
High rates of depressive symptoms among senior high school students preparing for national university entrance examination in Turkey

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Introduction

The purpose of the present study is to determine the prevalence of depressive symptoms among senior high school students preparing national university entrance examination (ÖSS) in Turkey. The survey was conducted in the second term of students' senior year at high school, a time when they were exposed to a stressful standardized national examination. The aim of the study was to determine the prevalence of depressive symptoms and to identify a possible association of depressive symptoms with other student and socio-demographic characteristics. We used the Beck Depression Inventory (BDI), adapted for Turkey, to assess self-reported depressive symptoms among 984 students. Overall, 45.1% of the students reported depressive symptoms. The relationship between the presence of depressive symptoms and student gender, family size, living circumstances, academic grade, number of times national exams were taken, monthly family income, daily study time, number of friends of opposite sex and involvement in social activities were examined. Gender, academic success and monthly family income had statistically significant differences on BDI scores. The high rate of self-reported depressive symptoms reflects heightened exam-related stress, social expectations, worries about future success linked to uncertainty about securing a university placement and personal, familial and demographic factors. The greater prevalence of depressive symptoms among females (49.5%) compared to males (40.6%) highlights higher degrees of stress or vulnerability among female adolescents facing similar circumstances to males in Turkey.

The national examination for university admission in Turkey is a very stressful occasion in the life of Turkish adolescents. According to the Ministry of National Education (MoNE, 2003) only 9.3 per cent of 1,822,864 applicants for admission to higher education in universities across Turkey will be placed in an undergraduate program. The national examinations and university placement process is highly centralized and managed by the Turkish Higher Education Council, Student Selection and Placement Center (ÖSYM) that offers a standardized examination. Every student seeking admission to university is required to sit the 'Öğrenci Seçme Sınavı (ÖSS)-[Student Selection

Table 1. Number of Applicants and Placed Students for the University Placement Examination between Year 1990 to 2002

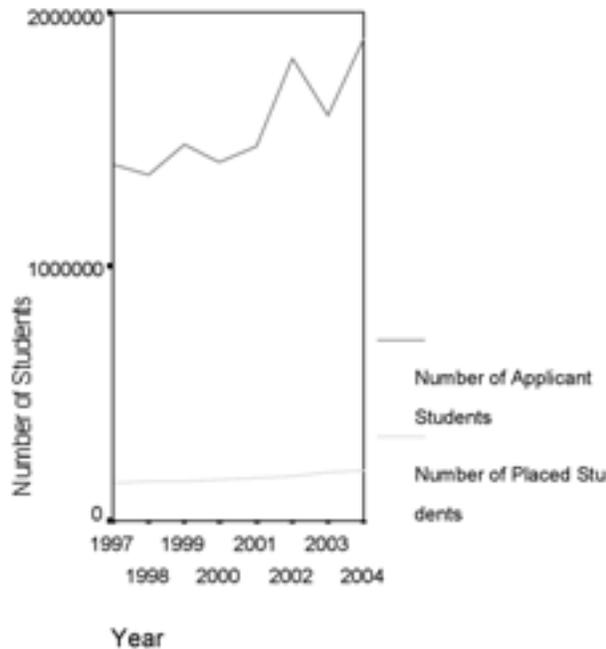
Years	Number of Applicant Students	Number of Placed Students
1997	1.398.367	147.874
1998	1.355.707	153.230
1999	1.478.365	153.214
2000	1.407.920	160.227
2001	1.471.197	166.955
2002	1.817.590	174.555
2003	1.593.831	187.190
2004	1.897.196	197.771

Examination]' offered annually, and consisting of sections in *mathematics, science and verbal aptitude*. The students are marked strictly on relevant aggregate scores in each section.

The universities themselves have little administrative input in the admission process of prospective candidates. Each university faculty has a pre-

determined published number of places. The students submit a list of preferences to ÖYSM and three factors are taken into consideration in the selection process: first is the *quota*, i.e., the maximum number of students to be admitted to each program; second is the candidates' scores and overall ranking; and third is the candidates' list and the ranking of higher education programs themselves.

Figure 1. Number of Students who Applied for University Placement Examination and Number of Students Who were Placed on the Higher Education Program



In Turkey, as in most other countries, the demand for higher education far exceeds the places available (see, Table 1 and Figure 1) ÖSYM, (2005). In view of this the basic aims of the Student Selection Examination (ÖSS) are firstly to assure a balance between the demand for higher education places in general and the availability of places in institutions of higher learning. Secondly, there is a dire need to select and place the most able students, presumably by means of exam rankings, with the highest probability of effectiveness in available places in higher education programs, taking into consideration the student's preferences and exam performance.

A major problem, of course, is that the quota of university undergraduate program places is quite limited, representing less than 1 in 10 students taking examinations annually; an additional 24.4 % of students are placed in distance-education based programs. Consequently, two thirds of students who take the national entrance examinations cannot be placed in any university or distance education program.

Regardless of the type of high school they attend the aim of students seem to be to enter a 'good' undergraduate program. For example, 44% of students who applied for the university examination and did not succeed are allowed to retake the examination; 16% of these are students already placed in universities and 4% are nominees for graduation from university – reflecting the wide ranging differences in perceived quality of university education and the desire to upgrade placement. To take part in an undergraduate program perceived as good quality (preferably with exposure to foreign language education as well) is regarded as a key for employment following graduation, given the persistently high unemployment rates in Turkey. In turn, better employment is perceived as being linked to better salary, social standing and upward mobility. The students are very aware of the need to meet parental expectations. Not only are they expected to study long hours but many attend preparatory courses and institutes in towns and cities across the country. The young people and their families therefore do their utmost, sometimes forcing the limits of students' capacities in order to be placed in a university. Enrollment in privately run classrooms or 'dershane' and individual tutoring from private teachers have increasingly gained prominence. Most adolescents, especially those living in urban regions of Turkey, also participate in private classes on weekends.

As a result, students face a considerable workload including regular school and private coursework, high competition and uncertain odds of success. It is not surprising therefore that many face emotional problems during this period and often apply to counselling and guidance services at schools, reporting feelings of loss and grief. Many also receive psychological or psychiatric consultation in major cities through mental health services based at hospitals and clinics. Their depressive symptoms include: hopelessness, reduced interests, anhedonia, worthlessness, negative self-evaluation and self-criticism, inattention or slowed psychological response reactions, reduced appetite, weight loss, insomnia or increased sleep, reduced sexual interest, low motivation and restricted social relations (Harrington and Clark, 1998).

In terms of such presenting depressive symptoms in adolescence, biological, psychosocial and cognitive factors may play major roles (Öztürk, 1988). Some adolescents are obviously biologically more vulnerable to depression. On the other hand, psychosocial and

cognitive factors and heightened family stress also play a major role. According to Beck (1985), an individual's incongruous perception of reality as in the educational and competitive exam environment in Turkey may be a major contributor to the development of depressive symptoms among adolescents.

To date, there is a limited number of psychosocial studies regarding the emergence of depressive symptoms among adolescents. Using the Beck Depression Inventory (BDI) among hemodialysis patients, Elal and Krespi (1999) found that 42% were clinically and 33% moderately depressed. Kutner, Fair and Kutner (1985) suggested that of the 52% of hemodialysis patients who had depressive symptoms, half of them were clinically affected. Vinokur and Selzer (1975) also stressed that there is a stronger relationship between negative life events and depression than between positive life events and depression. In research carried out by Helsen, Vollberg and Meeus (1999) involving 2,918 adolescents, the level of parents' support was the most powerful factor in depressive symptoms, low self esteem, social isolation and suicidal ideation.

According to Accordino, Accordino and Slaney (2000), perfectionistic thoughts and idealizations especially related to academic life may lead to depressive symptoms and low self-esteem. When personal standards of students increase, their depressive symptoms decrease and self-esteem may increase. If there is an incongruence between personal standards and student performance, the depressive symptoms increase and self-esteem decrease. Perfectionism therefore co-exists with depression (Alden, Bieling and Wallace, 1994; Blatt, 1995; Hewitt and Dyck, 1986). In a study performed on 233 university students, Dunkley and Kirk (2000) found positive and meaningful relations between depression and social perfectionism, self-criticism and coping. Colarossi and Eccles (2000) reported high negative correlations between adolescent depressive symptoms and self-esteem (-.53) and high positive correlations between adolescent self-esteem and peer support (.37); and, finally, high negative correlations between adolescent depressive symptoms and peer support (-.43). Depressive and somatic symptoms, as well as symptoms of general anxiety and interpersonal sensitivity, also accompany low satisfaction concerning poor social support received by young adults and adolescents (Burke and Weir, 1978; Compas, Slavin, Wagner and Vannatta; 1986). In a study involving a high risk group of Hispanic

secondary school students, Demaray and Malecki (2002) found significant negative associations between: clinical maladjustment and parent and classmate support; anxiety and classmate support; depression and parent and classmate support; school adjustment and parent and teacher support; and attitudes against teacher and parent supports.

Lack of social support has also been taken into consideration as having an important effect on coping with depression and may, in turn, serve as an important trigger of depressive symptoms. Benson and Deeter (1992) suggested that negative life events and lack of social support contributes to triggering adolescent depressive symptoms. Social support also has an interactive effect and plays a powerful role in diminishing depressive effects on individuals who face stressful life events.

Youth of low socio-economic status (SES) households face more negative and stressful life events comparison to high SES youth (Gad and Johnson, 1980). Youth who live in poverty are under much higher risk of a range of mental health problems, including depression and conduct disorder. Low family income also plays an important role in the development of low self-esteem of children, which is often associated with depressive symptoms (Nelson, 1993).

National and competitive examinations can serve as an important repository for effecting the emotional health of adolescents facing them. In South Korea where the competitive university entrance system is similar to that in Turkey, the daily life of South Korean students who are preparing for university examination is stressful (Lee, 2003), with depressive symptoms higher in South Korea than other Asian countries. In addition, aggressive behaviors are commonly reported in Korean youth reported in association with heightened exam-related academic pressure and unplanned use of free time (Bennett, Horn, Huang, Ko, Macintyre and Wong, 2002). Somatic symptoms are also observed in students facing university entrance examinations (Lee and Larson, 2000). According to Sim (2000), other problems related with schooling insufficiently explain depressive symptoms.

A generation earlier, Weissman and Klerman (1980) emphasized that approximately one-fifth of all adults in the United States were likely to experience at least one episode of depressed mood during their lives. Klerman and Weissman (1978) uniquely underscored

the increased incidence of depression over preceding decades, especially among younger cohorts, related to greater stressors.

Although field studies have looked at the epidemiology of depressive symptoms in Turkey, most have involved only relatively small samples of wide age-ranges. To date, there have been no studies of Turkish adolescents facing university entrance examinations. The purpose of the present study was to determine the prevalence of depressive symptoms among adolescents exposed to nationally administered competitive standardized university entry examinations. Our hypothesis was that the university entry examinations produce a high level of emotional turmoil among Turkish adolescents. An aim of this project is to attract attention to a major mental health concern affecting the lives of more than one million adolescents annually. A further goal is to establish national data examining the level of the problem and to allow cross-national comparisons among different countries with similar educational structures. Although this is a cross-sectional study, we also hoped to investigate the correlation if any, between depressive symptoms and socio-demographic factors among the affected youth with high BDI scores. This study differs from previous Turkish studies in that it has a large sample size with a wide range of socio-demographic backgrounds.

Methodology

Setting

To determine the prevalence and characteristics of depressive symptoms among 985 adolescents at five high schools from mid-socio-economic districts in Ankara, we conducted a survey during the second school term. Ankara was selected as it is the capital city with a population of approximately five million including many internal migrants from every region of the country, with different educational and income levels. Thus, the findings obtained in Ankara can be generalized to the population of adolescents who are taking university examination across the country.

Subjects

A total of 984 high school students preparing for university entrance examinations (491 females, 49.8%; and 493 males, 58.2%) participated in the study. A total of 1324 students enrolled at the four high schools were targeted. Of the non-participants, 43 of them could not be enrolled due to absence for reasons such as sick

leave; the remaining 1,281 were asked if they would participate in the study, and 241 of them declined to participate (81.2% response rate). Participants were administered the Turkish adaptation of the BDI and an additional questionnaire containing nine questions on socio-demographic characteristics. The subjects answered the forms on their own with the consent of their parents and permission of the school administration.

Measurements

In this study two instruments have been used.

Beck Depression Inventory (BDI). The BDI, revised in 1978, was adapted to Turkish by Hisli (1988, 1989). The validity and confidence coefficients of the Turkish form of BDI have been found to be high. BDI is a likert type scale (0-3 value) that includes 21 items of categorical symptoms. High scores show that the individual has that symptom at a high level.

Personal Information Questionnaire. This instrument consisted of nine questions regarding students' gender, family size, housing, academic grade, number of times the national university examination was taken, monthly family income, study time, rating of having friends of opposite sex and involvement in social activities.

Procedure

We investigated the prevalence of depressive symptoms rather than ascribed depressive diagnosis. Both the BDI and Personal Information Questionnaire were administered to students by researchers approximately two months before Student Selection Examinations, (ÖSS), during the second semester. The students filled the questionnaires on their own in their classrooms. Informed consent from school administration was received before the data gathering. In addition, participation implied informed assent by the adolescents involved; parents were also informed. The aim of the research was described in general terms to the students and those who agreed to participate received instructions on completing the questionnaires. Students were asked to write their names on the forms. A written assurance and explanation on the top of the questionnaires affirmed that all the information would remain confidential and not released.

Data were analyzed by the researchers using SPSS version, 11.0 The Chi-Square test was used to investigate whether there was a significant difference between the groups with respect the BDI score (0-16 or 17-63).

Cut Off Scores for BDI

In order to determine depression levels of adolescents who were preparing for university examination, the cut off scores of BDI were reviewed. These are variable in the literature (Hisli, 1988). For example, in a study performed by Dumont and Marc (1999) on 8th and 11th grade students by using BDI, the cut off scores were determined as non-depressive for scores under nine, mild depressive for scores of 10-15, and depressive for scores of 16 and more. The cut off scores of BDI used for hemodialysis patients by Elal and Krespi (1999) were calculated as clinically depressed for BDI scores of more than 20, moderately depressed for BDI score 13 to 20 and not depressed for BDI score less than 13. In this study, the Turkish form of BDI prepared by Hisli for the validity and reliability study on clinic patients has been used, as were the cut-off scores suggested by Hisli (1988, 1989). In accordance with Hisli's (1988) determinations, the BDI scores of 17 and more can distinguish the depression that may require treatment with greater than 90 percent accuracy. The essential cut off scores in this study was depressive based on 17 points and more, and non-depressive for points 16 or lower.

Results

The mean age of participating adolescents (n=984) was 18.4 +/- 2.3 (range 17-21). The characteristics of adolescent participants and their BDI scores are given in Table 2. Depressive symptoms were detected by the BDI in 45.1% (n=443) participants (49.5% female, n=243; and 40.6% male, n=200). A statistically significant difference was found between male and female adolescents ($\chi^2=7.91$, $df=1$, $P<0.005$); the prevalence of depressive symptoms was 49.5% for female adolescents and 40.6% for males.

A statistical difference was also noted in the relationship between the level of academic success and depressive symptoms ($\chi^2=12.36$, $df=1$, $P<0.005$). Participants with high academic grade point average had low levels of depressive symptoms (40.2%) and those with low academic grade point average had high levels of depressive symptoms (67.4%). There was a linear relationship between academic grade point

average and the presence of depressive symptoms. There was also a statistically significant difference with respect to depressive symptoms among adolescents who perceived their monthly family income as sufficient, reporting lower depressive symptoms ($X^2=6.54$, $d=1$, $P<0.005$), or 41.9% depressive symptoms, compared to 61.4 % among those who perceived their monthly family income as not being sufficient. None of the other variables with regard to prevalence of depressive symptoms: e.g., family size, housing, number of times national exam was taken, daily study hours, having friends of the opposite sex or involvement in social activities were found to be statistically significant.

Discussion

The findings of this study should be considered in terms of the measures used to analyse the rate of depressive symptoms. As previously emphasized, the Beck Depression Inventory (BDI) does not diagnose depression but reflects depressive symptoms. Nevertheless, it is an excellent self-assessment measure for both clinical and research purposes. As seen in Table 2, 45.1% of Turkish senior high school students presented depressive symptoms; 17.1% presented with mild symptoms and 37.9% were non-symptomatic. Stratification by gender showed that 49.5% of females presented depressive symptoms, 17.5% with mild symptoms, and 33% were non-symptomatic for depression. Fewer males were depressive (40.6%) and even fewer had mild symptoms (1.6%), with 42.8% being non-symptomatic for depression.

The observed level of depressive symptoms among the Turkish senior high school students was, therefore, high. When reviewing the findings of studies performed by Elal and Krespi (1999) and Kutner et al (1985) on hemodialysis patient, it can be seen that Turkish senior high school students, who are preparing for university examination are depressed at similar levels as hemodialysis patients. In accordance with findings obtained by Kessler and Walters, (1998), the prevalence of long-term depression among these young people is 25.2%.

The World Health Organization (WHO) has noted that the incidence of depression worldwide is 3 to 5% and is becoming increasingly widespread in all societies (Baltan and Baltan, 1993). Erol, Kiliç, Ulusoy, Keçeci,, Simsek (2001) suggested that the prevalence of depression is 8.3% among Turkish female adolescents

age 15 to 18 years, and 6.5% of males of the same age range. It is clear that the single administration of a standardized test that defines the future lives of high school seniors is not only stressful and leads to high observed rates of depressive symptoms among students but is also a contentious national educational policy. And despite the process being perceived as meritocratic and immune to manipulation, it is also clear that many students are tutored privately and the resources of the family and the motivation of the parents themselves define the success rate among the students. As it is currently being implemented, the national university entrance examination system in Turkey needs to be reformed and criteria defining university entrance expanded to include other measures of academic competency.

The high rate of 45.1% of Turkish high school seniors with depressive symptoms is unprecedented in Turkey. It is notable that previous studies on the prevalence of depressive symptoms among adolescents did not give any special emphasis to the high school senior group. Possible underlying factors such as future anxiety, exam performance, fear of failure, having high levels of responsibility toward family members and having shared cultural values would almost certainly collectively influence the results.

The female high school seniors had more self-reported depressive symptoms than their male counterparts. This gender difference is consistent with previous studies reporting higher rates of depression in females in Turkey. In this review, the cut off scores of depression for female students have been found to be meaningfully higher than male students. These findings are also consistent with international research. In a study of children and adolescents in the 8 to 17 age group, Poli, Barbara, Mara, Gabriele (2003) found the point averages of depression for female students higher than male students. In studies by Stroebe, Strobe, Abakoumkin (1999) with married and widowed individuals living in deprivation, the depression levels of females in comparison with males and the depression levels of widowed women in comparison with married ones were found to be higher. From a socio-economical and cultural perspective, the reason for higher depressive symptoms for female students in comparison with males can be due to the social roles and economic conditions of females in Turkey. In accordance with our observations, because males can earn money by getting into commercial life without a university education, female students are more enthusiastic to

Table 2. Characteristics of the study group and their BDI scores

	Low depressive symptoms group (0-16)		High depressive symptoms group (17-63)		χ^2	<i>P</i>
	n	(%) ^a	n	(%) ^a		
<i>Gender</i>						
Female	248	50.5	243	49.5		
Male	293	59.4	200	40.6	7.91	0.005
<i>Number of siblings</i>						
None	27	45.0	33	55.0		
2-3 siblings	257	57.6	189	42.4		
4 siblings	199	52.0	184	48.0		
5 and more siblings	58	61.1	37	38.9	6.50	0.090
<i>Settlement type of longest residence</i>						
Village	43	55.8	34	44.2		
Town	171	58.8	120	41.2		
City	13	39.4	20	60.6		
Big city	314	53.9	269	46.1	5.24	0.155
<i>Academic grade</i>						
A	70	59.8	47	40.2		
B	280	57.5	207	42.5		
C	176	52.7	158	47.3		
D	15	32.6	31	67.4	12.36	0.006
<i>Number of exams taken</i>						
First time	248	59.0	172	41.0		
Second	211	52.0	195	48.0		
Third and more	82	51.9	76	48.1	4.90	0.086

Table 2. Characteristics of the study group and their BDI scores (continued)

	Low depressive symptoms group (0-16)		High depressive symptoms group (17-63)		χ^2	<i>P</i>
	n	(%) ^a	n	(%) ^a		
<i>Perceived level of monthly income</i>						
Sufficient	233	58.1	168	41.9		
Nearly sufficient	291	54.0	248	46.0		
Not sufficient	17	38.6	27	61.4	6.54	0.038
<i>Daily hours of study</i>						
2-3 hours	81	58.7	57	41.3		
4 hours	222	56.3	172	43.7		
5 hours	162	49.5	165	50.5		
6 hours and more	76	60.8	49	39.2	6.69	0.083
<i>Having friends of the opposite sex</i>						
Yes	179	59.5	122	40.5		
No	362	53.0	321	47.0	3.53	0.060
<i>Social activity participation</i>						
Once in a week	47	52.2	43	47.8		
Once in a month	142	58.9	99	41.1		
Once in three months	141	56.0	111	44.0		
Once in six months	123	56.7	94	43.3		
Not participate	88	47.8	96	52.2	5.94	0.203
<i>Total^b</i>	541	54.97	443	45.03		

^a Row percent.

^b Total of participants.??

enter university than males. The other issue is that fewer females actually enter for the university examination, because fewer numbers of female students reach senior high school. Because of restrictive social options for young women and prospects of fewer economic alternatives for those who are able but otherwise may not be successful during the university entrance examination, the possibilities are limited for female students – although the situation is not the case once they successfully enrol in the universities. For these reasons, a further review of factors that affect the particularly high rates of depressive symptoms among female students is needed.

Taking a contradictory position, Erol, Kiliç, Ulusoy, Keçeci,, Simsek (2001) conclude that although the depression scores of females at age 15-18 in Turkey are a little higher in comparison with males, there is not a meaningful distinction between the score averages of depression for females and males. And in a study performed on university students, Hisli (1989) suggests that there is not any difference between point averages of depression for students in accordance with gender and age variables.

Statistically significant differences were also observed in the present study of the high rate of depressive symptoms related to low academic grade success of the adolescents. Previous research had indicated differences in rates of depressive symptoms among several income groups (Ostrove Feldman, Adler, 1999; Byrne, 1980; Cho, Nam, Suh, 1998; Madianos and Stefanis, 1992), which was also the case in our study, with higher rates of depressive symptoms being observed in groups of lower economical status. Factors underlying this high prevalence rate of depressive symptoms among adolescent senior high schoolers who are preparing a major exam should be investigated and necessary precautions taken. We believe that the conclusion derived from this study needs to be corroborated in further studies.

In summary, based on the data gathered, we propose that the population exposed to the national university entrance examinations in Turkey should in essence be regarded as a very high risk group for depression and approached as potential depression patients. Urgent national educational policy decisions and interventions are called for to address what we regard as a major public education and public health crisis in Turkey, one which could lead to secondary conditions

such as high rates of other risk-taking and anti-social behaviors.

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