

## THE LEVELS OF DEPRESSION AND ANXIETY AMONG UNDERGRADUATE STUDENTS AT FIRAT UNIVERSITY FACULTY OF MEDICINE

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### ABSTRACT

**Aims:** The purpose of this study is to measure and assess the depression and anxiety levels among the students at Firat University Faculty of Medicine.

**Methods:** This questionnaire study was performed on the students at Firat University Faculty of Medicine between December 2014 and May 2015. It was carried out on a number of 299 undergraduate students under supervision. In this study, Beck Depression Inventory and Beck Anxiety Inventory were used. In statistical analyses, chi-square and independent t tests were applied for categorical and continuous data, respectively, with  $p < 0.05$  being considered as significant.

**Results:** Among those who were enrolled in the study, 25.5% were at the 1<sup>st</sup> graders, 12.4% were at the 2<sup>nd</sup> graders, 16.4% were at the 3<sup>rd</sup> graders, 18.1% were at the 4<sup>th</sup> graders, 18.1% were at the 5<sup>th</sup> graders and 9.4% were at the 6<sup>th</sup> graders. 6<sup>th</sup> graders showed significantly lower mean scores for Beck depression inventory as compared to 1<sup>st</sup> and 5<sup>th</sup> graders ( $p=0.007$  and  $p=0.015$ , respectively). 1<sup>st</sup> graders had significantly the highest mean score of Beck anxiety among others ( $p=0.016$ ,  $p=0.001$ ,  $p<0.001$ ,  $p=0.031$  and  $p<0.001$  respectively). 81.6% of undergraduate students reported to have been studying at the faculty of medicine by voluntarily. This ratio was 85% for female, and 77.7% for male subjects with no significant difference between the groups ( $p=0.104$ ). 54.4% of female and 41.7% of male subjects were living with their family ( $p=0.026$ ). Among all the undergraduate students enrolled in this study, 11.4% failed the class at least once during their academic calendar. However, this ratio was significantly less among female subjects (6.2% vs. 17.3%,  $p=0.003$ ).

**Conclusion:** No significant difference was found between those with and without failure at class, those coming up voluntarily and involuntarily, and those living with and without their parents in terms of Beck A and D scores.

**Keywords:** Depression, medical students, anxiety

### INTRODUCTION

Depression is an affective disorder with manifestation of depressive state. Anxiety is a common and unpleasant feeling that manifests itself as uncertain pessimistic foresight, which is likely to be experienced by anyone. It is accompanied by autonomic symptoms. Symptoms may vary from person to person during anxiety states. Depression and anxiety can often occur together (1).

It is suggested that about one in five adults has the risk of developing depression at least once in their life-

time (2). Many researchers reported an increased incidence of depression over the last twenty five years, particularly noting the increase in the prevalence of younger (3).

In a survey titled "Mental Disorders in Primary Care", which was conducted in 14 countries in coordination with the World Health Organization (WHO), the most common mental disorders in patients admitted to primary health care unit (10.4%) were found to be depression. Data from Ankara-Gölbasi field of the similar study showed that 17.6% and 11.6% were diagnosed

with mental disorder and depression, respectively. According to the survey of Mental Health Profile of Turkey, which is thought to be important as the sole study conducted on a sample nationwide, depression and anxiety disorders have proved to be the most common mental disorders (4). It seems a major public health problem that depression comes up as the second common health problem following upper respiratory tract infections (5).

During the puberty, individuals may experience some contradictions including social and physical changes: emotional, behavioral, sexual, economic, academic and social conflicts as well as increased efforts to solve their identity crisis along with psychosocial and sexual maturity. Mental health of undergraduate students is one of the most important components of social health during this period (6-8). Factors such as female gender, age, and living away from family have all been reported to increase the rate of psychiatric admission for undergraduates (9). It was also indicated that the majority of applications to counseling service among undergraduates originated from depressive symptoms with a percentage of 62% (10). Depression among medical undergraduate students is more common compared to general population. It was determined that the reasons could originate from the concern for the future, the lack of education, friendships, exam pressure and taking step into clinical experience. Depressive symptoms in medical undergraduate students may emerge during any time, however, those at the third and the fourth years when undergraduates begin clinical training at the hospital have more risks in terms of emerging symptoms (11).

In a study of Özdel et al. (12) conducted in Pamukkale University, mean scores of Beck Depression Inventory (BDI) were found to have a significant correlation with the department, the level of class, the ability to cover school expenses and the academic standing. As the ability of families to cover the school expenses worsened, depression scores were found to increase. On the other hand, a worsened success in lessons leads to increased score of depression. The presence of economic problems and friendships were found to have associated to depressive symptoms, as well (12). Depressive symptoms among medical students are of particular importance regarding their effect on student life as well as academic performance and treatment courses (13).

## MATERIAL AND METHODS

This paper is a field study conducted among the undergraduate students at Firat University Faculty of Medicine. For the purpose of determining the study subjects, a number of 299 undergraduate students from Firat University Medical Faculty were chosen between 2014 and 2015. Out of total 299 participants, 160 were female (53.5%) and 139 were male (46.5%). Age, gender, place of birth, living with family, studying medicine voluntarily, and any failure in class were all queried in the questionnaire form. Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) were used in the study. A total of 50 questions were directed towards the undergraduate students.

Beck Depression Inventory was first developed by Beck in 1961 in order to measure the depression risks in adults as well as measuring the level and changes in the severity of depressive symptoms (14). Validity and reliability studies in Turkish language were performed by Hisli in 1989. The cut-off score of the scale was set to be 17 (15). Often used in studies on depression, it is composed of a Likert-type self-assessment scale with 21 items, each of which relates to a behavioral feature relevant to depression. The items are assessed on a scoring between 0 and 3 depending on the severity of depression, summing up to a total score between 0 and 63 (16). Scoring between 0 and 9 indicates to “no depressive symptom”, whereas 10 – 16 shows “mild depressive symptoms”, 17 – 24 shows “moderate depressive symptoms” and 25+ shows “severe depressive symptoms” (14).

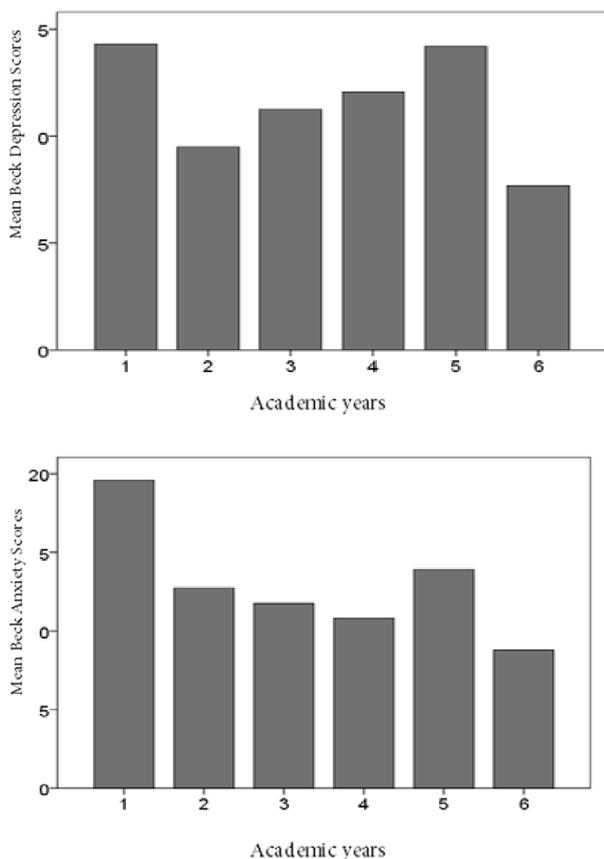
Created by Beck et al. (17), BAI is designed for use in determining the frequency of individual anxiety symptoms as a self-assessment scale. Similarly, it is composed of 21 items and known to be a Likert-type scale with a scoring between 0 and 3. Validity and reliability in Turkey was performed by Ulusoy et al. (18).

The questionnaire forms were provided to students in their classrooms under supervision. Before conducting the questionnaire, students were informed that they should not participate into the survey nor disclose their names, that the data to be obtained would only be used for the purpose of scientific research and that enough support and guidance would be provided for any of their questions and concerns about the research topic. Their informed consent was obtained, and those who accepted to participate filled in the questionnaire forms.

As for statistical analyses, chi-square and independent t tests were used for analyzing categorical and continuous data, respectively.  $P < 0.05$  was considered as significant in these analyses.

## RESULTS

Out of 600 undergraduate students who had been studying at Firat University Medical Faculty between 2014 and 2015, a number of 299 students were enrolled in the study. Of those, 160 were female (53.5%) and 139 were male subjects (46.5%). Among those who were enrolled in the study, 25.5% were at the 1st year, 12.4% were at the 2nd year, 16.4% were at the 3rd year, 18.1% were at the 4th year, 18.1% were at the 5th year and 9.4% were at the 6th year. The mean age was found to be increasing progressively along with the academic year ( $p < 0.001$  for all).



**Figure 1: The situation of mean Beck depression and anxiety scores in function of academic years**

The mean Beck depression score of those at the 6th year was significantly lower than those at the 1st and the 5th years ( $p = 0.007$  and  $p = 0.015$ , respectively) (Figure 1A). Those at the 1st year had significantly the hi-

ghest mean Beck anxiety score as compared to others ( $p = 0.016$ ,  $p = 0.001$ ,  $p < 0.001$ ,  $p = 0.031$  and  $p < 0.001$ , respectively) (Figure 1B).

When compared Beck D scores for all classes, it was found that first graders had the highest ratios of 20.4% and 32.3% in “normal” and “mild mental distress” categories, respectively; as for “clinically depressed” category, fifth graders had 38.1%; for “moderate depression”, fifth graders had 29.2%; and for “severe depression”, first graders had 40%. Furthermore, 40.8% of first graders, 64.9% of second graders, 59.2% of third graders, 50% of fourth graders, 35.2% of fifth graders and 78.6% of sixth graders were assessed as “normal” category.

When compared Beck A scores for all classes, it was found that fourth graders had the highest ratio of 22.9% in “minimal anxiety” category; as for “mild anxiety” category, the first graders had 24.7%; for “moderate anxiety”, the first graders had 27.3%; and for “severe anxiety”, the first graders had 54.2%. In Beck A scoring, it was observed that the first graders had the highest ratio of 34.7% with severe anxiety; whereas the second, the third, the fourth, the fifth and the sixth graders showed minimal anxiety scores with 37.8%, 44.9%, 46.3%, 35.2% and 57.1%, respectively.

The mean age for female undergraduates was  $21.08 \pm 2.15$  years, whereas it was  $22.34 \pm 2.37$  years for male undergraduates. The mean score of Beck D was  $13.5 \pm 9.2$  in female undergraduates, whereas it was  $10.5 \pm 8.1$  in male undergraduates. According to our results, Beck D scores among female subjects were significantly higher than those of male subjects ( $p = 0.003$ ). Beck A score of females was  $16.01 \pm 11.5$ , whereas it was  $11.1 \pm 9.8$  in males, suggesting a significant higher value in female subjects ( $p < 0.001$ ). As for Beck D rating, the highest ratio belonged to the normal category by 44.4% in female and by 59% in male subjects. Regarding to the ratings of mild mental distress, borderline clinical depression, moderate depression and severe depression, the highest ratio belonged to the female subjects by 58.5%, 61.9%, 58.3% and 73.3%, respectively. In male subjects, the highest ratio for Beck A rating belonged to the minimal anxiety group by 47.1%.

As for the female students, minimal anxiety and mild anxiety categories had the same ratio of 28.1%. According to the Beck A rating, male students had the highest ratio of 59.1% in minimal anxiety category. However, the highest ratios for mild, moderate and severe anxiety categories belonged to the female students by 52.9%,

69.1% and 66.7%, respectively.

Eighty one point six percent of all undergraduate students reported to have studied medicine voluntarily. This ratio was 85% in female and 77.7% in male subjects, suggesting no statistically significant difference between them ( $p=0.104$ ).

For those who have studied at medicine by voluntarily, the mean age was  $21.52 \pm 2.31$ , whereas it was found  $22.36 \pm 2.39$  years for non voluntary subjects. The difference was significantly higher between both of the groups ( $p=0.023$ ). The scores of Beck D were found to be  $11.7 \pm 8.7$  for the voluntary group and  $14.1 \pm 8.8$  for the involuntary group, with a statistically higher difference ( $p=0.068$ ). The scores of Beck A were  $13.5 \pm 11.2$  for the voluntary group and  $14.8 \pm 9.9$  for the involuntary group, with no statistically significant difference between them ( $p=0.418$ ).

Fifty four point four percent of females and 41.7% of males were found to have been living with their parents ( $p=0.026$ ). For those living with their parents, the mean age was  $21.28 \pm 2.05$  years, whereas it was  $22.04 \pm 2.53$  years for those not living with their parents, suggesting a significantly higher difference ( $p=0.005$ ). As for the Beck D scoring, the former had  $11.7 \pm 8.6$  whereas the latter had  $12.5 \pm 8.9$ , with no statistically significant difference ( $p=0.465$ ). Regarding to the Beck A scoring, the former had  $15.1 \pm 11.2$  whereas the latter had  $12.6 \pm 10.7$ , suggesting a difference statistically above the borderline ( $p=0.053$ ).

Eleven point four percent of the students experienced failure at class. This ratio was significantly lower among female subjects (6.2% vs. 17.3%,  $p=0.003$ ). For those who experienced failure at class, the mean age was  $23.94 \pm 2.58$ , whereas it was  $21.39 \pm 2.15$  for those not experiencing failure at class, with a significant difference between them ( $p<0.001$ ). As for the Beck D scoring, the former had  $11.7 \pm 8.6$  whereas the latter had  $11.9 \pm 8.8$ , with no statistically significant difference ( $p=0.295$ ). Re-

**Table 1: Beck D score**

	<b>Beck D Score</b>	<b>P value</b>
Female students	$13.5 \pm 9.2$	0.003
Male students	$10.5 \pm 8.1$	
Coming up voluntarily	$11.7 \pm 8.7$	0.068
Coming up involuntarily	$14.1 \pm 8.8$	
Living with parents	$11.7 \pm 8.6$	0.465
Not living with parents	$12.5 \pm 8.9$	
Failure in class	$13.6 \pm 8.5$	0.295
No failure in class	$11.9 \pm 8.8$	

**Table 2: Beck A score**

	<b>Beck A Score</b>	<b>P value</b>
Female students	$16.1 \pm 11.5$	<0.001
Male students	$11.1 \pm 9.8$	
Coming up voluntarily	$13.5 \pm 11.2$	0.418
Coming up involuntarily	$14.8 \pm 9.9$	
Living with parents	$15.1 \pm 11.2$	0.053
Not living with parents	$12.6 \pm 10.7$	
Failure in class	$13.9 \pm 8.8$	0.924
No failure in class	$13.8 \pm 9.1$	

garding to the Beck A scoring, the former had  $13.9 \pm 8.8$  whereas the latter had  $13.8 \pm 9.1$ , suggesting statistically significant difference ( $p=0.924$ ).

## DISCUSSION

The present study had a participation rate of 36.7%. The reason for the low participation of undergraduates may originate from excessive study load, the inability of interns to find the time to fill out surveys or their consideration about the survey of unnecessary. The reason for this may originate from their first involvement in university environment, adaptation efforts to both lessons and environment, or separation from their families for the first time.

According to the training guide, the absence of written and oral exams at the sixth grade, the lack of examination anxiety and the convenience of being in the last year can account for the low depression ratio. The Beck Depression score was found to be high among the first and fifth graders. The reason for the high score at the fifth graders may originate from a more intense education and training program as well as increased number of exams.

The mean Beck D score of female subjects was  $13.5 \pm 9.2$ , whereas it was  $10.5 \pm 8.1$  among male subjects. Thereby, the Beck D score of female undergraduates was significantly higher than those of male undergraduates ( $p=0.003$ ). The mean Beck A score of female subjects was  $16.01 \pm 11.5$ , whereas it was  $11.1 \pm 9.8$  among male subjects, suggesting thus a significantly higher Beck A score among female subjects than males ( $p<0.001$ ). For this, the reason may originate from that the occurrence of depression among adolescent and adult women was twice as more than those among adolescent and adult males (5).

The mean age of voluntary students was  $21.52 \pm 2.31$

whereas that of involuntary students was  $22.36 \pm 2.39$ , with a significant difference ( $p=0.023$ ). The reason could be accounted for that the voluntary students begin to the medical school at an early age or they did not fail any class. The Beck D score of voluntary students was  $11.7 \pm 8.7$  whereas that of involuntary students was  $14.1 \pm 8.8$ , with a difference statistically above the borderline ( $p=0.068$ ). The reason may be originated from that this group of students has a higher professional liability and interest in lessons, and accordingly bearing much concerns.

The Beck A score of those living with their parents was  $15.1 \pm 11.2$  whereas that of those not living with their parents was  $12.6 \pm 10.7$ , with a difference statistically above the borderline ( $p=0.053$ ). The parental pressure about studying lessons can lead to emerging concerns and thus causing anxiety in students.

**Ethics Committee Approval:** This study was approved by Scientific Researches Ethics Committee of Firat University Medical Faculty.

**Informed Consent:** Written informed consent was obtained from the participants of this study.

**Conflict of Interest:** The authors declared no conflict of interest.

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