study results of a research work displays Anxiety among the hostellers was found to be more as compared to non-hostellers.[21] However the level of anxiety among the day scholars and hostellers have not been reported in these studies.

Our research work showed that there exists a vital positive association between anxiety, expressive suppression and emotion regulation and noteworthy negative relationship between anxiety and cognitive reappraisal. The study by Moore et al states that expressive suppression is related with greater, and reappraisal with lesser, self-reported symptoms interrelated with stress. Expressive suppression was linked with post-traumatic stress disorder in their study. Depression and anxiety symptoms in a target population which has suffered from trauma were aided by rumination. Predominantly expressive suppression play a more important role than the cognitive reappraisal in the experience of symptoms associated with stress.[22] A meta-analysis scrutinized the correlation between cognitive reappraisal and expressive suppression, also it examined the mental health by evaluating indicators like life-satisfaction, positive affect, negative affect anxiety and depression. The results showed that cognitive reappraisal was correlated significantly and positively with positive indicators of mental health and negatively with negative indicators of mental health. Expressive suppression was correlated negatively with positive indicators of mental health, and positively with negative indicators of mental health.[23]

Consistent with the understanding of the emotional aspects of the lives of individuals, it is suggested by certain gender role theories that women utilize passive and internally focused responses to their emotions, for example rumination, whereas men employ suppression or avoidance to cope with stress. The emotion regulation approach differs among the males and females. Research reveals that men have to exert less in utilizing cognitive regulation as compared to women and women use positive affect for down-regulating negative affect to a greater degree than men.[24]

Our research work disclosed that male and female medical students differ in anxiety, i.e. females have higher anxiety as compared to males. The results are significant (0.01 level of significance). The results also reveal a gender difference on cognitive reappraisal, males tend to use more cognitive reappraisals as compared to females. The results are significant (0.05 level of significance). The gender difference on expressive suppression indicates that female medical students use more expressive suppression emotion regulation strategy as compared to male medical students. The results are significant at 1% level of significance. 279 students Wah medical college Female gender was meaningfully ($p=0.007$) associated with development of depression and anxiety analogous to research work in the West which testified higher psychological distress among female students.[25] In Faculty of Medicine, regarding anxiety according to the sex, 41.5% of male and 45.1% of female were found to be suffering from anxiety, while in Faculty of Pharmacy, 13.6% of male and 43.3% of female were found to be suffering from anxiety, based

on the cut-off point of anxiety.[26] A significant relationship, however, was found in a study between gender and anxiety where more females than males experienced anxiety.[27] In contrast a cross sectional study was done on the students of Ziauddin Medical University, who had spent more than six months in the medical school and no significant gender difference for presence of anxiety were found.[28] Students with and without anxiety and depression symptoms were not different regarding gender.[29] There is scarcity of data stating the differences in the practice of emotional regulation strategies among the male and female medical students. However a contrasting study by Susan reported women using rumination, reappraisal, seeking social support, problem-solving, and acceptance significantly more than men. No gender differences were found in suppression of emotion.[17] Several researches conducted amongst medical students reveal that female medical students suffer higher anxiety as compared to their male colleagues but none of these studies have explored the sub levels of anxiety across the male and female students like we considered low, moderate and severe anxiety levels in our study. Our study exhibited that males tend to be high on Low Anxiety, whereas female tend to be high on moderate and severe anxiety.

Findings cannot be generalized for the non-medical students as the study was performed on only the medical students. A sample including both the medical and non-medical students can give a better generalizability of results. In future research work can be done utilizing the other strategies and models of Emotional Regulation, not used in our study that may give an insight regarding the usage of emotional regulation strategies other than cognitive reappraisal and expressive suppression.

CONCLUSION

Verdicts of the relationship between anxiety and emotional regulation over and above the practice of emotion regulation strategies will aid the public health specialists to formulate an effective behavior change plan, obligatory to focus on students' coping mechanisms and self-monitoring systems.

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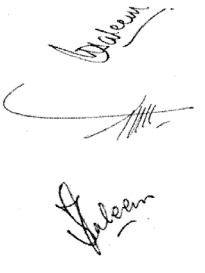
1	Shemaila Saleem	Conception and design, acquisition of data, interpretation of data, drafting the article and revising it critically.	
2	Iqbal Ahmad Khan	Conception and design, interpretation of data, drafting the article and revising it critially.	
3	Tamkeen Saleem	Conception and design, Analysis and interpretation of data, drafting the article and revising it critically.	