

ORIGINAL PAPER**Socio-Economical Inequalities on Physical Activities and Mental Health Status among the Young People****Belgin Akın, PhD**

Associate Professor, Healty Science Faculty, Nursing Department, Selcuk University, Konya, Turkey.

Emel Ege, PhD

Associate Professor, Healty Science Faculty, Nursing Department, Necmettin Erbakan University, Konya, Turkey.

Deniz Koçoğlu, PhD

Assistant Professor, Healty Science Faculty, Nursing Department, Selcuk University, Konya, Turkey.

Selda Arslan, PhD

Assistant Professor, Healty Science Faculty, Nursing Department, Selcuk University, Konya, Turkey.

Correspondence: Selda Arslan, Assistant Professor, Healty Science Faculty, Nursing Department, Selcuk University, Konya, Turkey seldayarali@hotmail.com**Abstract****Background:** Health inequality among the social groups is accepted as one of the most important matters of the public health.**Objective:** The study was to investigate socioeconomic health Inequalities in terms of physical activity and mental health among young people.**Methods:** This cross-sectional study sample consisted of 1274 randomly selected university students. A questionnaire and General Health Questionnaire (GHQ) were used to collect data.**Results:** It was questioned the activities during the last week for assessing the physical activity status of students. Of the students 27.2 % had moderate and 47.1 % had vigorous physical exercise during last week. Females, those perceiving their social position in class middle or worse had negative characteristics in terms of having physical exercise ($p<0.05$). The mental health of females, those having mother of low educational level, perceiving their economic situation moderate or worse, being blue-collar social class, perceiving their social position in class middle or worse and having no physical exercise were worse ($p<0.05$).**Conclusion:** As conclusion, socioeconomic status and physical exercise had an important effect on mental health. Focusing on healthy life style only would have limited effect on health promotion efforts.**Keywords:** Young people; Health behaviors; Mental health; Socioeconomic Status.**Introduction**

Health inequality among the social groups is accepted as one of the most important matters of the public health (Newacheck et al., 2003). It is stated that socio-economic status during the childhood period has significant effect on the mortality during the adulthood and diseases and mortality is higher among the people who live in the man-handling

class (Power et al., 2005; Power, 2002; Smith et al., 1997; Smith et al., 1998). According to the hypothesis of social causality; the people with lower socio-economic status have more negative health behaviors and moreover, they experience the bad health results depending on those behaviors more often. The people with higher socio-economic status are affected less from bad health results arising from

negative health behaviors since they have high living standards (Geckova et al., 2003).

The young is in a transition period from which the family is the determiner into the period which the youth himself/herself, peer group, and the social group they live in are the determiners. This process may be a period which negative habits are acquired and consolidated and negative behaviors may have long and short term negative effects (Newacheck et al., 2003; Goodman et al., 2003; Park et al., 2006). Negative health behaviors, sexually transmitted infections, tendency to violence (Johanson et al., 2006), death, diseases, bad living quality (Newacheck et al., 2003; Pensola & Valkonen, 2002), negative changes in mental and physical health (Roberts et al., 1999; Brown et al., 2007; Goodman, 1999) are generally seen more often among the children and adolescences with lower financial levels. In the studies about the physical activities among the young, it is stated that there are socio-economic inequalities in the physical activity levels and those with lower socio-economic levels participate physical activities less (Huurre et al., 2003; Nelson et al., 2007; Kamphuis et al., 2008; Currie et al., 2008).

It is determined that the reasons for death and diseases among the young show an alteration in the course of time and mental problems consist one of the most important health problems during the youth period (WHO, 2003). Besides, because of the frequent existence of mental health problems and its responsibility from the major part of disability among the young, it is an important criterion in the observation of the inequalities in health (Belek, 1999). It is said that the young with more activities have less mental and physical difficulty (Goodwin, 2003; Valois et al., 2004; Piko & Keresztes, 2006; Ströhle et al., 2007; Beard et al., 2007; Valois et al., 2008). These findings show that there are problems in performing physical activities and mental health and both of them are related to each other and socio-economic status.

Although there are some findings reporting there are less health inequalities among the young and it shows similarity when the health status of the young with different socio-economic status; it is stated that more information is needed for the relation between these hypothesis and socio-economic status (West & Sweeting, 2004). It is determined that this proportional equality alleged to come up during the youth and different results will be obtained when

measured from the positive aspects (Starfield et al., 2006). It is stated that children and young are not small adults, they have their own characteristics and the sources and enterprises that the governments allocate for the young people will be a more cost-effective strategy than any other age group (Pensola & Valkonen, 2000; Aynsley-Green et al., 2000).

Knowing the relationship between developing the health among the young and negative health results and socio-economic status contribute to providing those positive behaviors during the early periods and development of public health. The aim of this study is to analyze the socio-economic health inequalities from the point of positive health behavior (physical activity) and health status (mental health).

The study questions

1. Do the young with lower socio-economic status carry out less physical activities than those with higher socio-economic levels? (**Inequality in exposure**)
2. Do the young with lower socio-economic status have higher rates of having mental troubles than those with higher socio-economic levels? (**Inequality in health**)
3. Do the young who doesn't exercise have higher rates of having mental troubles than those with higher socio-economic levels?

Methods

Type and place of the study: The cross sectional study was carried out at Konya Selçuk University, Alaeddin Keykubad Campus during fall term in 2008-2009 academic year.

The study group: 32,023 university students who are sophomore or at higher grades at faculties and colleges in Alaeddin Keykubad Campus of Selçuk University formed the universe of the study. The freshmen were excluded there might be differences among them since they did not spend enough time with the environment. In the determination of the sample size of the study, a table suggested for "estimating a population proportion with specified absolute precision" (Lwanga & Lemeshow, 1991). A rate (42.7%) that reports the results of a study (Kara 2003) carried out among the high schoolers in Turkey as a finding about the extensiveness of physical exercises among the young. Moreover, relative precision of 7% in the level of 95% was considered and the sample size given in the table

was found as 1176 (40%). In the study, cluster sampling method was used and thus, a quantity over the suggested number was included. Every class (274 people) in faculties and high schools was accepted as a cluster and total 45 clusters were chosen. The selection continued until the determined clusters were completed and the sample size was 1274.

Data collection methods and tools: In order to collect the data, a questionnaire in order to investigate socio-economic status and other characteristics of the students and General Health Questionnaire (GHQ) were used. The data of the research was collected in the class indiscrete and under the control of the researchers between the dates of February the 15th and March the 31st regarding self-reports of the students.

Socio-economic variables: It is stated that socio-economic status is not related to the time when the measurement is performed but related to the environment which the student has been living and the socio-economic status of the students should be evaluated according to that of their parents (Belek, 1998). It is also stated that the individual status of the young in the environment where they live should be evaluated besides that of their families in order to evaluate the socio-economic status of the young (Johanson et al., 2006).

On the basis of this information, socio-economic status of the family and social status of the students in the class are regarded during the evaluation of socio-economic status of the students. For this purpose, the education levels of the mother, the income levels (YTL-New Turkish Liras), perceived income levels and social class was evaluated related to socio-economic status of the family.

In the determination of class situation, the Marxist class analysis that has been formed for the relationship of household head with the ownership of production tools and their status in the production process as the producer or capital owner and a class scheme formed by Boratav et al., (1995).

Class status was shown in four groups such as “blue collars, white collars, self-employed and

commoners”. In the evaluation of individual social status of the students in the class, the following question was asked; “What do you think about your social status in the class?” In the evaluation of physical activity status of the students, two questions from Health Promotion Lifestyle Profile.

As for physical activities, the questions such as “Did you do simple exercises at least three times last week? (Slight exercises), “Did you do exercises for 20 minutes at least three times during last week?” (Heavy exercises) were asked.

In the evaluation of *Health Status* the General Health Questionnaire (GHQ) developed by World Health Organization (WHO) was used. The GHQ that was adapted to Turkish by Kılıç (1996) is a short and easy to use scale that was successfully applied for public scanning in various countries. The GHQ generally is used to determine the psychopathological level and find cases in public scanning. In the study, the form with 12 questions was preferred since it was easy to apply. Every question in the questionnaire insomnia, uneasiness, distractibility, feeling of being useful, tackling the problems, having difficulty in deciding, struggling the problems, being happy, enjoying the life, being in a good mood, self-assurance and feeling small during the last fortnight had four options such as “no, never”, “as usual”, “more often than usual”, and “very often”. It is known that the more numerical values in the questionnaire increase, the worse health becomes.

Statistical analysis

In the statistical analysis, SPSS 10.0 statistical program was used. Student t test, one-way analysis of variance, and multiple regression analysis were used in the statistical analysis besides numbers, percentages, averages, and standard deviation.

Results

In the study which socio-economic health inequalities were analyzed with the dimensions of physical exercises and mental health, the findings obtained from 1274 university students were given below.

Table 1. The Distribution of descriptive characteristics of the students (n:1274)

Gender	Number	%
Female	605	47.5
Male	669	52.5
Mother's Education		
Illiterate-Primary School Graduate	853	67.0
Secondary School Graduate and ↑	421	33.0
Perceived Financial Status		
Very Good- Good	447	35.1
Middle-Bad	827	64.9
Social Class		
Blue-Collar	305	23.9
White-Collar	566	44.4
Self-Employed	256	20.1
Middle Class	147	11.5
Perceived Social Status in the Class		
Middle or lower	648	50.9
Middle ↑	626	49.1
Slight Exercises		
Yes	600	47.1
No	674	52.9
Heavy Exercises		
Yes	289	22.7
No	985	77.3
	The average	Sd
Number of Individuals in the Family	4.85	1.429
Monthly Income	1222.8	904.5

Table 2: The Distribution of Doing Physical Exercise, According to Socio-Demographic and Socio-Economic Characteristics of Students

	Slight exercises		Heavy exercises	
	Yes	No	Yes	No
Gender	Sayı %	Sayı %	Sayı %	Sayı %
Female	246(40.7)	359(59.3)	106(17.5)	499(82.5)
Male	354(52.9)	315(47.1)	183(27.4)	486(72.6)
	X²:19.146	p:0.000*	X²:17.516	p:0.000
Mother's Education				
Illiterate-Primary School Graduate	386(45.3)	467(54.7)	183(21.5)	670(78.5)
Secondary School Graduate And ↑	214(50.8)	207(49.2)	106(25.2)	315(74.8)
	X ² :3.522	p:0.061	X ² :2.229	p:0.135
Perceived Financial Status				
Very good- good	209(46.8)	238(53.2)	111(24.8)	336(75.2)
Middle-Bad	391(47.3)	436(52.7)	178(21.5)	649(78.5)
	X ² :0.032	p:0.858	X ² :1.811	p:0.178
Social Class				
Blue-Collar	141(46.2)	164(53.8)	61(20.0)	244(80.0)
White-Color	268(47.3)	298(52.7)	141(24.9)	425(75.1)
Self-Employed	127(49.6)	129(50.4)	58(22.7)	198(77.3)
Middle Class	64(43.5)	83(56.5)	29(19.7)	118(80.3)
	X ² :1.503	p:0.682	X ² :3.587	p:0.310
Perceived Social Status In The Class				
Middle or Lower	291(44.9)	357(55.1)	127(19.6)	521(80.4)
Middle ↑	309(49.4)	317(50.6)	162(25.9)	464(74.1)
	X ² :2.535	p:0.111	X²:7.159	p:0.007
	X±SD	X±SD	X±SD	X±SD
Size of Household	4.76±1.37	4.94±1.47	4.75±1.32	4.88±1.46
	t:2.298	p:0.660	t:1.349	p:0.486
Monthly Income	1256.4±976.4	1192±834.9	1246.6±961.1	1215.8±887.6
	Z:0.423	p:0.672	Z:0.669	p:0.503

Table 3: The Distribution of GHQ Score According to Socio-Demographic Characteristics of Students

Gender	GHQ score	
	Ort	SS
Female	7.11	3.64
Male	5.83	3.51
	t:6.380	p:0.182
Mother's Education		
Illiterate-Primary School Graduate	6.69	3.67
Secondary School Graduate And ↑	5.93	3.50
	t :3.515	p :0.064
Perceived Financial Status		
Very good- good	5.90	3.39
Middle-Bad	6.73	3.71
	t :3.931	p :0.011
Social Class		
Blue-Collar	7.14	3.85
White-Color	6.11	3.52
Self-Employed	6.38	3.54
Middle Class	6.37	3.63
	F:5.470	p:0.001
Perceived Social Status In The Class		
Middle or lower	6.80	3.68
Middle ↑	6.07	3.54
	t :3.620	p :0.159
Slight Exercises		
Yes	5.87	3.32
No	6.95	3.81
	t :5.346	p :0.000
Heavy Exercises		
Yes	5.44	3.34
No	6.73	3.66
	t :5.372	p :0.037

Table 4: The Predictors of Mental Health Status According to Multiple Regression Analyses (Enter method)

The predictors of mental health status	Std. β	t	p
Gender (Female)	-1.163	-5.869	0.000
Mother's Education (illiterate-primary school graduate)	0.470	2.112	0.035
Perceived Financial Status (middle-bad)	0.623	2.832	0.005
Social Class (blue- collar)	0.600	2.471	0.014
Monthly income	0.708	.604	0.546
Perceived Social Status In The Class (middle or lower)	-0.630	-3.198	0.001
Slight Exercises (no)	0.654	3.048	0.002
Heavy Exercises (no)	0.686	2.675	0.008
R= 0.084 R²=0.077			

In Table 1, the dissociation of introductive aspects of the students was shown. Of the students; 47.5% was girls, mothers of 67% were illiterate-primary school graduate, 64.9% had middle-bad financial status, 44.4% had white-collared fathers, 50.9 had middle or lower class status. The rate of students who do at least three simple physical exercises (slight exercises) during last week was 47.1% and the rate of them who do exercises at least three times for 20 minutes (heavy exercises) was 27.2%. The number of individuals in the family was 4.8 in the average and monthly income average was 1222.8±904.5 YTL (median 1000, mod 1000, min. 100, max. 8000) (Table 1).

According to the executed evaluations, a significant relation was determined between the gender and doing slight exercises ($p < 0.05$). The rate of slight exercises among the male students (52.9%) was higher than female students (40.7%). Moreover, a significant relation was determined between gender and social status of the students in the class and doing heavy exercises during the week ($p < 0.05$). Male students (27.4%) and those who assume their

social status in the class above the average (25.9%) were seen to do heavier exercises. The education level of the mother, perceived financial status, class, the number of individuals and monthly income status were not found in relation with doing exercises ($p > 0.05$) (Table 2).

In the executed analysis, GHQ score, perceived economic status, social class and slight and heavy exercises were found in relation while gender, education of the mother, and social status in the class were not found in relation ($p < 0.05$). GHQ score averages of those who perceive their financial status as middle-bad (6.73±3.71), those who do not do slight (6.95±8.81) and heavy (6.73±3.66) exercises and who were in blue collar social status (7.14±3.85) were more negative. In the Tukey HSD analysis that was performed for the class variant, blue collared class was different from all the groups ($p < 0.05$) and other groups were similar to each other (Table 3).

In the executed multiple regression analysis, the variants that effect the mental health of the students were determined as gender, mother's education,

perceived financial status, being in blue-collar class, perceiving social status in the class as middle or lower, not doing slight or heavy exercises during the previous week ($p < 0.05$). The determinants were found to be effective on psychical health on the rate of 07%. It was found that monthly income level of the family did not affect the psychical health status ($p > 0.05$) (Table 4).

Discussion

The average for monthly income levels of the students included in the study was 1222.8 ± 904.5 YTL., 64.9% had middle-bad financial status, the social class of the family was white-collar in the rate of 44.4%, 50.9% of them had middle-lower social status in the class. Among the young, 47.1% did slight exercises and 22.7% of them did heavy exercises (Table 1).

In the executed statistical analysis, gender was found in relation with slight and heavy exercises while social status in the class was found only in relation with heavy exercises ($p < 0.05$). The education level of mother, perceived economic status, social class, monthly income and the number of individuals in the family were not found in relation with doing exercises ($p > 0.05$) (Table 2).

In our study, male students attend the physical activities that were analyzed in relation with the health improving life style more than females. Opposite our research, males were determined to join physical activities in less quantity in a study (Bothmer & Fridlund, 2005). Similar to our study, another study (Lee & Loke, 2005) showed that physical activity was more positive among the males. In the studies performed in our country (Kara et al., 2003; Özmen et al., 2007), the less joining rate to physical activities among the girls than the boys support our findings. We can think that the difference from the other study depends on cultural factors. We can assume that girls have less physical activity levels and they are under more health risks related to this in our country.

In our study, the students who perceive their social status in the class as middle and below do less physical activities than those who perceive over the average. In many studies, (Nelson et al., 2007; Kamphuis et al., 2008; Currie et al., 2008; Huurre et al., 2003; Karvonen et al., 1999) it was determined that lower socio-economic level was an important determinant in unhealthy behaviors such as not doing physical exercises. It is also stated that the current social positions the young was an important

determinant in their adaptation to a health improving behavior (Karvonen et al., 1999; Johanson et al., 2006). Regarding the findings of the study, we can say that socio-economic status that is determined according to the place of student in the class is an important factor in adapting physical activity that improves health. These findings set us thinking about the evaluation of the students' social position besides that of their parents. We can say that especially the young who perceive their social status in the class as middle and lower should be courage to join physical activities and the attempts to improve the social conditions of students might be effective on increasing in their participation to physical activities.

In the executed univariate analysis, GHQ score, perceived economic status, and social class were found in relation with doing slight or heavy exercises ($p < 0.05$) while it was not found in relation with gender, mother's education and social status in the class ($p > 0.05$). In the multiple regression analysis, the determinants of mental health for the students were determined as gender, education of mother, perceived economic status, being in a blue-collar class, perceiving social status as middle and lower, not doing slight and heavy exercises ($p < 0.05$). The analyzed independent variants were found to be determinant on the mental health status in the rate of 07%.

In our study, mental health of the girls is more negative as it is in physical exercises. In a study (Bothmer & Fridlund, 2005), it is stated that girls experienced mental problems harder as it is mentioned in our study. We can say that girls are under more risk when being exposed to mental problems considered.

In the variants analyzed related to socio-economic status of the family in our study; those whose mothers have low education levels, who assume their monthly income levels as middle-bad and blue-collar people had worse mental health. There are studies supporting our study findings. It is determined that socio-economic level of the individual's family is an important determinant in health status (Sleskova et al., 2006). Socio-economic status that has been possessed since the childhood period and the class which the individual belongs to have been found in relation with the health status of the individual and mortality levels during the adulthood (Smith et al., 1998). In another study (Bosma et al., 1999), it is stated that the socio-economic levels of the families has an important

effect on general health of the individual and those who are in lower levels have more negative mental status. In a study carried out in our country (Belek, 1999), the people the people except blue-collars and unqualified workers, those with higher education and education levels were told to have better mental health.

As a variant that we have analyzed for the social status of the student; mental health of the students who perceive their social status in the class as middle and lower is more negative. Current social position of the young was also determined to be important in their health status besides their adapting a health developing behavior (Starfield, 2006). As it was determined above, we can say that environmental support to improve the social condition of the young will improve the health status besides the increase in the exercise level. Exploring numerous socio-economic variants found to be important in mental health in the multivariable analysis and literature data supporting our findings points out the importance of improving socio-economic conditions on the development of mental health.

There are numerous studies supporting our findings that remarks doing physical activities have positive effects on mental health. Doing physical exercises was found in relation with life quality and health status (Tessier et al., 2007; Vuillemin et al., 2005; Ellis et al., 2007). In the studies carried out with university students (Bray & Born, 2004; Piko & Keresztes, 2006), not doing physical exercises was found in relation with negative changes in mental health status. In numerous studies carried out with the young at various ages, the young with high level activities were found to experience less mental problems and have higher life satisfactions (Goodwin, 2003; Valois et al., 2004; Piko & Keresztes 2006; Ströhle et al., 2007; Beard et al., 2007; Valois et al., 2008). In a study carried out among adults with lower socio-economic levels (Ellis et al., 2007), those who had not done any physical had more negative mental health. Sacker and Cable (2006) report that physical activities done during the early ages are related to mental health status during the adulthood years but it is not enough to decrease the inequality in health status.

In the multivariate analysis, most important three determinants in mental health are seen as social status in the class, doing slight exercises, and perceived financial status when gender which is an unchangeable variant is excluded. Those findings

makes us think that doing physical exercises is an important factor in developing mental health of the young and socio-economic variants should not be ignored for an effective result.

Conclusion and Suggestions

Our study has shown that socio-economic level of the family and social status of the student in the class are important determinants in mental health among the university students. Besides, it was found that doing physical exercises was an important factor affecting mental health of the young and doing physical exercises was in relation with social status of the student in the class. Consequently, socio-economic status of the students and families has significant effects on mental health and doing physical exercises which is one of the determinants of mental health. We believe that the evaluation of factors determining the health status only through focusing on healthy life style behaviors will have a limiting effect on the activities to protect and improve health. The efforts to improve socio-economic factors will be useful in decreasing the inequalities in health levels. Apart from that, improving the opportunities of the students to do exercises which will affect the social status of the students positively besides the opportunities of sheltering, clothing and nourishment can be said to be supportive in the acquisition of positive health behaviors by the young and development of health.

References

- Aynsley-Green A. Barker M. Burr S., Macfarlane A., Morgan J., Sibert J., Turner T., Viner R., Waterston T. & Hall D. (2000) Who is speaking for children and adolescents and for their health at policy level?. *BMJ*, 321, 229-232.
- Beard JR. Heathcote K. Brooks R. Earnest A. & Kelly B. (2007). Predictors of mental disorders and their outcome in a community based cohort. *Soc Psychiatr Epidemiol*, 42(8), 623-30.
- Belek İ. (1998). Class Inequality in Health. Sorun yayınları, İstanbul. Turkey (Original Book in Turkish).
- Belek İ. (1999). Socio-demographic disparities in mental health problems as measured by the General Health Questionnaire- In Antalya, a field research. *Türk Psikiyatri Derg*, 10,163-172 (Orişinal Journal in Turkish).
- Boratav K. (1995). Istanbul and Anatolia class profiles. History Foundation of Turkey Abroad, İstanbul, Turkey (Original Book in Turkish).
- Bomsa H. Van de Mheen HD. & Mackenbach JP. (1999). Social class in childhood and general health in

- adulthood: questionnaire study of contribution of psychological attributes. *BMJ*, 318, 18-22.
- Bothmer MIK. & Fridlund, B. (2005). Gender differences in health habits and in motivation for healthy lifestyle among Swedish university student. *Nurs.Health Sci*, 7, 107-118.
- Bray SR. & Born HA. (2004) Transition to university and vigorous physical activity: implications for health and psychological well-being. *J Am Coll Health*, 52(4), 181-
- Brown JS. Meadows SO. & Elder GH. (2007). Race-ethnic inequality and psychological distress: Depressive symptoms from adolescence to young adulthood. *Developmental Psychology*, 43(6), 1295-1311.
- Currie C. Molcho M. Boyce W. Holstein B. Torsheim T. & Richter M. (2008). Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. *Soc Sci Med*, 66(6), 1429-36.
- Ellis E. Grimsley M. Goyder E. Blank L. & Peters J. (2007). Physical activity and health: evidence from a study of deprived communities in England. *J Public Health*, 29(1), 27-34.
- Geckova AM. Dijk JPV. Honcariv R. Groothoff JW. & Post D. (2003). Influence of health risk behavior and socio-economic status on health of Slovak adolescents. *Student CMJ*, 44(1), 41-49.
- Goodman E. (1999). The Role of Socioeconomic Status Gradients in Explaining Differences in US Adolescents' Health. *Am J Public Health*, 89 (10), 1522-28.
- Goodman E. Slap GB. & Huang B. (2003). The public health impact of socioeconomic status on adolescent depression and obesity. *Am J Public Health*, 93(11), 1844-50.
- Goodwin RD. (2003). Association between physical activity and mental disorders among adults in the United States. *Prev Med*, 36(6), 698-703.
- Huurre T. Aro H. & Rahkonen O. (2003). Well-being and health behaviour by parental socioeconomic status: a follow-up study of adolescents aged 16 until age 32 years. *Soc Psychiatry Epidemiol*, 38(5), 249-55.
- Johanson A. Rasmussen S. & Madsen M. (2006). Health behavior among adolescents in Denmark: Influence of school class and individual risk factors. *Scand J Public Health*, 34, 32-40.
- Kamphuis CB. Van Lenthe FJ. Giskes K. Huisman M. Brug J. & Mackenbach JP. (2008). Socioeconomic status, environmental and individual factors, and sports participation. *Med Sci Sports Exerc*, 40(1), 71-81.
- Kara B. Hatun Ş. Aydoğan M. Babaoğlu K. & Gökalp AS. (2003). Assessment of health risk behaviors among high school students in Kocaeli. *Journal of Pediatric*, 46, 30-37 (Original Journal in Turkish).
- Karvonen S. Rimpela AH. & Rimpela MK. (1999). Social mobility and health related behaviours in young people. *J Epidemiol Community Health*, 53(4), 211-17.
- Kılıç C. (1996). General Health Questionnaire: Validity and Reliability. *Turkish Journal of Psychiatry* 7, 3-11 (Original Journal in Turkish).
- Lee RLT. & Yuen Loke AJT. (2005). Health-Promoting Behaviors and Psychosocial Well-Being of University Students in Hong Kong. *Public Health Nurs*, 22 (3), 209-220.
- Lwanga SK. & Lemeshow S. (1991). Sample Size Determination in Health Studies-A practical Manuel. World Health Organization, Geneva.
- Nelson TF. Gortmaker SL. Subramanian SV. & Wechsler H. (2007). Vigorous physical activity among college students in the United States. *J Phys Act Health*, 4(4), 495-508.
- Newacheck PW. Hung YY. Park MJ. Brindis CD. & Irwin CE. Jr. (2003). Disparities in adolescent health and health care: does socioeconomic status matter?. *HSR: Health Services Research*, 38, 1235-52.
- Öksüz E. & Malhan S. (2005). Socioeconomic factors and health risk behaviours among university students in Turkey: Questionnaire study. *Croat Med J*, 46 (1), 66-73.
- Özmen D. Çetinkaya AÇ. Ergin D. Şen N. & Erbay PD. (2007). Eating habits and body weight control behaviors of high school students. *Prevention Medicine Bulletin*, 6(2), 98-10. (Original Journal in Turkish).
- Park MJ. Mulye TP. Adams SH. Brindis CD. & Irvin CE. (2006). The Health Status of Young Adults in the United States. *J Adolesc Health*, 39, 305-317.
- Pensola TH. & Valkonen T. (2000). Mortality differences by parental social class from childhood to adulthood. *Eur J Public Health*, 54, 525-9.
- Pensola TH. & Valkonen T. (2002). Effect of parental social class, own education and social classon mortality among young man. *J Epidemiol Community Health*, 12, 29-36.
- Piko BF. & Keresztes N. (2006) Physical activity, psychosocial health, and life goals among youth. *J Community Health*, 31(2),136-45.
- Power C. (2002). Childhood adversity still matters for adult health outcomes. *Lancet*, 23, 360 (9346):1619-20.
- Power C. Hypponen E. & Smith GD. (2005). Socioeconomic position in childhood and early adult life and risk of mortality: a prospective study of the mothers of the 1958 British birth cohort. *Am J Public Health*, 95(8),1396-402.

- Roberts R., Golding J., Towell T. & Weinreb I. (1999) The effects of economic circumstances on British students' mental and physical health. *J of Am Coll Health*, 48(3), 103-109.
- Sacker A. & Cable N. (2006) Do adolescent leisure-time physical activities foster health and well-being in adulthood? Evidence from two British birth cohorts. *Eur J Public Health*, 16(3), 332-6.
- Schneider M.C., Castillo-Saldago C., Bacallao J., et al (2005) Methods for measuring health inequalities (Part II). *Epidemiological Bulletin / PAHO*, 26(1), 5-10.
- Sleskova M., Tuinstra J., Geckova A.M., Dijk J.P., Ferdinand S., Groothoff J.W. & Reijneveld S.A. (2006) Influence of parental employment status on Dutch and Slovak adolescents' health. *BMC Public Health*, 16.02.2007.<http://www.biomedcentral.com/1471-2458/6/250>.
- Smith G.D., Hart C., Blane D. Et al (1998) Adverse socioeconomic conditions in childhood and cause specific adult mortality: prospective observational study. *BMJ*, 316, 1631-5.
- Smith G.D., Hart C., Blane D., Gillis C. & Hawthorne V. (1997) Lifetime socioeconomic position and mortality: prospective observational study. *BMJ*, Feb 22, 314 (7080), 547-52
- Starfield B., Riley A.W., Witt W.P. & Robertson J. (2002) Social class gradients in health during adolescence. *J Epidemiol Community Health*, 56, 354-361.
- Şentürk V., Stewart R. & Sağduyu A. (2007) Screening for mental disorders in Leprosy patients; comparing the internal consistency and screening properties of HADS and GHQ 12. *Lepr. Rev, Sep; 78 (3), 231-42*.
- Ströhle A., Höfler M., Pfister H., Müller A.G., Hoyer J., Wittchen H.U. & Lieb R. (2007) Physical activity and prevalence and incidence of mental disorders in adolescents and young adults. *Psychol Med*, 37(11), 1657-66. Epub 2007 Jun 20
- Tessier S., Vuillemin A., Bertrais S., Boini S., Bihan E.L., Oppert J.M., Hercberg S., Guillemin F. & Briançon S. (2007) Association between leisure-time physical activity and health-related quality of life changes over time. *Prev Med*, 44(3), 202-8.
- West P., & Sweeting H. (2004) Evidence on equalisation in health in youth from the West of Scotland. *Soc Sci Med*, 59,13-27.
- WHO (World Health Organization) (2003) *Caring for Children and Adolescents with Mental Disorders, Setting WHO directions*, Geneva, Switzerland.
- Valois R.F., Zullig K.J., Huebner E.S. & Drane J.W. (2004) Physical activity behaviors and perceived life satisfaction among public high school adolescents. *J Sch Health*, 74(2), 59-65.
- Valois R.F., Umstadd M.R., Zullig K.J. & Paxton R.J. (2008) Physical activity behaviors and emotional self-efficacy: is there a relationship for adolescents?. *J Sch Health*, 78(6), 321-7.
- Vuillemin A., Boini S., Bertrais S., Tessier S., Oppert J.M., Hercberg S., Guillemin F. & Briançon S. (2005) Leisure time physical activity and health-related quality of life. *Prev Med*, 41(2), 562-9.