

# Are Adolescent Girls More Depressive than Adolescent Boys in Turkey?

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**Abstract**—Depression is a serious mental health problem that affects people of all ages, including children and adolescents. Studies showed that female gender is one of the risk factors may influence the development of depression in adolescents. However, some of the studies from Turkey suggested that gender does not lead to any significant difference in the youth depression level. Therefore, the presented study investigated whether girls differ from boys in respect of depression. The association between genders and test scores for the adolescents in a population of primary and secondary school students was also evaluated. The study was consisting of 254 adolescents (122 boys and 132 girls) with a mean age of  $13.86 \pm 1.43$  (Mean $\pm$ SD) ranging from 12-16 years. Psychological assessment was performed using Children's Depression Inventory (CDI). Chi-square and Student's t-test statistics were employed to analyze the data. The mean of the CDI scores of the girls were higher than boys' CDI scores ( $t = -4.580, p = 0.001$ ). Higher ratio appeared for the girls when they compared with boy group's depression levels using a CDI cut-off point of 19 ( $p = 0.001, Odds Ratio = 2,603$ ). The findings of the present study suggested that adolescent girls have high level of depression than adolescent boys aged between 12-16 years in Turkey. Although some studies reported that there is no any differences depression level between adolescent boys and girls in Turkey, result of the present study showed that adolescent girls have high level of depression than adolescent boys in Turkey.

**Keywords**—Depression, Adolescent, Turkey, Female Gender, Male Gender.

## I. INTRODUCTION

ADOLESCENCE is an important developmental period for understanding the nature, course and treatment of depression that is one of the most frequently occurring psychiatric disorders [1]. Symptoms and the full syndrome of depression may differ as a function of age and development given the cognitive, social, emotional and biological changes that appear throughout childhood and adolescence [2-4]. Depression is a serious mental health problem that affects people of all ages, including children. It is estimated that one of every five children and adolescents in the United States has a mental disorder including mood disorders, anxiety disorders and depression [5].

It has been suggest that the structure and nature of depression in youth is largely the same as in adults according to official psychiatric classification systems [2]. However,

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researchers have not reached a consensus on whether this claim is accurate. Depression is generally low in childhood and then increases in middle to late adolescence, when it reaches rates observed throughout adulthood [2].

Most adults with psychiatric disorders are found to have a juvenile psychiatric history [6]. In recent reports, formerly depressed adolescents (with the risk factors identified) are at an elevated risk for recurrence of major depressive disorder during young adulthood [7]. Therefore, depression over the life span often begins in adolescence and most individuals experience their first depression during adolescence [2, 6].

The purposes of this study were to investigate whether girls differ from boys in respect of depression and to evaluate the association between gender and test scores for Turkish adolescents in a population of primary and secondary school students from the city of Samsun, Turkey.

## II. MATERIALS AND METHODS

### A. Participants

In this study, the participants were randomly selected from 10 schools among 90 schools. Participants with clinical depression (under treatment), other psychiatric disorders were excluded from this study. 30 participants were randomly selected each of the 10 school. The responses provided by 46 participants were dropped from the study because they were incomplete. Therefore, the responses provided by 254 participants were used in the present study. They lived in Samsun (a city located on the Black Sea coast of Turkey) and voluntarily participated in the present research.

The completion of the questionnaires was anonymous and there was a guarantee of confidentiality. The CDI were applied in participants alone and they completed the questionnaires in, approximately, 10-minutes

### B. Measures

Children's Depression Inventory (CDI) was used to collect data. It is a self-rating scale developed for young people (7-17 years of age) by Kovacs [8]. The Children's Depression Inventory was adapted for the Turkish population by Oy [9]. It is widely used as a scale for assessment of depression in adolescents and contains 27 Likert-type items ranging from 0 to 2 that yield total scores from 0 to 54, where higher scores reflect greater symptomatology. For each item, participants are asked to mark one of three statements best representing how they have felt in the past 2 weeks.

A total score of the CDI  $\geq 19$  is the criterion score for identifying depression and higher scores indicate severity of the depression [8, 9].

### C. Statistical Analysis

The Chi-square and Student's t-test statistics were employed to analyze the data. Statistical analyses were performed using SPSS for Windows, Release 13.0.1 (SPSS, Inc.). To identify scores of the CDI of boy and girl groups, descriptive statistics were used. The mean values are given with their standard deviations. Student's t-test was performed to compare the average values of the groups.

The Chi-square statistic was employed for the evaluation of the relationship of gender and depression levels with a CDI cut-off point of 19. A *p* value lower 0.05 was accepted to be a statistically significant point.

## III. RESULTS

In the study, the number of the girls was 132 (52%) and the number of the boys was 122 (48%). All of the participants were between in age 12-16 years with a mean age of  $13.86 \pm 1.43$  (Mean $\pm$ SD). The number of participants with in age 12, 13, 14, 15 and 16 years are 62 (24.4%), 47 (18.5%), 55 (21.7%), 44 (17.3%) and 46 (18.1%), respectively. According to age groups, there were no differences for gender in respect of distributions of percentages (*p* = 0.998).

The mean of the CDI scores of the adolescent girls was higher than adolescent boys ( $20.78 \pm 3.97$ ,  $18.54 \pm 3.79$ , respectively). The mean values of the CDI scores between genders were statistically significant (*t* = -4.580, *p* = 0.001). There were higher ratio for adolescent girls when the compared to the adolescent boys' depression levels, with a CDI cut-off point of 19 (*p* = 0.001, OR = 2,603).

In adolescent boys, 70 participants' (60.9%) CDI levels were lower than 19 whereas 52 participants' (37.4%) CDI levels were equal to or higher than 19. In adolescent girls, 45 participants' (39.1%) CDI levels were lower than 19 whereas 87 participants' (62.6%) CDI levels were equal or higher than 19 (Table 1).

## IV. DISCUSSION

Depression is one of the most commonly occurring of the major psychiatric disorders [2]. It has been described as an involuntary self-protective response to defeat or to loss of attractiveness or reputation. Attempts have been made to identify psychobiological mechanisms that account for the associated passivity, loss of confidence, and low self-esteem. In conflict situations, depressed people tend to behave submissively, feel trapped and defeated [10, 11].

Depression can lead to academic underachievement, social isolation, and create difficult relationships with family and friends [15, 16]. Depression in children is also associated with an increased risk for suicide [12].

This study findings for girls showing higher depression levels than boys are compatible with the findings of previous studies [13, 14]. Parental death or divorce, low socioeconomic

TABLE I  
COMPARISONS OF THE MEAN SCORES OBTAINED FROM THE CHILDREN'S DEPRESSION INVENTORY WITH CUT-OFF POINT OF 19 BETWEEN BOYS AND GIRLS

	Children's Depression Inventory			
	Mean $\pm$ SD	$\geq 19$	<19	N
Boys	18.54 $\pm$ 3.79	52	70	122
Girls	20.78 $\pm$ 3.97	87	45	132
Total		139	115	254
<i>t</i>	-4.580			
<i>p</i> <0.05	0.001	0.001		
Odds Ratio		2.603		
95% Confidence Interval		1.56, 4.32		

condition, body dissatisfaction, the presence of psychiatric disorders including depression among family members, fears, low self-esteem, obesity, exposure to natural disasters (earthquakes, floods etc), unsuccessful relationships with friends, teachers or family members, gender, genetic and environmental risk factors may influence the development of depression in adolescents [15-24]. Similar to the literature, this study revealed that female gender is a risk factor for depression in Turkish adolescents in middle adolescence.

However, Ceyhan et al. reported that there was no significant difference between depression levels in females and males in Turkey, suggesting that gender does not lead to any significant difference in the depression level [16]. The difference between the present study findings and those of Ceyhan et al. may be due to the fact that they conducted their study on university students. In contrast, the present study was performed on primary or secondary school adolescents.

It has been suggested that depression is a gender-specific disorder, with twice as many women as men diagnosed with depression each year [21]. The two-to-one ratio remains constant across socioeconomic status and ethnic groups and begins in early to mid-adolescence [19, 25].

Depression is based on unwillingness to do daily activities, which were done willingly and with pleasure previously and the condition of not taking pleasure in life. Additionally, some changes develop in time due to the grief and worries associated with the condition. In this condition, the person has a negative attitude to everything and has pessimistic thoughts for the past and future. Adverse experiences in childhood, depression and anxiety disorders in childhood and adolescence, sociocultural roles with related adverse experiences, and psychological attributes related to vulnerability to adverse life events and coping skills are likely to be involved. Genetic and biological factors and poor social support, however, have few or no effects in the emergence of gender differences [25-29].

Studies also suggest that there is a higher rate of depression in adolescent girls compared to boys. Breton et al. conducted a study with Quebec children which showed the prevalence of depressive disorders in girls was 6.6 times higher than in younger boys aged between 12-14 years [26]. In this study, depression in adolescent girls was 2.6 times higher than boys; the risk was higher for the adolescent girls when comparing with adolescent boys' depression levels, with a CDI cut-off point of 19.

However, in a study reported by Toros et al. in Turkey, where the present study was conducted, the ratio of boys/girls was 0.8:1 for depression in adolescents [13]. The difference between this study finding and those of Toros's et al. may be because they conducted their study with participants aged between 11-20 years. In contrast, the present study was performed on adolescents aged between 12-16 years. It has been also reported that the percentage of depressed girls was higher, particularly in those under 16 years of age [13, 27, 28].

In this study, several limitations must be noted for the planning future research and interpreting the results of this study. Firstly, findings cannot be compared with studies that are conducted with participants who are clinically depressed (under treatment), or have other psychiatric disorders since these were excluded from this study.

Secondly, all of the data collected in this study were obtained from self-report scales. Although every attempt was made to ensure anonymity, the sensitive nature of the scales items may have led some adolescents to offer inaccurate responses. Therefore, the results may be limited by the adolescents' lack of openness (though this seems unlikely). If studies were conducted with interview techniques, the possible results may be comparable.

Finally, the data are not representative of adolescents throughout Turkey because of this study conducted only in Samsun, in Turkey.

In conclusion this study is an effort to examine the association between Turkish adolescent girls and boys for depression aged between 12-16 years. The findings of the present study suggested that there was a positive association between depression and Turkish adolescent girls and they more depressive than Turkish adolescent boys.

Adolescent depression is an escalating problem in our country. In the light of the literature and present study findings, it has been speculated that there is a need for effective psychological counseling services for adolescents in their school. Both for children and adults, effective educational and preventive strategies are also needed in order for early recognition and treatment of depression.

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