Neurology, Psychiatry and Brain Research (2007) 14: 103-110

Neurology, Psychiatry and Brain Research

Effect of Working Hours on Behavioral Problems in Adolescents: A Turkish Sample

Sibel Kiran, MD, PhD[1]; Ayse Unal, PhD, Associate Professor[2]; Ferruh Ayoglu, MD, PhD[3]; Numan Konuk, MD, Assistant Professor[4]; Ayse Ocakci, PhD, Professor[5]; Ayten Erdogan, MD, Assistant Professor[6]

[1] Occupational Health, Department of Public Health, School of Medicine, Zonguldak Karaelmas University, Zonguldak, Turkey
[2] Department of Labour Economics and Industrial Relations, Uludag University, Bursa, Turkey
[3] Department of Public Health, School of Medicine, Zonguldak Karaelmas University, Zonguldak, Turkey
[4] Department Psychiatry, Zonguldak Karaelmas University, Faculty of Medicine, Zonguldak, Turkey
[5] Marmara University, Zeynep Kamil School of Health, Istanbul, Turkey
[6] Department of Child and Adolescent Psychiatry, Zonguldak Karaelmas University, Faculty of Medicine, Zonguldak, Turkey

Summary

Background: This study aimed to compare broad range of behavioral problems and their relations to working status of adolescents in samples of Turkish apprenticeship, technical and high schools.

Method: The research was carried out on a total of 899 adolescents aged 15 to 20. The study sample was recruited from three different type of schools (High School, Technical School, Apprenticeship School), located in the city of Zonguldak, Turkey. Two questionnaires were administered to the students. First questionnaire evaluated the adolescents' sociodemographic variables, working status and working durations. Second questionnaire evaluated the behavioral problems namely Youth Self Report (YSR).

Results: The majority of adolescents (75.2 %) in apprentice programs were working regularly. Compared to adolescents in high school and technical school, adolescent students in apprenticeship programs were found to have higher scores of withdrawn, somatic complaints, depression and anxiety, social problems, delinquent behaviors, internalization and externalization on the YSR. The Total Problems, Internalizing Problems, Somatic Complaints, Anxious/Depressed, Social Problems and Delinquent Behaviors scores of working adolescents were higher than nonworking adolescents.

Conclusion: Compared to other schools, adolescents in apprenticeship programs were found to have higher behavioral problems. Longer working hours seems to be associated with withdrawn, somatic complaints, being anxious and depressed, social problems, delinquent behaviors, internalizing and externalization problems. We suggest that it is important to control working conditions of adolescents in order to prevent development of behavioral problems that may lead to several other health problems.

Key words:
Behavioral Problems, Working Adolescents, Apprenticeship, Working Hours, Occupational Mental Health, YSR, CBCL

Introduction

The child and adolescent labor remains a high profile issue in developing countries [15, 16, 17]. Current economic and social pressures are likely to push even more children into employment and these children risk a wide range of health problems [10, 13, 38]. According to ILO estimates, at least 180 million children aged 5 to 14 years are currently engaged in fulltime work in developing countries [17]. The study of Turkish Statistical Institute revealed the number of the working children and adolescents aged 6-17 were 958,000 (5.9 %) in Turkey.

Adolescent employment also takes on a quite different character depending on whether it is disconnected from school or formally linked to the school, for example, through institutionally-structured school-to-work transitions, as in some European countries (e.g., Germany, Austria, and Switzerland). Since the need for skilled workers was great in Turkey, apprenticeship school system was put into practice in 1977 [22, 36]. Adolescent apprentices in Turkey, as in Germany, learn a craft or trade and obtain certification to enter the same field upon completion of a coordinated

school and work sequence. Apprenticeship training has been designed for the primary school graduated adolescents aged 14-18, aiming to acquire vocational skills by working in a workshop and attending educational activities in the Vocational Training Centers in Turkey [23, 36]. In these centers, the general knowledge subjects (such as Turkish, mathematics and vocational mathematics, administration and cooperatives, total quality management) comprise 40 % of the program whereas vocational subjects are 60 %. Practical skills are gained on-the-job while working at the enterprises. All the activities child takes part have been approved for under-16s in terms of health, safety and welfare in the workplace [18]. However, 98 % of the apprentices found to be working informally in Turkey [19].

There has been continuing debate as to whether employment is good or bad for contemporary adolescents. Adolescent experts and educators have been worried about the balance of school and work. They have questioned whether modern life will encourage adolescents to prematurely assume adult like behaviors, such as early commitments to work at the expense of schooling [42]. One hand holding a job has been reported to have several benefits for adolescents, such as increased self-esteem, personal responsibility, and autonomy [41]. On the other hand, the difficulties experienced with respect to working conditions (duration, safety and welfare), integration in the educational system and identity in a period of life in which they are facing the developmental challenges of adolescence may induce behavioral and emotional problems [5, 7, 37]. Early studies indeed indicated increased risk of mental health problems for these groups of children/youth [5]. There are a number of studies discussing the association between employment and risk behavior among high school students in the United States, which show that work has a negative impact as follows: causing problematic behavior and affecting school performance [7, 37]. In these studies, working hour was related to some detrimental behaviors, such as delinquency, school misconduct, and substance abuse.

Since the majority of adolescents in apprentice programs live in hard socio-economic conditions compared to their peers, more adolescents in apprenticeship school would be involved in working. On the other hand, health related conditions including psychological problems in apprentices have been found to be more common in a cohort study [14]. We hypothesized that the difficulties related to working conditions and identity period may induce behavioral and emotional problems in these adolescents. Therefore we aimed to study the effects of working and schooling status of students on behavioral problems in a sample of adolescents aged 15 to 20 years from high, technical and apprenticeship schools in Turkey.

Subjects and Methods

Present study was carried out in 2006. The study sample was recruited from three types of schools (High School, Technical School and Apprenticeship School), located in the city of Zonguldak, Turkey. The research was conducted on a total of 2549 adolescents aged 15 to 20. Schools were randomly chosen by a local education contact person and authors. The classes were stratified according to level then each class were accepted as a cluster and randomly selected. Considering a prevalence of 50 ± 2 % and confidence interval of 95 % minimum sample size was estimated as 1236. However, 899 (72.7 %) students could have been contacted because of absenteeism. Thirty nine adolescents refused to participate (response rate 95.7 %, N=860) and finally a total of 860 students were included.

Design and Procedure

This study administered two self-report questionnaires to the adolescents: the first was designed by the authors to determine sociodemographic features; second one evaluated the adolescent's behavioral problems. The study was carried out with the approvals of Turkish Ministry of Education and Ethical Commitee of Zonguldak Karaelmas University School of Medicine (B.30.ZKU 0.70.10.00/001-460-5152). Afterwards, school administrators have been contacted and all students were informed about the objectives of the study. Confidentiality and anonymity of the data were assured. After the informed consent had been obtained, adolescents were asked to complete the sociodemographic form and the Turkish translation of the original YSR questionnaire [2, 4, 12] under supervision of interviewers who were medical doctors specialized in public health or psychiatry. The interviewer checked the YSR and answered the adolescents' questions about the questionnaires.

Semistructured Sociodemographic Data Form and other measurements

The sociodemographic data form included questions about age and gender of the adolescents, number of siblings, mother's and father's working and educational status and socioeconomic status (SES) of the family together with questions about the working status and weekly working hours of adolescents.

Child Behavior Checklist (CBCL); Youth Self- Report (YSR)

The YSR [4] was derived from the CBCL/4–18 [2] to assess problems and competencies for ages 11–18 years. The problem section of the YSR consists of 118 items. Answers are rated 0 if the item is not true, 1 if the item is somewhat or sometimes true and 2 if the item is very true or often true. Problem items can be scored on eight syndrome scales: Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior and Aggressive Behavior. The Withdrawn, Somatic Complaints and Anxious/Depressed scales are summed to form the broad-band scale, Internalizing, while the Delinquent Behavior and Aggressive Behavior scales together form the broad-band scale, Externalizing. The total problem score is the sum of all problem scores. Only the problem section of the YSR was used in present study. The cut-off score of 70 was used in the analyses [4]. The good reliability and discriminative validity of the YSR had been established by Achenbach [4] and were confirmed for the Turkish translation in the normative sample [12].

Statistical Analysis

Results were analyzed by using the SPSS software [33]. Respondents were evaluated according to type of school (High School: Group I; Technical School: Group II; Apprenticeship School: Group III). The YSR subscores and sociodemographic features of study subgroups were compared with Chi-Square and ANOVA (with post-hoc bonferroni adjustment). Variables leading to significant difference ($p<0.05$) were included in Logistic Regression model. YSR subscores dichotomized according to cut-off score of 70 were used as dependent variables in Logistic Regression analyses. Independent variables were weekly

working hours (dichotomized for analysis as less or more than 30 hours), age of adolescent, type of school, working and education status of mother, father and adolescents, gender, SES of the family of the subjects. The results expressed as odds ratios (OR) and 95 % confidence interval after statistical adjustment for gender, age, type of school, working status of mother, father and adolescents, father and mother educational level for each as categorized YSR subscores. Significance was set at a p value <0.05.

Results

One hundred thirty four participants were excluded from the study for the following reasons: adolescents did not complete the questionnaires (n: 57), or scores could not be used because of a large number of missing items (n:77). The study group consisted of 726 adolescents (age range, 14-20) (mean age: 16.9 years), (66.9 % male, 33.1 % female). Of the subjects 391 (53.9 %) were from high school students (Group I), 205 (27.2 %) from technical school (Group II) and 130 (17.9 %) were from the apprenticeship school (Group III).

Mothers' education was as follows for whole study group: Up to 8 years of schooling 42.3 %, more than 8 years 57.7 %. Fathers' education was as follows: Up to 8 years 62.8 %, more than 8 years 37.2 %. Of the mothers only 17.6 % had a job and 83.0 % of the fathers had a job. The characteristics of three samples were given in Table 1.

Of the 726 adolescents 157 (21.6 %) were working regularly. Only three male students (1.9 %) from the high school (Group I) reported that they worked everyday. Thirty six adolescents (22.9 %) from the technical school (Group II) and 118 from the apprenticeship school (75.2 %) reported that they worked regularly (Group III).

The overall weekly mean±SD working time reported in questionnaires was 59.7±22.8 hours. Only five (3.2 %) adolescents worked less than ≤ 15 hours per week, while 29 (18.5 %) worked 16 to 40 hours and 123 (78.3 %) worked more than 40 hours. All of the working adolescents in apprenticeship school worked more than 30 hours per week. The percentage of adolescents working ≤ 30, 30-40, and ≥41 hours per week is presented in Table 2.

Overall, the frequency of working boys was higher than girls (p: 0.006). There was even no working female student in the high school group. There was a significant trend towards regular working (Table 1) in different types of schools by the mothers educational level group and social economic status group (p<0.00001). Working frequency was shown to be increased when the mother educational level was less than 8 years and the SES group was low.

Table 1. Characteristics of three samples

Sample characteristics	High school sample	Technical school sample	Apprenticeship school sample
Total number of adolescents (%)	391 (53.9)	205 (27.2)	130 (17.9)
Boys vs. Girls	48.8 % boys, 51.2 % girls	96.6 % boys, 3.4 % girls	74.6 % boys, 25.4 % girls
Mean of age±SD	16.5±1.2	17.1±1.2	17.6±1.4
Social Economic Status (SES)*	57.4 % low-SES, 42.6 % mid-SES	72.7 % low-SES, 27.3 % mid-SES	84.8 % low-SES, 15.2 % mid-SES
Mother working status (% not working)	77.0	90.2	86.2
Father working status (% not working)	16.9	15.1	20.0
Mother educational level*	52.6 % ≤ 8 years, 47.4 % >8 years	62.4 % ≤ 8 years, 37.6 % >8 years	81.3 % ≤ 8 years, 18.8 % >8 years
Father educational level	27.2 % ≤ 8 years, 72.2 % >8 years	36.7 % ≤ 8 years, 63.3 % >8 years	68.0 % ≤ 8 years, 32.0 % >8 years
Adolescent Working status (% working)	1.9 (3)	22.9 (36)	75.2 (118)
Working Adolescents (% boys vs. girls)	2.1 % boys, 0 % girls	22.2 % boys, 14.3 % girls	99.0 % boys, 29.6 % girls
Response rate (%)	92.4	94.4	96.3

*chi-square for trend; p<0.00001

Table 2. Working status and weekly working hours of adolescents according to the schools.

Schools	Mean of working hours (weekly)± Standart Deviation	Categorized working hours (weekly) % (n)		
		≤ 15 hours	16-40 hours	≥41 hours
High school	18.0±12.0	33.3 (1)	66.7 (2)	- (0)
Technical school	28.3±16.1	11.1 (4)	72.2 (26)	16.7 (6)
Apprenticeship school	70.4±12.3	- (0)	3.4 (1)	99.2 (117)
Total	59.7±22.8	3.2 (5)	18.5 (29)	78.3 (123)

Table 3. *Youth Self Report Scores of School Groups (Mean ± Standard Deviation (SD)).*

Behaviors Problems Scores	Group I (High School)		Group II (Technical School)		Group III (Apprenticeship School)		ANOVA*	
	Mean	SD	Mean	SD	Mean	SD	F	P
Total Problems	66.6	10.2	63.8	10.1	70.6	11.6	16.6	**0.000** β
Internalizing Problems	63.9	9.8	62.3	9.7	67.9	10.9	12.8	**0.000** δ
Externalizing Problems	57.7	8.9	54.1	38.9	63.3	9.6	10.0	**0.000** δ
Withdrawn	65.5	8.7	64.9	8.8	68.7	10.0	7.5	**0.001** δ
Somatic Complaints	59.6	8.9	57.9	10.6	64.5	8.4	21.7	**0.000** δ
Anxious/Depressed	61.9	7.9	61.3	9.7	64.9	8.8	8.1	**0.000** δ
Social Problems	55.6	5.8	55.6	7.9	58.8	6.8	13.5	**0.000** δ
Thought Problems	66.9	7.9	65.0	9.1	68.5	7.9	7.6	**0.001** γ
Attention Problems	63.5	7.7	59.7	8.6	63.7	8.1	16.9	**0.000** γ
Delinquent Behaviors	60.7	6.8	60.6	7.0	64.9	7.2	19.4	**0.000** δ
Aggressive Behaviors	57.6	7.1	54.3	7.2	57.9	6.2	16.7	**0.000** γ

* One-Way Analysis of Variance (ANOVA)
δ Group III different from Group I and Group II
β The difference is between Group I and Group II and Group III
γ Group II different from Group I and Group III

Table 4. *Mean YRS subscores according to the working status of adolescents (Means±Standard Deviatons (SD)).*

Behaviors Problems Scores	Working status	Mean	SD	t	P
Total Problems	-	66.0	10.5	-2.367	**0.018**
	+	68.2	11.7		
Internalizing Problems	-	63.5	10.0	-3.128	**0.002**
	+	66.2	10.9		
Externalizing Problems	-	56.7	9.2	-1.589	0.114
	+	60.8	33.9		
Withdrawn	-	65.6	8.7	-1.439	0.151
	+	66.8	10.3		
Somatic Complaints	-	58.9	8.7	-4.761	**0.000**
	+	63.2	10.8		
Anxious/ Depressed	-	61.6	8.2	-3.001	**0.003**
	+	64.1	9.8		
Social Problems	-	55.6	6.0	-3.494	**0.001**
	+	57.9	7.9		
Thought Problems	-	66.4	7.7	-1.033	0.303
	+	67.3	9.6		
Attention Problems	-	62.5	7.8	0.130	0.896
	+	62.4	9.0		
Delinquent Behaviors	-	60.7	6.8	-4.175	**0.000**
	+	63.5	7.9		
Aggressive Behaviors	-	56.5	6.9	-0.789	0.430
	+	56.9	7.3		

(-): not working adolescents, (+): working adolescents

Table 5. *Logistic Regression Analyses Results*

YSR Scores	Adjusted Odds Ratio* (95% CI)	P-Value
Total Problems		
Adolescents' working hours (weekly): >30 hours	4.2 (1.8-9.9)	**0.001**
Mother educational level <8 years	5.1 (1.2-21.2)	**0.029**
Internalizing Problems		
Adolescents' working hours (weekly): >30 hours	2.4 (1.1-5.2)	**0.027**
Externalizing Problems		
Father educational level <8 years	2.6 (1.1-6.1)	**0.027**
Adolescents' working hours (weekly): >30 hours	2.4 (1.1-5.3)	**0.035**
Withdrawn		
Adolescents' working hours (weekly): >30 hours	2.8 (1.3-6.0)	**0.007**
Anxious/Depressed		
Adolescents' working hours (weekly): >30 hours	1.8 (0.90-3.71)	**0.116**
Social Problems		
Gender (male)	3.5 (1.2-10.9)	**0.028**
Thought Problems		
Adolescents' working hours (weekly): >30 hours	2.99 (1.91-4.69)	**0.000**
Attention Problems		
Adolescents' working hours (weekly): >30 hours	2.4 (1.1-5.50)	**0.027**

* *After statistical adjustment for gender, age, type of school, working status of mother, father and adolescents, father and mother educational level*

ANOVA analyses revealed that, there were significant differences among groups in terms of all behavioral problem scores. After bonferroni adjustment, total problem scores of all three groups were found to be significantly different from each other; group II and III displayed the lowest and highest scores respectively. Post hoc analyses also revealed that, Group III had significantly higher scores of Withdrawn, Somatic Complaints, Anxious and Depressed, Social Problems, Delinquent Behaviors, Internalizing and Externalization, while Group II had significantly lower scores of Thought Problems, Attention Problems and Aggressive Behaviors (Table 3).

In order to determine the relationship between the working status of adolescents and their YSR scores, independent

samples t test was performed. The mean raw YSR scores according to the working status of adolescents have been presented in Table 4. The Total Problems, Internalizing Problems, Somatic Complaints, Anxious/Depressed, Social Problems and Delinquent Behaviors scores of working adolescents were significantly higher than non working adolescents (Table 4).

Logistic regression analyses

The results of Odds Ratios and Confidence Intervals after statistical adjustment for gender, age, type of school, working status of mother, father and adolescents, educational levels of father and mother have been presented in Table 5. Total Problems, Internalizing Problems, Externalizing Problems, Withdrawn, Anxious/Depressed, Thought Problems and Attention Problems were significantly related to working hours (>30 hours weekly). Male gender was found to have a 3.5 times increased risk of social problems (95 % CI: 1.2-10.9). While mother educational level lower than 8 years have led to 5.1 times increased risk of having higher scores of total problems (95 % CI: 1.2-21.2), father educational level lower than 8 years have been found to lead to 2.6 times increased risk of Externalizing Problems (95 % CI: 1.1-6.1). Somatic Complaints, Delinquent Behaviors, and Aggressive Behaviors were not significantly related to variables in any model (Table 5).

Discussion

The present study evaluated the working status and duration, and family characteristics of adolescents in three different types of schools of Turkey and the influence of these parameters on their behavioral problems. Of the adolescents 22.9 % from the technical school, 75.2 % from the apprenticeship school and 1.9 % from high school worked regularly. Average working time of the regular workers in all groups was 59.7 hours weekly. Our study was in accordance with previous studies in Turkey which also showed that adolescents in apprenticeship schools worked longer than the working hours determined for their age [1, 22, 32].

Adolescents from apprenticeship school in our study had higher scores of Withdrawn, Somatic Complaints, Anxious and Depressed, Social Problems, Delinquent Behaviors, Internalizing and Externalization Problems using the YSR than adolescents from high and technical schools. In present study, working per se was associated with behavioral problems. Also students working more than 30 hours a week were found to be in risk of higher scores of Total Problems, Internalizing Problems, Externalizing Problems, Withdrawn, Anxious/Depressed, Thought Problems and Attention Problems. Previous researches examined the links between the intensity of work (hours worked) and adolescent problem behaviors (e. g., alcohol use), mental health, and problematic or positive school-related outcomes (e. g., skipping school, grades) [7, 24, 25, 35]. Our finding that working intensely has led to deleterious effects on mental health of adolescents was also in accordance with authors reporting the robust association between work intensity (especially over 20 hours per week) and problem behaviors (e. g., alcohol use) [7, 21, 24, 25, 29, 35]. In contrast, Paternoster and colleagues [28] reported that there was no relationship between high work intensity and antisocial behavior. Previous studies have suggested co-occurrence of aggressive and/or delinquent behaviors with the use of substances in adolescents. Similarly, in most of the studies students who worked longer hours were found to be in risk of alcohol or substance use [20, 28, 37, 39]. Recent studies reported that long work hours increase levels of drinking during high school [7, 30]. Also substance use has been reported to occur in those working longer hours [6, 7, 41]. Concordant with these findings Ilhan et al [27] found the association of alcohol use problems with weekly working time among students of five apprenticeship schools in Turkey [27].

The association between working longer hours and higher scores of behavioral problems may be explained with the findings that working long hours may have negative effects on adolescents including work-related injuries and substance use involvement [7, 31, 41]. Also working long hours may also affect adolescent students' academic achievement because it interferes with their ability to meet school-related demands and responsibilities (i. e., work–school conflict) [34]. Studies of adolescent students have reported an association between longer hours of work during the school year and diminished school performance, lower school engagement, and increased psychological distress or somatic complaints [21]. The investigators suggested that students with a history of poorer performance and less interest in school were willing to commit long hours to employment while still enrolled in school [25].

On the other hand it may be suggested that working longer hours may come as an extra stress on adolescents. Clinical and psychodynamic data indicate that adolescence is a difficult developmental phase, when processes of intensive separation from childhood objects and adolescents' individualization take place [30]. It is during adolescence that the development of identity and autonomy typically accelerate because of rapid physical and cognitive changes, expanding social relationships, and new rights and responsibilities. Failures in these tasks mark a variety of widely recognized problem behaviors [11]. Also as working adolescents are away from controlled social environments like school and family, they are more susceptible to some negative factors [39].

Previous general population studies have revealed that elevated scores of behavior problems in adolescents were associated with male gender [9, 26, 30]. Furthermore, Wright et al found that boys who were at high risk for delinquency engaged in more misconduct when they had worked more than 20 hours per week, but working had no direct association with the problem behaviors of girls or low risk boys [40]. Elevated scores of behavior problems were associated with adolescent's parental educational level in present study. Lower paternal education was related to higher problem scores on Externalizing problems scales and lower maternal education was related to higher problem scores on Total Problems scales. Concordant with our findings lower parental education was related to higher behavior problem scores in a study on a Turkish sample using CBCL [8]. We found that the SES of families of adolescents in the apprenticeship school is lower than that in the high and technical schools. However according to our results of logistic regression analyses higher problem scores cannot be explained by the differences in SES distributions across the samples. In present study there was not any relationship between behavior problems and age of adolescent, type of school, working status of mother and father.

The present study has several limitations. Since the study data is cross-sectional, no causal relationship between working status, duration and behavioral problems could have been determined. Another limitation of present study is

Table 3. Youth Self Report Scores of School Groups (Mean ± Standard Deviation (SD)).

Behaviors Problems Scores	Group I (High School)		Group II (Technical School)		Group III (Apprenticeship School)		ANOVA*	
	Mean	SD	Mean	SD	Mean	SD	F	P
Total Problems	66.6	10.2	63.8	10.1	70.6	11.6	16.6	**0.000** β
Internalizing Problems	63.9	9.8	62.3	9.7	67.9	10.9	12.8	**0.000** δ
Externalizing Problems	57.7	8.9	54.1	38.9	63.3	9.6	10.0	**0.000** δ
Withdrawn	65.5	8.7	64.9	8.8	68.7	10.0	7.5	**0.001** δ
Somatic Complaints	59.6	8.9	57.9	10.6	64.5	8.4	21.7	**0.000** δ
Anxious/Depressed	61.9	7.9	61.3	9.7	64.9	8.8	8.1	**0.000** δ
Social Problems	55.6	5.8	55.6	7.9	58.8	6.8	13.5	**0.000** δ
Thought Problems	66.9	7.9	65.0	9.1	68.5	7.9	7.6	**0.001** γ
Attention Problems	63.5	7.7	59.7	8.6	63.7	8.1	16.9	**0.000** γ
Delinquent Behaviors	60.7	6.8	60.6	7.0	64.9	7.2	19.4	**0.000** δ
Aggressive Behaviors	57.6	7.1	54.3	7.2	57.9	6.2	16.7	**0.000** γ

* One-Way Analysis of Variance (ANOVA)
δ Group III different from Group I and Group II
β The difference is between Group I and Group II and Group III
γ Group II different from Group I and Group III

Table 4. Mean YRS subscores according to the working status of adolescents (Means±Standard Deviatons (SD)).

Behaviors Problems Scores	Working status	Mean	SD	t	P
Total Problems	-	66.0	10.5	-2.367	**0.018**
	+	68.2	11.7		
Internalizing Problems	-	63.5	10.0	-3.128	**0.002**
	+	66.2	10.9		
Externalizing Problems	-	56.7	9.2	-1.589	0.114
	+	60.8	33.9		
Withdrawn	-	65.6	8.7	-1.439	0.151
	+	66.8	10.3		
Somatic Complaints	-	58.9	8.7	-4.761	**0.000**
	+	63.2	10.8		
Anxious/ Depressed	-	61.6	8.2	-3.001	**0.003**
	+	64.1	9.8		
Social Problems	-	55.6	6.0	-3.494	**0.001**
	+	57.9	7.9		
Thought Problems	-	66.4	7.7	-1.033	0.303
	+	67.3	9.6		
Attention Problems	-	62.5	7.8	0.130	0.896
	+	62.4	9.0		
Delinquent Behaviors	-	60.7	6.8	-4.175	**0.000**
	+	63.5	7.9		
Aggressive Behaviors	-	56.5	6.9	-0.789	0.430
	+	56.9	7.3		

(-): not working adolescents, (+): working adolescents

Table 5. Logistic Regression Analyses Results

YSR Scores	Adjusted Odds Ratio* (95% CI)	P-Value
Total Problems		
Adolescents' working hours (weekly): >30 hours	4.2 (1.8-9.9)	**0.001**
Mother educational level <8 years	5.1 (1.2-21.2)	**0.029**
Internalizing Problems		
Adolescents' working hours (weekly): >30 hours	2.4 (1.1-5.2)	**0.027**
Externalizing Problems		
Father educational level <8 years	2.6 (1.1-6.1)	**0.027**
Adolescents' working hours (weekly): >30 hours	2.4 (1.1-5.3)	**0.035**
Withdrawn		
Adolescents' working hours (weekly): >30 hours	2.8 (1.3-6.0)	**0.007**
Anxious/Depressed		
Adolescents' working hours (weekly): >30 hours	1.8 (0.90-3.71)	**0.116**
Social Problems		
Gender (male)	3.5 (1.2-10.9)	**0.028**
Thought Problems		
Adolescents' working hours (weekly): >30 hours	2.99 (1.91-4.69)	**0.000**
Attention Problems		
Adolescents' working hours (weekly): >30 hours	2.4 (1.1-5.50)	**0.027**

* *After statistical adjustment for gender, age, type of school, working status of mother, father and adolescents, father and mother educational level*

ANOVA analyses revealed that, there were significant differences among groups in terms of all behavioral problem scores. After bonferroni adjustment, total problem scores of all three groups were found to be significantly different from each other; group II and III displayed the lowest and highest scores respectively. Post hoc analyses also revealed that, Group III had significantly higher scores of Withdrawn, Somatic Complaints, Anxious and Depressed, Social Problems, Delinquent Behaviors, Internalizing and Externalization, while Group II had significantly lower scores of Thought Problems, Attention Problems and Aggressive Behaviors (Table 3).

In order to determine the relationship between the working status of adolescents and their YSR scores, independent

samples t test was performed. The mean raw YSR scores according to the working status of adolescents have been presented in Table 4. The Total Problems, Internalizing Problems, Somatic Complaints, Anxious/Depressed, Social Problems and Delinquent Behaviors scores of working adolescents were significantly higher than non working adolescents (Table 4).

Logistic regression analyses

The results of Odds Ratios and Confidence Intervals after statistical adjustment for gender, age, type of school, working status of mother, father and adolescents, educational levels of father and mother have been presented in Table 5. Total Problems, Internalizing Problems, Externalizing Problems, Withdrawn, Anxious/Depressed, Thought Problems and Attention Problems were significantly related to working hours (>30 hours weekly). Male gender was found to have a 3.5 times increased risk of social problems (95 % CI: 1.2-10.9). While mother educational level lower than 8 years have led to 5.1 times increased risk of having higher scores of total problems (95 % CI: 1.2-21.2), father educational level lower than 8 years have been found to lead to 2.6 times increased risk of Externalizing Problems (95 % CI: 1.1-6.1). Somatic Complaints, Delinquent Behaviors, and Aggressive Behaviors were not significantly related to variables in any model (Table 5).

Discussion

The present study evaluated the working status and duration, and family characteristics of adolescents in three different types of schools of Turkey and the influence of these parameters on their behavioral problems. Of the adolescents 22.9 % from the technical school, 75.2 % from the apprenticeship school and 1.9 % from high school worked regularly. Average working time of the regular workers in all groups was 59.7 hours weekly. Our study was in accordance with previous studies in Turkey which also showed that adolescents in apprenticeship schools worked longer than the working hours determined for their age [1, 22, 32].

Adolescents from apprenticeship school in our study had higher scores of Withdrawn, Somatic Complaints, Anxious and Depressed, Social Problems, Delinquent Behaviors, Internalizing and Externalization Problems using the YSR than adolescents from high and technical schools. In present study, working per se was associated with behavioral problems. Also students working more than 30 hours a week were found to be in risk of higher scores of Total Problems, Internalizing Problems, Externalizing Problems, Withdrawn, Anxious/Depressed, Thought Problems and Attention Problems. Previous researches examined the links between the intensity of work (hours worked) and adolescent problem behaviors (e. g., alcohol use), mental health, and problematic or positive school-related outcomes (e. g., skipping school, grades) [7, 24, 25, 35]. Our finding that working intensely has led to deleterious effects on mental health of adolescents was also in accordance with authors reporting the robust association between work intensity (especially over 20 hours per week) and problem behaviors (e. g., alcohol use) [7, 21, 24, 25, 29, 35]. In contrast, Paternoster and colleagues [28] reported that there was no relationship between high work intensity and antisocial behavior. Previous studies have suggested co-occurrence of aggressive and/or delinquent behaviors with the use of substances in adolescents. Similarly, in most of the studies students who worked longer hours were found to be in risk of alcohol or substance use [20, 28, 37, 39]. Recent studies reported that long work hours increase levels of drinking during high school [7, 30]. Also substance use has been reported to occur in those working longer hours [6, 7, 41]. Concordant with these findings Ilhan et al [27] found the association of alcohol use problems with weekly working time among students of five apprenticeship schools in Turkey [27].

The association between working longer hours and higher scores of behavioral problems may be explained with the findings that working long hours may have negative effects on adolescents including work-related injuries and substance use involvement [7, 31, 41]. Also working long hours may also affect adolescent students' academic achievement because it interferes with their ability to meet school-related demands and responsibilities (i. e., work–school conflict) [34]. Studies of adolescent students have reported an association between longer hours of work during the school year and diminished school performance, lower school engagement, and increased psychological distress or somatic complaints [21]. The investigators suggested that students with a history of poorer performance and less interest in school were willing to commit long hours to employment while still enrolled in school [25].

On the other hand it may be suggested that working longer hours may come as an extra stress on adolescents. Clinical and psychodynamic data indicate that adolescence is a difficult developmental phase, when processes of intensive separation from childhood objects and adolescents' individualization take place [30]. It is during adolescence that the development of identity and autonomy typically accelerate because of rapid physical and cognitive changes, expanding social relationships, and new rights and responsibilities. Failures in these tasks mark a variety of widely recognized problem behaviors [11]. Also as working adolescents are away from controlled social environments like school and family, they are more susceptible to some negative factors [39].

Previous general population studies have revealed that elevated scores of behavior problems in adolescents were associated with male gender [9, 26, 30]. Furthermore, Wright et al found that boys who were at high risk for delinquency engaged in more misconduct when they had worked more than 20 hours per week, but working had no direct association with the problem behaviors of girls or low risk boys [40]. Elevated scores of behavior problems were associated with adolescent's parental educational level in present study. Lower paternal education was related to higher problem scores on Externalizing problems scales and lower maternal education was related to higher problem scores on Total Problems scales. Concordant with our findings lower parental education was related to higher behavior problem scores in a study on a Turkish sample using CBCL [8]. We found that the SES of families of adolescents in the apprenticeship school is lower than that in the high and technical schools. However according to our results of logistic regression analyses higher problem scores cannot be explained by the differences in SES distributions across the samples. In present study there was not any relationship between behavior problems and age of adolescent, type of school, working status of mother and father.

The present study has several limitations. Since the study data is cross-sectional, no causal relationship between working status, duration and behavioral problems could have been determined. Another limitation of present study is

the lack of detailed information about the work conditions. Future research should examine the characteristics and processes related to employment that put adolescents at risk for behavioral problems. These include such factors as the perceived meaning of adolescent work, the societal context of the workplace, the characteristics and the quality of work, the time spent in the workplace, and the effects of family, peer group, and school contexts.

As a conclusion, longer working hours seems to be associated with Withdrawn, Somatic Complaints, Anxious and Depressed, Social Problems, Delinquent Behaviors, Internalizing and Externalization Problems in adolescents. Our study revealed that, behavioral problems were influenced by working status, long working hours, family characteristics and SES. When we analysed with logistic models, the interrelation of these variables with behavioral problems was better commented as an interaction instead of a confounder. Long working hours together with being affected with family characteristics, has also a direct effect on behavioral problems. Bearing these findings in mind, physicians handling behavioral problems of adolescents would consider the working status as well. We suggest that it is important to control working conditions of adolescents in order to prevent development of behavioral problems that may lead to several other health problems. Health care professionals should provide guidance and support for adolescents that will promote community awareness about negative effects of working longer hours.

Acknowledgements

We would like to thank Özge Saracli, MD and Bilgehan Acikgöz, MD for their contribution and efforts for data collection and YSR procedures.

Corresponding author:
Dr. Sibel Kiran, Zonguldak Karaelmas Üniversitesi, Tıp Fakültesi Halk Sagligi Anabilim Dalı, 67600, Kozlu, Zonguldak, Turkey
Tel: +90-372-261 02 43 - 4444
Fax: +90-372-261 02 51/90-372-261-02-10
E-Mail: sibelkiran@gmail.com

References

1. Abay AR (2002) Çırak Öğrencilerin Sorunları (Bostancı Çıraklık Eğitim Merkezi Öğrencileri Örneği). Kocaeli Universitesi Sosyal Bilimler Enstitüsü Dergisi (4) 2: 107-139.
2. Achenbach TM, McConaughy SH, Howell CT (1987) Child/ Adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. Psychological Bulletin 101:213-32.
3. Achenbach TM (1985) Assessment and taxonomy of child and adolescent psychopathology. Newbury Park, CA, Sage.
4. Achenbach TM (1991) Manual for the Youth Self Report and 1991 Profile. Burlington, University of Vermont, Department of Psychiatry.
5. Alem A, Zergaw A, Kebede D, Araya M, Menelik Desta, Teferea Muche, Debela Chali, Girmay Mehdin (2006) Child labor and childhood behavioral and mental health problems in Ethiopia Ethiop. J. Health Dev 20(2)120-126.
6. Bachman JG, Johnston LD, O'Malley PM (1981) Smoking, drinking, and drug use among American high school students: Correlates and trends, 1975-1979. American Journal of Public Health71: 59-69.
7. Bachman JG, Schulenberg J (1993) How part-time work intensity relates to drug use, problem behavior, time use, and satisfaction among high school seniors: Are these consequences or merely correlates? Developmental Psychology 29:220–235.
8. Bengi-Arslan L, Verhulst FC, Van der Ende J, Erol N (1997) Understanding childhood (problem) behaviors from a cultural perspective: comparison of problem behaviors and competencies in Turkish immigrant, Turkish and Dutch children. Soc Psychiatry Psychiatr Epidemiol; 32:477–484.
9. Broberg AG, Ekeroth K, Gustafsson PA, Hansson K, Hägglöf B, Ivarsson T, Larsson B (2001) Self-reported competencies and problems among Swedish adolescents: a normative study of the YSR. European Child & Adolescent Psychiatry;10:186-193 .
10. Bulutay T (1996) Istihdam ve Eğitim Projesi işgücü Piyasası Bilgisi (Tor 6). In: Teknoloji ve Istihdam, Ankara, Başbakanlık Devlet Istatistik Enstitüsü.
11. Chen Z, Dornbusch SM (1998) Relating aspects of adolescent emotional autonomy to academic achievement and deviant behavior. Journal of Adolescent Research 13:293-319.
12. Erol N, Bengi-Arslan L, Akcakin M (1995) The adaptation and standardization of the Child Behavioral Checklist among 6 to 18-year-old Turkish children. In: Sergeant J (ed) Eunethydis: European approaches to hyperkinetic disorder, Fotorotar: Zurich, 97–113.
13. Forastieri V (2002) Children at work: Health and safety risks. 2nd edition, Geneva, Switzerland, ILO.
14. Holtz JF, Boillat MA (1991) Health and health-related problems in a cohort of apprentices in Switzerland. J Soc Occup Med Spring 41(1):23-8.
15. International Labour Organization Report (1998) Child labour-Targeting the intolerable. Geneva, Switzerland, ILO.
16. International Labour Organization (2002): Eliminating the worst forms of child labour. A Practical Guide to ILO Convention No.182, Handbook for Parliamentarians.
17. International Labour Organization (2002): Report of the Director-General: A Future without Child Labour. Report. Geneva, Switzerland, ILO.
18. İkinci Dönem TİSK_IPEC Projesi Anket Çalışması (1996) Küçük Ölçekli Metal Sanayii İşverenlerinin Çalışan Çocuklara İlişkin Duyarlılıklarını Arttırmak, Organize Sanayii Bölgelerinde Çocuk İşgücü : Doğu, Pendik ve Atatürk Sanayii siteleri Anket Sonuçları. Yayın No: 156, Türkiye İşveren Sendikaları Konfederasyonu, 20-45.
19. Karaman B, Ozcalik M (2007) A Result of Income Distribution Inequality in Turkey: Child Labour (Türkiye'de Gelir Dağılımı Eşitsizliğinin Bir Sonucu: Çocuk İşgücü.) Yönetim ve Ekonomi (14) 1: 25-41.
20. Kouvonen A, Lintonen T (2002) Adolescent part-time work and heavy drinking. Addiction 97: 311-318.
21. McMorris BJ, Uggen C (2000) Alcohol and employment in the transition to adulthood. Journal of Health and Social Behavior 41:276-294.
22. MEB (1996) Çıraklık Eğitimi Uygulamaları ve Motor Meslek Alanındaki Çırak Öğrencileri Bekleyen Riskler Araştırması, Ankara, MEB.

23. MEGSB (1987) Çıraklık ve Meslek Eğitimi Kanunu (Law of Apprenticeship and Vocational Training), Ankara, Milli Eğitim Gençlik ve Spor Bakanlığı.
24. Mihalic SW, Elliott D (1997) Short and long term consequences of adolescent work. Youth and Society 28:464–498.
25. Mortimer JT, Finch M, Ryu S, Shanahan M (1996) The effects of work intensity on adolescent mental health, achievement, and behavioral adjustment: New evidence from a prospective study. Child Development 67:1243–1261.
26. Murad S, Joung IMA, Verhulst FC, Mackenbach JP, Crijnen AAM (2004) Determinants of self-reported emotional and behavioral problems in Turkish immigrant adolescents aged 11–18. Soc Psychiatry Psychiatr Epidemiol 39 : 196-207.
27. Ozgur Ilhan I, Demirbas H, Dogan YB (2005) A Study On Alcohol Use Among Working Youth Who Are Continuing Apprenticeship Training. Turkish Journal of Psychiatry 16(4): 237-244
28. Paternoster R, Bushway S, Brame R, Apel R (2003) The effect of teenage employment on delinquency and problem behaviors. Social Forces 82:297-335.
29. Resnick MD, Bearman PS, Blum RW, Bauman KE, Harris KM, Jones J, Tabor J, Beuhring T, Sieving RE, Shew M, Ireland M, Bearinger LH, Udry JR (1997) Protecting adolescents from harm. JAMA 278:823-832.
30. Rudan V, Begovac I, Szirovicza L, Filipovic O, Skocic M (2005) The Child Behavior Checklist, Teacher Report. Form and Youth Self Report Problem Scales in a Normative Sample of Croatian Children and Adolescents Aged 7-18. Behavioral and Emotional Problems. Coll. Antropol (29) 1: 17-26.
31. Schoenhals M, Tienda M, Schneider B (1998) The educational and personal consequences of adolescent employment. Social Forces 77:723-748.
32. Senemoglu N (2001) Çocuk Hakları, Çalışan Çocuklar ve Eğitim Sorunları. Milli Eğitim Dergisi151 [available at: http://yayim.meb.gov.tr/dergiler/151/senemoglu.htm]
33. SPSS 12.0 for Windows, Release 12.0 (4 Sept 2003), Chicago, Ilionis 2001. Customer Number: 56554.
34. Steinberg L, Cauffman E (1995) The impact of employment on adolescent development. Annals of Child Development 11:131-166.
35. Steinberg L, Dornbusch SM (1991) Negative correlates of part-time employment during adolescence: Replication and elaboration. Developmental Psychology 27:304-313.
36. Unluhisarcikli O (1999) Pathways to Employment and Vocational Skill Acquisition: Apprentices, Journeymen, and Masters in the Informal Sector in Istanbul, Turkey, Unpublished dissertation, Manchester: Manchester University.
37. Valois RF, Dunham ACA, Jackson KL, Waller J (1999) Association between employment and substance abuse behaviors among public high school adolescents. J Adolesc Health 25: 256-263.
38. Wakai K, Miura H, Umenai T (2005) Effect of working status on tobacco, alcohol, and drug use among adolescents in urban area of Thailand. Addict Behav. Mar;30(3):457-64.
39. Wegman DH, Davis LK (1999) Protecting youth at work. Am J Ind Med 36: 579-583.
40. Wright JP, Francis TC, Nicolas W (1997) "Working While in School and Delinquent Involvement: Implications for Social Policy." Crime and Delinquency 43:203-221.
41. Wu L, Schlenger W, Galvin D (2003) The relationship between employment and substance use among students aged 12 to 17. Journal of Adolescent Health (32) 1:5-15.
42. Zimmer-Gembeck MJ, Mortimer JT (2006) Adolescent Work, Vocational Development, and Education. Rev Educ Res. Dec 76(4):537-566.

Effect of Working Hours on Behavioral Problems in Adolescents: A Turkish Sample

Sibel Kiran, MD, PhD[1]; Ayse Unal, PhD, Associate Professor[2]; Ferruh Ayoglu, MD, PhD[3]; Numan Konuk, MD, Assistant Professor[4]; Ayse Ocakci, PhD, Professor[5]; Ayten Erdogan, MD, Assistant Professor[6]

[1] Occupational Health, Department of Public Health, School of Medicine, Zonguldak Karaelmas University, Zonguldak, Turkey
[2] Department of Labour Economics and Industrial Relations, Uludag University, Bursa, Turkey
[3] Department of Public Health, School of Medicine, Zonguldak Karaelmas University, Zonguldak, Turkey
[4] Department Psychiatry, Zonguldak Karaelmas University, Faculty of Medicine, Zonguldak, Turkey
[5] Marmara University, Zeynep Kamil School of Health, Istanbul, Turkey
[6] Department of Child and Adolescent Psychiatry, Zonguldak Karaelmas University, Faculty of Medicine, Zonguldak, Turkey