

*Araştırma*

*Makale Geliş Tarihi: 04.10.2017*

*Makale Kabul tarihi: 17.07.2018*

## **INVESTIGATING POTENTIAL RISK FACTORS AFFECTING ON SUICIDAL IDEATION AMONG ADOLESCENTS IN TURKEY**

### **Türkiye’deki Ergenler Arasında İntihar Düşüncesini Etkileyen Potansiyel Risk Faktörlerinin İncelenmesi**

**Ezgi NAZMAN\***

**Hülya OLMUŞ\*\***

**Semra ERBAŞ\*\*\***

\* Arş. Gör., Gazi University, Faculty of Science, Department of Statistics

\*\* Doç. Dr., Gazi University, Faculty of Science, Department of Statistics

\*\*\* Prof. Dr., Gazi University, Faculty of Science, Department of Statistics

#### **ÖZET**

*İntihar eyleminin görülme oranı özellikle ergenlik döneminde giderek artmaktadır. Ergenlerde intihar düşüncesini etkileyen pek çok faktör vardır. Biyolojik yatkınlık ve psikiyatrik bozuklukların yanı sıra sosyal çevre, potansiyel risk faktörü olarak önemli bir rol oynamaktadır. Bu araştırmanın amacı, Türkiye’de ergenler arasında intihar düşüncesini etkileyen aile, okul, iş ve arkadaş ile ilgili risk faktörlerin etkisini saptamaktır. Çalışmada Türkiye Ergen Profili Araştırması (TEPA 2013) ele alınarak kentsel ve kırsal alanlarda yaşayan ve yüz yüze anket uygulanan 12-18 yaş arası 6747 ergen değerlendirilmiştir. Katılımcılar çok aşamalı, tabakalı, rasgele örnekleme yöntemi ile seçilmiştir (%50 kız ve %50 erkek). Çalışmada Pearson ki-kare, odds oranı, uygunluk analizi, bağımsız örneklem t-testi ve ikili lojistik regresyon analizi kullanılmıştır. Sigara ve alkol kullanımı, madde bağımlılığı, şiddete ve cinsel istismara maruz kalma, alay edilme ve aile yapısı gibi birçok farklı faktör ile intihar düşüncesinin ilişkisi ortaya çıkarılmış ve elde edilen sonuçlar sunulmuştur.*

**Anahtar Sözcükler:** *İntihar düşüncesi, ergen, potansiyel risk faktörler*

#### **ABSTRACT**

*The rate of incidence of suicide gradually increases especially in adolescence period. There are a lot of factors affecting on suicidal ideation. Social environment plays a significant role as potential risk factor along with biological disposition and psychiatric disorder. The aim of this study is to determine risk factors related with family, school and work affecting on suicidal*

*ideation among adolescents in Turkey. In the study 6747 adolescents between the age of 12-18, who live in rural and urban area and are conducted face to face survey, were evaluated considering Research on Adolescent Profile in Turkey (TEPA 2013). Participants were selected through multistage, stratified, random sampling. (%50 female and %50 male). Pearson chi-square, odds ratio, correspondence analysis, independent samples t-test and binary logistic regression were used in the study. The relation between suicidal ideation and several factors such as cigarette and alcohol use, drug addiction, being exposed to violence and sexual abuse, being mocked and family structure were revealed and obtained results were presented.*

**Keywords:** *Suicidal ideation, adolescent, potential risk factors*

## **INTRODUCTION**

Suicide is one of the leading reasons of death which is caused by self-directed acts or instance with any intent to voluntarily die. Suicidal ideation is the thoughts of suicide attempt that is able to range in severity from a vague wish to be dead to active suicidal ideation with a specific plan and intent. Hence, it is not a situation that can be overlooked (MacLean, 1990). One of the important cause of death among youth people between the ages of 12 and 18, suicidal ideation, is an outstanding global concern. Therefore, authorities from all around the world would like to reveal the causes related with the suicidal ideation and take precautions.

The youths undergo various biochemical, psychological, physical transformations during adolescence. Undesirable consequences such as self-injury, suicidal ideation or even suicide attempt may occur, when these transformations merge with the conditions associated with family, school, work and social environment. In other words, suicidal ideation among adolescents may arise because of dissatisfaction ideas of the individual, social, psychological and environmental factors. With this respect, bully victimization or perpetration, social connectedness, sexual and religious knowledge, family factors are some of the investigated issues related with the suicidal ideation of adolescents (Martin et al., 2016; Arango et al., 2016; Chan, L. F., 2016).

Suicide rates of adolescents and the related factors have been studied globally. The study of Wasserman et al, (2005) showed that Sri Lanka has the highest suicide rate among ninety countries. McKinnon et al. (2016) studied on 32 low and middle income countries and the study shows a strong relation between adverse childhood experiences such as physical and sexual abuse, parental neglect, bullying and suicidal behaviours during adolescence and adulthood. Nock et al. (2008b)

investigated the prevalence and risk factors in terms of suicidal behaviours among adolescents across seventeen countries, then cross-national variability in the prevalence of suicidal behaviours was reported.

The studies held in USA are comprehensive which indicate that major advances are needed to enhance understanding the causes of suicidal behavior and to further decrease the loss of youth life (Ballis et al., 2008; Nock et al. 2008a; Stoep et al., 2009). Roman, (2017) suggested a set of recommendations for primary care providers on how to properly identify adolescents with suicidal ideation and behavior in Arizona. They recommended that primary care providers should receive and/or seek out training on adolescent suicide identification, prevention, and treatment. It is also recommended to ask directly about suicidal ideation or planning, past suicidal behavior and other risk factors, as well as extend the evaluation to people close to the subjects (parents or teachers) to assess suicide risk in children or adolescents. Everything that is discussed in the clinical interview with an adolescent is confidential except if they disclose thoughts or actions of wanting to hurt themselves or others. If an adolescent admits to suicidal thoughts/behavior, parents need to be informed. The study of Thomson et al. (2013) showed that the suicidal ideation among adolescents in Canada is significantly correlated with lower income, smoking, living alone or being in single parent families, having lower levels of social support, and watching excessive amounts of television (Skinner et al., 2012).

Tarchi&Collici, (2013) made an intensive literature review on youth suicide in Germany, and adjudged that the causes why the youth in Germany kill him/herself are still not clear, even though several steps has been done by government. Souza et al. (2009) examined on the factor which are effected on the suicidal ideation among adolescent in Brazil and the study showed that suicidal ideation is related with gender, alcohol consumption, drunkenness, tobacco and drug use.

Likewise, issue of the suicide among adolescents and youth people is a substantial concern that has been investigated in Asian countries. Sam, (1993) studied on the children and adolescent suicide in Hong-Kong, and it was revealed that the ratio of the youth suicide between the age of 15 and 19 has increased. Peaslee, (2011) studied on the adolescent suicide in Japan in terms of the relations between suicidal ideation and gender, history, different social and cultural views. Peltzer&Pengpid, (2012) studied on school-going adolescents in Thailand, and results showed that having feelings of sadness is the most strongest predictor of suicidal ideation.

Dunlavy et al. (2015) examined suicidal ideation among school-attending adolescents in Dar es Salaam, Tanzania and found that loneliness, depression, and lifetime illicit substance use are related with the suicidal ideation. The factors related with the suicidal ideation were investigated by Rudatsikira et al. (2007) on the school-going adolescents in rural Uganda. They found that gender, increasing age, smoking, using alcohol, having been bullied, loneliness, significant worry and lack of parental supervision are related with the suicidal ideation.

Suicidal ideation among youth has also been studied in the Middle East countries. Ghrayeb et al. (2014) focused on Palestinian adolescent. They showed that living in continuous turmoil and in a violent region, combined with poverty and unemployment, closure and war are highly affected on the suicidal ideation among adolescents.

Devenish et al. (2016) studied on a systematic review of psychological interventions aimed to prevent and/or treat depression in adolescents where outcomes for suicidality were reported, using five databases. The review study revealed that there are several trials showing promising evidence for family-based and interpersonal therapies, with large pre-post effect sizes, and further evaluation with improved methodology is required.

Çetin, (2001) studied on both suicide attempts and self-image among adolescent in Turkey. The author concluded that girls usually have to face more tensions within the family, which may be a risk factor in suicide attempts. Eskin, (2004) studied on the effects of religious versus secular education on suicide ideation and suicidal attitudes among adolescents in Turkey. It was shown that suicide ideation is more frequent in adolescents undergoing secular education than in those undergoing religious education. Ulusoy&Demir, (2005) found that gender, cigarette smoking, school achievement, anxiety/depression and suicidal ideation have statistically significant relations. Eskin et. al, (2007) investigated possible role of depression, self-esteem, problem solving, assertiveness, social support, and some socioeconomic factors on adolescent suicidal behavior in youth in a small city located in the southwestern part of Turkey. Results indicated that girls scored significantly higher on depression and the Suicide Probability Scale. Toprak, et al. (2011) studied on correlates for and prevalence of self-harm, suicidal ideation, and suicide attempts among Turkish college students. They revealed that correlates for self-harm, including low income, unsatisfying familial relationships, smoking, and alcohol, inhalant, and tranquilizer abuse. Eskin, (2013) investigated the effects of individualistic-collectivistic value

orientations on non-fatal suicidal behavior and attitudes among adolescents in Turkey. It was found that suicidal ideation and attempts are more common among adolescents than young adults. Soylu&Alpaslan, (2013) determined the rate of suicidal ideation and suicide attempts in sexually abused adolescents and the factors associated with suicidal behaviour among adolescents in Turkey. They indicated that consideration of the factors associated with suicidal behaviour in victims of sexual abuse would be helpful in preventing suicide attempts. Ünlü et al. (2014) investigated psychiatric diagnoses, clinical and demographic characteristics of children and adolescents who attempted suicide. The results showed that being female, having mental disorders (particularly depression) and close relationship problems are important factors associated with adolescent suicide attempts.

In view of previous studies, there exist several factors related with suicidal ideation among adolescents such as family, school, work and social environment in many countries. On the other hand, related factors may be changeable because of the culturel, sociological, historical or ethic factors. Therefore, it is significantly important for the countries to make clear the system that may give the relation between suicidal ideation and potential risk factors in order to prevent suicidal ideation among adolescents. The aim of this study is to determine the factors related with family, school and work affecting on suicidal ideation of adolescents in Turkey.

## **METHOD**

The data set was obtained from Republic of Turkey Ministry of Family and Social Policy Research on Adolescent Profile in Turkey (TEPA 2013). 6747 youth between the age of 12 and 18 (%50 female and %50 male) are selected through multistage, stratified, random sampling.

The prevalences for all variables (question) were given by using IBM SPSS for Windows version 20 in Table 1. Pearson Chi-square tests are applied to explain the relation between categorical variables. In the same way, social activity scores of adolescents (going to theatre, cinema, reading newspaper, doing sport, ...etc.) were investigated by applying independent samples t-test to compare two group means. Binary logistic regression was used and parameter estimations of variables in the

model with the significance of these parameters were obtained. Correspondence analysis was used to interpret the relations between categorical variables.

**Table 1. Variable numbers, variables, variable levels and prevalences**

Variable number	Variables	Levels and Prevalences
Q1	Have you ever thought about giving up on living?	I have never have (96.2%) At least once (3.9%)
Q2	Urban/Rural	Urban (70.7%) Rural (29.3%)
Q3	Gender	Female (50%) Male (50%)
Q4	Do you have any illness for which you take regular medication?	No (96.3%) Yes (3.7%)
Q5	Are you enrolled in a state school or a private school?	State (97.4%) Private (2.6%)
Q6	Are you in a boarding school or a day school?	Day school (96.2%) Boarding school (3.8%)
Q7	Do you have any disability that you were born with or suffered later?	No (98.3%) Yes (1.7%)
Q8	Which of the following describes the frequency with which you use cigarettes?	I have never used it (83.3%) I have used at least once (16.7%)
Q9	Which of the following describes the frequency with which you use alcohol?	I have never used it (91.2%) I have used at least once (8.8%)
Q10	Which of the following describes the frequency with which you use Marijuana?	I have never used it (98.8%) I have used at least once (2.2%)
Q11	Which of the following describes the frequency with which you use bally, thinner or similar substances?	I have never used it (99.3%) I have used at least once (0.7%)
Q12	Which of the following describes the frequency with which you use ecstasy?	I have never used it (99.5%) I have used at least once (0.5%)

Q13	Within the past one year, how frequently have you been subject to the following at home in your relations with family members? (Yelling, scolding, insults, swearing, etc.)	No, never (56.0%) At least once (44.0%)
Q14	Within the past one year, how frequently have you been subject to the following at home in your relations with family members? (Beatings, use of force and other physical means)	No, never (91.4%) At least once (8.6%)
Q15	Within the past one year, how frequently have you been subject to the following at home in your relations with family members? (Verbal or physical sexual harassment)	No, never (98.9%) At least once(1.1%)
Q16	Within the past one year, how frequently have you been subject to the following at home in your relations with family members? (Mockery, humiliation, exclusion)	No, never (92.6%) At least once (7.4%)
Q17	Within the past one year, how frequently have you been subject to the following at school in your relations with other people? (Yelling, scolding, insults, swearing, etc.)	No, never (70.2%) At least once(29.8%)
Q18	Within the past one year, how frequently have you been subject to the following at school in your relations with other people? (Beatings, use of force and other physical means)	No, never (91.0%) At least once (9.0%)
Q19	Within the past one year, how frequently have you been subject to the following at school in your relations with other people? (Verbal or physical sexual harassment)	No, never (97.4%) At least once (2.6%)
Q20	Within the past one year, how frequently have you been subject to the following at school in your relations with other people? (Mockery, humiliation, exclusion)	No, never (88.6%) At least once (11.4%)
Q21	Within the past one year, how frequently have you been subject to the following on the street in your relations with other people? (Yelling, scolding, insults, swearing, etc.)	No, never (80.2%) At least once (19.8%)
Q22	Within the past one year, how frequently have you been subject to the following on the street in your relations with other people? (Beatings, use of force and other physical means)	No, never (91.8%) At least once (8.2%)
Q23	Within the past one year, how frequently have you been subject to the following on the street in your relations with other people? (Verbal or physical sexual harassment)	No, never(95.9%) At least once(4.1%)
Q24	Within the past one year, how frequently have you been subject to the following on the street in your relations with other people? (Verbal or physical sexual harassment)	No, never (92.5%) At least once (7.5%)

Note. N=6747.

## RESULTS

Pearson Chi-square( $\chi^2$ ) value, p-value, odds-ratio (OR) and the value of confidence intervals for odds ratios and important findings obtained between suicidal ideation of adolescents and considered variables are shown in Table 2. The relationship between suicidal ideation (Q1) and Q2, Q4, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q20, Q21, Q22, Q23 and Q24 were found significantly important with the 95% confidence level (p-value<0.05). In addition, odds ratios higher than two were interpreted. According to the odds ratio results, suicidal ideation of adolescents who have illness and s/he takes regular medication is 2.262 times higher than adolescents who have not illness. In addition, suicidal ideation of adolescents who smoke cigarettes is 2.024 times higher than adolescents who do not smoke. Suicidal ideation of adolescents who use alcohol is 2.919 times higher than adolescents who do not use. Besides, suicidal ideation of adolescents who use marijuana is 3.474 times higher than adolescents who do not use. Similarly, suicidal ideation of adolescents who use bally-thinner is 4.706 times higher than adolescents who do not use. Suicidal ideation of adolescents who use extacy is 4.533 times higher than adolescents who do not use. On the other hand, suicidal ideation of adolescents who are exposed to beatings, force and other physical means in household is 3.358 times higher than adolescents who are not exposed to. It was revealed that suicidal ideation of adolescents who are exposed to mockery, humiliation, exclusion in household is 5.482 times higher than adolescents who are not exposed to. In addition to that suicidal ideation of adolescents who are exposed to mockery, humiliation, exclusion at school is 3.753 times higher than adolescents who are not exposed to.

The suicidal ideation scores of adolescents were obtained from the attendance frequencies to the social activities. According to the two sample independent t-test result, it is founded that there is significantly difference between adolescents who have suicidal ideation and adolescents who do not have suicidal ideation in terms of social activity scores (p-value=0.000<0.05).



**Table 2. The Pearson chi-square value, p-value, OR and CI for OR for “Have you ever thought about giving up on living? (Q1)” and other variables.**

Variable Number	$\chi^2$	p-value	OR	95% CI of OR	
				Lower	Upper
Q2	9.485	0.002*	1.608	1.185	2.179
Q3	2.061	0.151	1.200	0.649	1.069
Q4	10.262	0.001*	2.262	1.391	3.678
Q5	0.303	0.582	1.224	0.595	2.516
Q6	2.305	0.129	1.580	0.370	1.083
Q7	0.002	0.967	1.281	0.517	3.174
Q8	25.521	0.000*	2.024	1.531	2.674
Q9	49.252	0.000*	2.919	2.136	3.980
Q10	14.941	0.000*	3.474	1.774	6.806
Q11	16.800	0.000*	4.706	2.081	10.602
Q12	11.464	0.001*	4.533	1.736	11.837
Q13	64.545	0.000*	2.854	2.186	3.725
Q14	68.203	0.000*	3.358	2.478	4.550
Q15	3.964	0.046*	2.303	0.989	5.363
Q16	164.327	0.000*	5.482	4.106	7.319
Q17	49.226	0.000*	2.608	1.977	3.441
Q18	24.566	0.000*	2.416	1.687	3.462
Q19	0.528	0.467	1.330	0.615	2.874
Q20	82.667	0.000*	3.753	2.769	5.087
Q21	28.792	0.000*	2.046	1.567	2.672
Q22	16.957	0.000*	2.065	1.452	2.937
Q23	29.926	0.000*	2.994	1.983	4.520
Q24	26.960	0.000*	2.437	1.723	3.447

Binary logistic regression is used to measure the effect of at least two independent variables on bivariate categorical dependent variable and test the significance of the independent variables in the model (Christensen, 1997). In this study, binary logistic regression was applied on the model where dependent variable is “Have you ever thought about giving up on living? (Q1)”. Eight independent variables were evaluated in the model and the results of binary logistic regression were given in Table 3.

**Table 3. The results of binary logistic regression when dependent variable is “Have you ever thought about giving up on living? (Q1)”**

Variable Number	Variables	B	S.E.	p-value	OR	95% CI for OR Lower Upper	
Q3	Gender	-0.213	0.163	0.192	0.808	0.586	1.113
Q25	Please indicate mother's education	-0.029	0.064	0.652	0.971	0.856	1.102
Q26	Please indicate father's education	0.093	0.062	0.131	1.098	0.973	1.239
Q27	People undergo some biological and physical changes during adolescence. Did you have problems in adapting to such changes?	-0.095	0.076	0.212	0.909	0.783	1.056
Q28	When you have a problem with someone and you get angry, what is your most frequent form of behavior?	0.186	0.046	0.000*	1.204	1.101	1.317
Q29	What do you think about your health in general?	-0.243	0.086	0.005*	0.784	0.662	0.929
Q30	Have you ever thought about running away from/deserting home?	1.248	0.225	0.000*	3.484	2.241	5.418
Q31	Have you ever thought about hurting yourself or harming yourself physically?	2.496	0.146	0.000*	12.133	9.111	6.158

Note. N=6747. S.E=Standart Error. OR=Odds Ratio. CI=Confidence Interval.

\*p-values are found significant for p-value < 0.05.

Hosmer and Lemeshow goodness of fit test is applied to reveal whether binary logistic regression model is significant or not. According to the result of Hosmer and Lemeshow goodness of fit test, the model was found as significant ( p-value > 0.05).

Table 3 shows the result which was obtained by using binary logistic regression. The significant variables effecting on the suicidal ideation among adolescents: “When you

have a problem with someone and you get angry, what is your most frequent form of behavior? (Q28)", "What do you think about your health in general? (Q29)", "Have you ever thought about running away from/deserting home? (Q30)" and "Have you ever thought about hurting yourself or harming yourself physically? (Q31)".

"Have you ever thought about hurting yourself or harming yourself physically? (Q31)" shows that adolescents who hurt or harm her/himself physically tend to have suicidal ideation 12.133 times higher than adolescents who do not hurt or harm her/himself physically. In similar way, the odds ratio of "Have you ever thought about running away from/deserting home? (Q30)" is rather higher and it means that adolescents who think about running away from/deserting home tend to have suicidal ideation 3.484 times higher than adolescents who do not think.

Correspondence analysis enables interpreting easiness about similarity, difference and relations between row and column variables in contingency tables and also provides a graphical display with a less dimensional space (Greenacre, 2007). Five different variables (Q32, Q33, Q34, Q35 and Q36) were used in Correspondance analysis and their prevalence were given in Table 4. This should be noted that suicidal ideation among adolescent (Q1) was investigated in terms of three categories (0: *I have never have*, 1: *I have once*, 2: *I have many times*) in only correspondence analysis.

**Table 4. Variable numbers, variables, variable levels and prevalences for correspondence analysis in terms of “Have you ever thought about giving up on living? (Q1)”**

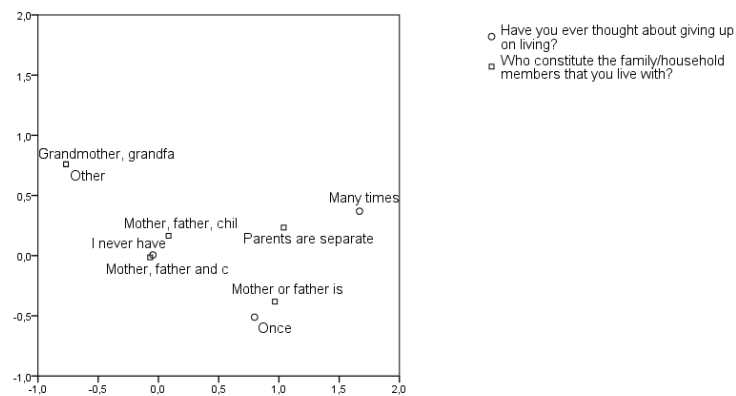
Variable Number	Variables	Variable levels and prevalences
Q32	Who constitute the family /household members that you live with?	Mother, father and children (86.6%) Mother, father, children and older/other relatives (7.9 %) Mother or father deceased (2.3%) Parents are seperated (3.0%) Grandmother, grandfather, siblings, etc. (0.1%) Other (0.0%) Student (90.6%)
Q33	Which of the below best describes your current status?	Both student and working (1.2%) Working (2.1%) Not working looking (1.1%) Not working not looking (4.9%) Not at all successful (0.8%)
Q34	Would you rate your level of success in class on a scale of 5 where “1” stands for “not successful at all” and “5” stands for “very successful”?	Not successful (3.6%) Somewhat successful (32%) Successful (51.1%) Very successful (11.3%) No response (1.2%) Very unhappy (0.8%)
Q35	Thinking about your entire life (school, family, work, etc.), would you state how happy you feel on a scale of 1 to 5 where 1 indicates “very unhappy” and 5 indicates “very happy”?	Unhappy(3.3%) Neither happy, nor unhappy (14.2%) Happy (56.4%) Very happy(24.5%) No response(0.8%)
Q36	People undergo some biological and physical changes during adolescence. Did you have problems in adapting to such changes?	Yes, I had problems (16.1%) Partially (22.5%) No, I did not have problems (53.9%) I did not experience biological or physical changes (5.0%) No response (2.5%)

*Note.* N=6747.

As it can be seen in Table 4, 86.6% of adolescences family consist of mother, father and children. Likewise, 90.6% of adolescences are students whereas 1.2% of adolescences are both student and working.

The 2-dimensional representation of correspondence analysis between “Have you ever thought about giving up on living? (Q1)” and “Who constitute the family /household members that you live with? (Q32)” was given in Figure 1.

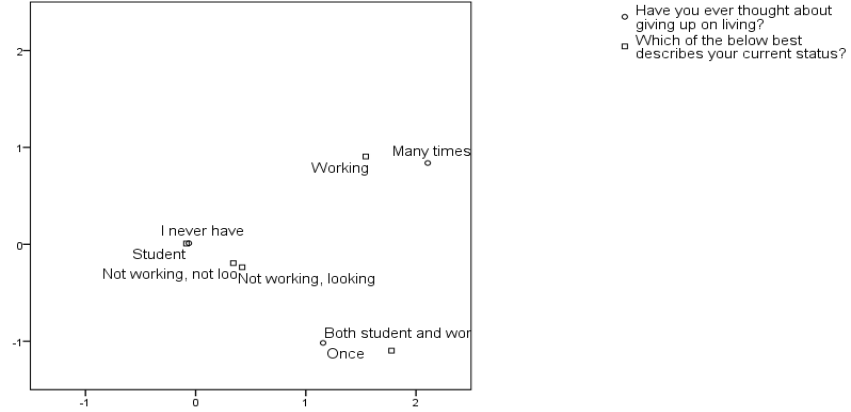
**Figure 1. 2-dimensional representation between “Have you ever thought about giving up on living?” and “who constitute the family /household members that you live with?” variables**



The adolescents, whose mother or father deceased, tend to have suicidal ideation once whereas the adolescents, whose parents are separated, tend to have suicidal ideation many times. In addition, the adolescents, who live with mother, father and children and mother, father, children and older/other relatives, do not tend to have suicidal ideation.

2-dimensional representation between “Have you ever thought about giving up on living? (Q1)” and “Which of the below best describes your current status? (Q33)” was given in Figure 2.

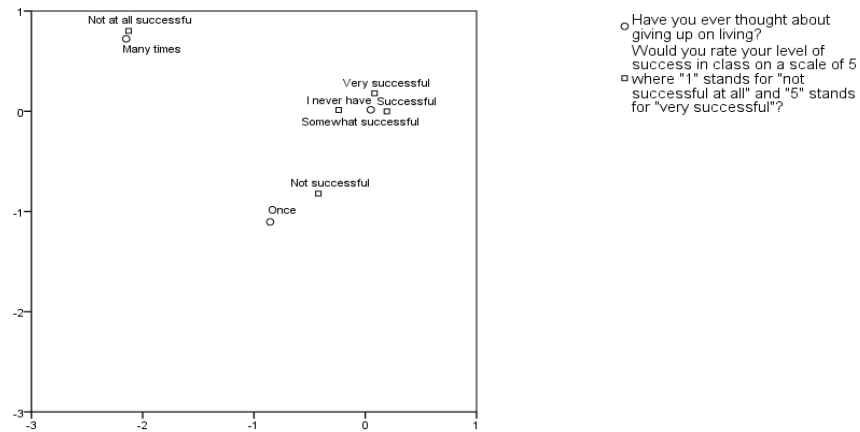
**Figure 2. 2-dimensional representation between “Have you ever thought about giving up on living?” and “Which of the below best describes your current status?” variables**



As it is seen in Figure 2, adolescents who are only student do not tend to have suicidal ideation whereas both student and working and only working adolescents tend to have suicidal ideation once. Likewise, adolescents who are not working and looking a job and not working not looking a job tend to have suicidal ideation at least once.

2-dimensional representation between “Have you ever thought about giving up on living? (Q1)” and “Would you rate your level of success in class on a scale of 5 where “1” stands for “not successful at all” and “5” stands for “very successful”? (Q34)” was given in Figure3.

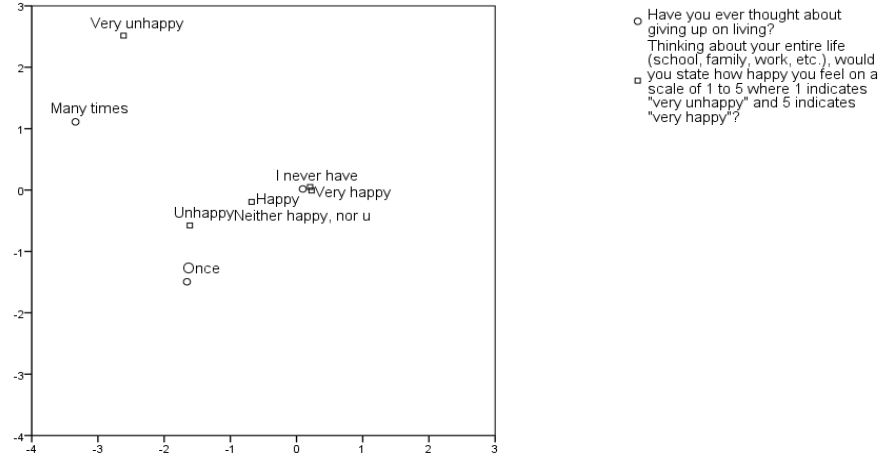
**Figure 3. 2-dimensional representation between “Have you ever thought about giving up on living?” and “Would you rate your level of success in class on a scale of 5 where “1” stands for “not successful at all” and “5” stands for “very successful”?” variables**



As it is seen in Figure 3, the adolescents who rate their success as very successful, successful and somewhat successful do not have suicidal ideation whereas the adolescents who rate not at all successful and not successful tend to have suicidal ideation many times.

2-dimensional representation between “Have you ever thought about giving up on living? (Q1)” and “Thinking about your entire life (school, family, work, etc.), would you state how happy you feel on a scale of 1 to 5 where 1 indicates "very unhappy" and 5 indicates "very happy"?” (Q35) was given in Figure 4.

**Figure 4. 2-dimensional representation between “Have you ever thought about giving up on living?” and “Thinking about your entire life (school, family, work, etc.), would you state how happy you feel on a scale of 1 to 5 where 1 indicates "very unhappy" and 5 indicates "very happy"?” variables**

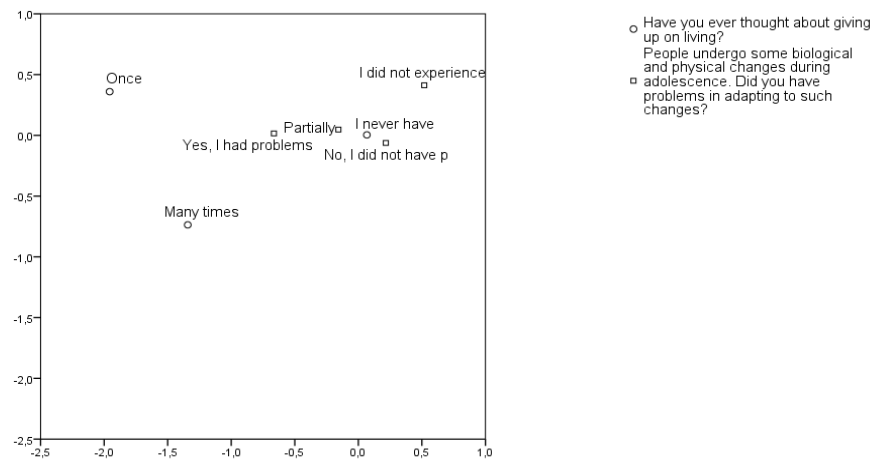


It can be inferred from Figure 4 that adolescents who are very happy and happy do not tend to have suicidal ideation. The adolescents who are unhappy, neither happy, nor hunhappy tend to have suicidal ideation once while very unhappy adolescents tend to have suicidal ideation many times.

At last, 2-dimensional representation between “Have you ever thought about giving up on living? (Q1)” and “People undergo some biological and physical changes during adolescence. Did you have problems in adapting to such changes?” (Q35) was given in Figure 5.



**Figure 5. 2-dimensional representation between “Have you ever thought about giving up on living?” and “People undergo some biological and physical changes during adolescence. Did you have problems in adapting to such changes?” variables**



It can be inferred from the Figure 5 that adolescents who have problems and partially problems in adopting to biological and physical changes during adolescence tend to have suicidal ideation once whereas adolescents who did not have problems and did not experience problems do not tend to have suicidal ideation.

## CONCLUSION

The youths undergo various biochemical, psychological, physical transformations during adolescence. Undesirable consequences such as self-injury, suicidal ideation or even suicide attempt may occur, when these transformations merge with the conditions related with family, school, work and social environment. Therefore, suicidal ideation among adolescents is significant to healthcare since the consequences of suicide are far-reaching and include death, severe psychological effects, increased risk of successive suicide attempts, increased healthcare costs, and severe emotional effects on the family and friends of suicide and suicide attempt victims (Roman, 2017).

The aim of our study is to determine the factors related with family, school and work affecting on suicidal ideation among adolescents in Turkey. This study demonstrates the potential risk factors associated with social environment such as living area, family, school and work effects, health, social and psychological situation about suicidal ideation among adolescents. Many factors affecting on suicidal ideation among adolescents were revealed according to the study results. In the same way, it

is seen that our study results are able to be supported by the previous studies which were given in the introduction part on suicidal ideation of adolescents.

The study shows that there is significant relation between suicidal ideation and living urban/rural area. Likewise, suicidal ideation is significantly related with having illness and taking regular medication. On the other hand, cigarette and alcohol use and also drug addiction are found related with the suicidal ideation among adolescents. Therefore, authorities should take concrete steps which is able to help decreasing cigarettes and alcohol use in addition to the drug addiction among adolescents. Besides, being exposed to yelling, beatings, verbal or physical sexual harassment and mockery at home, school and on the street are found significantly related with the suicidal ideation. Thus, not only negative conditions should be prevented by related ministries but also necessary precautions should be taken at the street being exposed by adolescents at home and school. Further, social activity attendance provides a positive effect on the life of adolescents. Therefore, it can be suggested that adolescents should be encouraged to attend social activities as much as possible.

Moreover, the adolescent, who have thought about hurting themselves and running away/deserting home, tend to have rather high suicidal ideation. These outcomes can be clue for the suicidal ideation, so convenient psychological support should be provided to prevent suicidal ideation among adolescents. On the other hand, the effect of family structure on suicidal ideation among adolescents is remarkable. The adolescents, whose parents are separated, tend to have suicidal ideation many times whereas the adolescents who live with mother, father and children do not tend to have suicidal ideation. It is shown that children of divorce can be affected by the divorcement considerably. In other respect, adolescents who are only student do not tend to have suicidal ideation whereas both student and working adolescents tend to have suicidal ideation once. It is seen that both studying and working are too much to overcome for adolescents. Furthermore, the adolescents, who rate their success as not successful, tend to have suicidal ideation many times. Further, the adolescents, who are unhappy, tend to have suicidal ideation once. In addition, the adolescents, who have problems in adopting to biological and physical changes during adolescence, tend to have suicidal ideation once. Therefore, the ideation of being unsuccessful and unhappy should be overcome by specialists to prevent of the suicidal ideation.

Briefly, parents, school personnels, public institutions, public/private rehabilitation centres and psychologists should support dialogue with the adolescents who may have suicidal ideation. Good connection and relation between adolescent and parents, school, and/or friends; positive link to school and good grades; a sense of belonging; improved skills in problem solving, attending to the social activities, conflict resolution and supporting by a psychologist who specializes on adolescent psychology, ... etc. can be given as some examples of the protective factors for suicidal ideation among adolescents.

### **ACKNOWLEDGEMENT**

The adolescent data set was obtained by Republic of Turkey Ministry of Family and Social Policy. The authors would like to thank Republic of Turkey Ministry of Family and Social Policy for sharing raw data of Research on Adolescent Profile in Turkey 2013.

### **REFERENCES**

- Arango, A., Opperman, K. J., Gipson, P. Y., King, C. A. (2016). Suicidal ideation and suicide attempts among youth who report bully victimization, bully perpetration and/or low social connectedness. *Journal of Adolescence*, 51, 19-29.
- Ballis, T. and Postolasche, T.T. (2008). Ethnic differences in adolescent suicide in the United States. *International Journal of Child Health Human Development*, 1(3), 281-296.
- Chan, L. F., Adam, B. M., Norazlin, K. N., Haida, M. I. S., Lee, V. Y. Norazura, A. W., et al. (2016). Suicidal ideation among single, pregnant adolescents: The role of sexual and religious knowledge, attitudes and practices. *Journal of Adolescence*, 52, 162-169.
- Christensen, R. (1997). *Log-Linear Models and Logistic Regression*. Second Edition, Springer- Verlag New York, Inc.
- Çetin, F. Ç. (2001). Suicide attempts and self-image among Turkish adolescents. *Journal of Youth and Adolescence*, 30(5), 641-651.
- Devenish, B. Berk, L., Lewis, A.J. (2016). The treatment of suicidality in adolescents by psychosocial interventions for depression: A systematic literature review. *Australian & New Zealand Journal of Psychiatry*, 50(8), 726–740.
- Dunlavy, A.C., Aquah, E.O., Wilson, M.L. (2015). Suicidal ideation among school-attending adolescents in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research*.  
Doi: <http://dx.doi.org/10.4314/thrb.v17i1.5>

- Eskin, M. (2004). The effects of religious versus secular education on suicide ideation and suicidal attitudes in adolescents in Turkey. *Social Psychiatry and Psychiatric Epidemiology*, 39(7), 536-542.
- Eskin, M., Ertekin, K., Dereboy, Ç. and Demirkıran, F. (2007). Against adolescent suicidal behavior in Turkey. *Adolescent Suicidal Behavior*, 28(3), 131–139.
- Eskin, M. (2013). The effects of individualistic-collectivistic value orientations on non-fatal suicidal behavior and attitudes in Turkish adolescents and young adults. *Scandinavian Journal of Psychology*, 54, 493–501.
- Ghrayeb, F.A.W., Rusli, A.M., Ismail, I.M., and Rifai, A. (2014). Prevalence of suicide ideation and attempt among Palestinian adolescents: Across-sectional study. *World Journal of Medical Sciences*, 10(3), 261-266.
- Greenacre, M. (2007). *Correspondence analysis in practice*. Second Edition, London: Chapman & Hall.
- McKinnon, B., Garipey, G., Sentenac, M. and Elgar, F. J. (2016). Adolescent suicidal behaviours in 32 low-and middle-income countries. *Bull World Health Organ*, 94, 340-350.
- MacLean, G. (1990). *Suicide in children and adolescents*. London: Hogrue and Huber Publishers: London.
- Martin, J., Bureau, J. F., Yurkowski, K., Fournier, T. R., Laontaine, M. F., Cloutier, P. (2016). Family-based risk factors for non-suicidal self-injury: Considering influences of maltreatment, adverse family-life experiences, and parent-child relational risk. *Journal of Adolescence*, 49, 170-180.
- Nock, M. K., Borges, G., Bromet, E.J., Cha, C.B., Kessler, R.C., and Lee, S. (2008a). Suicide and suicidal behavior. *Epidemiol Rev.*, 30(1), 133-154.
- Nock, M. K., Borges, G., Bromet, E.J., Alonso, J., Angermeyer, M., Beautrais, A., et al. (2008b). Cross-national prevalence and risk factor for suicidal ideation, plans and attempts. *The British Journal of Psychiatry*, 192, 98-105.
- Peaslee, E. (2011). *Adolescent suicide in Japan: The fatal effects of Ijime*. Dietrich College of Humanities and Social Sciences. Carnegie Mellon University. Dietrich College Honors Thesis.
- Peltzer, K. and Pengpid, S. (2012). Suicidal ideation and associated factors among school going adolescents in Thailand. *Int. J. Environ. Res. Public Health*, 9, 462-473.

- Roman, B. (2017). *Development and evaluation of a clinical practice guideline to guide primary care providers on identification of adolescent suicidality*. The University of Arizona, <https://repository.arizona.edu/handle/10150/626685>.
- Rudatsikira, E., Muula, E.S., Siziya, S., and Twa, J.T. (2007). Suicidal ideation and associated factors among school-going adolescents in rural Uganda. *BMC Psychiatry*, 7, 67.
- Sam, C. T. (1993). Suicide among children and adolescents in Hong-Kong. *Journal of Hong Kong College of Psychiatrists*, 3, 19-27.
- Skinner, R. and McFaull, S. (2012). Suicide among children and adolescents in Canada: Trends and sex differences, 1980-2008. *Canadian Medical Association*, 184(9), 1029-1034.
- Souza, L.D.M., Silva, R.A., Jansen, K., Kuhn, R.P., Horta, B.L., and Pinheiro, R.T. (2009). Suicidal ideation in adolescents aged 11 to 15 years: Prevalence and associated factors. *Revista Brasileira de Psiquiatria*, 32(1), 37-41.
- Soylu, N. and Alpaslan, A. H. (2013). Suicidal behavior and associated factors in sexually abused adolescent. *Children and Youth Services Review*, 35(2), 253-257.
- Stoep, A. V., McCauley, E., Flynn, C. and Stone, A. (2009). Thoughts of death and suicide in early adolescence. *Suicide Life Threat Behaviour*, 39(6), 599.
- Tarchi, C. and Collici, E. (2013). Youth suicide in Germany: A review of the literature. *World Cultural Psychiatry Research Review*, 21-28.
- T.C Ministry of Family and Social Policies General Directorate of Family and Social Services. (2013). <http://ailetoplum.aile.gov.tr/data/54292ce0369dc32358ee2a46/t%C3%BCrkiye%20ergen%20profil%20ara%C5%9Ft%C4%B1rmas%C4%B1%202013-eng.pdf>.
- Thomson, E.F., Hamelin, G.P., and Granger, S.J.R. (2013). Suicidal ideation in a population-based sample of adolescents: Implications for family medicine practice. *Hindawi Publishing Corporation*. doi: <http://dx.doi.org/10.5402/2013/282378>.
- Toprak, S., Cetin, I., Guven, T., Can, G., Demircan, C. (2011). Self-harm, suicidal ideation and suicide attempts among college students. *Psychiatry Research*, 187, 140–144.
- Ulusoy, M.D. and Demir, N.Ö. (2005). Suicidal ideation in Turkish adolescents. *Social Behavior and Personality*, 33(6), 541-552.
- Ünlü, G., Aksoy, Z., Ersan, E.E. (2014). İntihar girişiminde bulunan çocuk ve ergenlerin değerlendirilmesi. *Pamukkale Tıp Dergisi*, 7(3):176-183.
- Wasserman, D., Cheng, Q. and Jiang, G. X. (2005). Global suicide rates among young people

aged 15-19. *World Psychiatry*, 4(2), 114-120.