Suicide Cause and Method from 2009-2017 in Turkey

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Abstract

Background: This study was planned to investigate the cause, method, age group and gender of suicides between 2009 and 2017 in Turkey.

Methods: Data on suicide deaths between the years 2009-2017 were obtained from the death data of the Turkish Statistical Institute.

Results: Suicide data were evaluated according to age group, gender, reason and method. The most common suicide methods among people living in Turkey were hanging oneself, using a firearm and throwing oneself from a high place whereas common causes and unknown causes were found to be illness and economic problems. Gender showed statistical significance in the cause of suicide in all suicide methods (illness, economic problems, job failure). According to age groups the reasons were family disharmony, emotional relationship and not being able to marry the desired person, Education failure were found to be statistically significant. Less used methods to commit suicide in Turkey were determined as using firearms, using natural gas or LPG, throwing from a train or motor vehicle.

Conclusion: It is a very sad situation for an individual to end his/her life conspiratorially. Appropriately collected suicide information can guide the design of suicide prevention strategies. Because previous suicide attempts seem to be an important risk factor for future attempts and death by suicide.

Keywords: Suicide; Turkey; Gender; Method; Cause; Age group

Introduction

Suicidal behavior is a common cause of death and disability in the world (1). Suicide is an act of aggression towards oneself, an act of destruction and the deliberate end of one's own life. In other words, suicide is the decision of the individual to end his/her life by choosing the most effective method to kill himself/herself and not allowing anyone to interfere. If the person is still alive, it is called a suicide attempt. Suicide can also be defined as a hopeless escape of the hopeless individual from the problems (2, 3).

Suicidal ideation is a strong predictor of suicide (4). Every year, close to 800,000 people die due to suicide. This means one person every 40 seconds (2, 3). Suicide is the second leading cause of death for 1.4% of all deaths worldwide and for the world population aged 15-29. In 2015, 78% of suicides occurred in low- and middle-income countries (5). Developing countries form for about 73% of global suicides and Asia at the continental level accounts for about 60% of global suicides (6, 7). Suicide may contain many...
genetic, psychological, social and cultural risk factors in its etiology; these may interact with various factors from different angles (6,8-10). That is why common suicides differ according to societies and countries with their etiology and methods. Suicide by hanging is a common method for both sexes worldwide, especially in high-income countries (11-13). The sources of information from which suicides are obtained are mainly police reports, forensic medicine reports, hospital, court and other institutional reports (6). Based on this knowledge, we aimed to investigate the causes and methods of suicide in Turkey between the years 2009 and 2017. In addition, it was planned to describe the increase or decrease in suicide deaths, the differences in male and female suicide methods and age distributions.

**Materials & Methods**

In this study, "suicide by age group, gender and cause", "suicide by method, gender and age group" data from the web pages of the Turkish Statistical Institute (TUIK) between 2009 and 2017 were used (14). The Turkish Statistical Institute (TUIK) has been collecting data on suicide events for the country since 1962. All data are announced via the website (14). All male and female deaths by the following age groups were taken and evaluated as “suicide by age group, gender and cause” and “suicide by method, gender and age group”. Age group analyzes were divided into fifteen strata: <15, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 70. As 74, 75+ yr and unknown. Comparisons by year, gender and age were made using chi-square, Kruskal Wallis and One Way Anova analysis. A P value of <0.05 was considered statistically significant. All statistical analyses were performed using SPSS software, version 20 (IBM, Somers, NY, USA).

**Results**

There were 27 724 deaths recorded as suicides between 2009 and 2017 of which 73.30% were men (N=20 323) and 26.70% were women (N=7 401). The male/female suicide rate was 2.7. Between 2009 and 2017, the approximate suicide rate was an average of 4.04 per 100,000 population. The approximate suicide rate was 3.61 per hundred thousand in 2011 whereas it was found to be 4.37 per hundred thousand in 2012 with the lowest and highest crude suicide rates.

This 0.76 increase explains 82% of the increase. Approximate suicide rates increased 2.4% from 2011 to 2012 and 1.2% from 2015 to 2016. There was a significant decrease of 3.2% from 2016 to 2017. Total deaths in 2017 were 3069 (Male: 2368; Female: 701); The total number of deaths in 2016 is 3193 (Male: 2426; Female: 767). The total number of deaths is also disclosed in Table 1 for each year. In this context, a significant difference was found between the genders in terms of causes and methods (P=0.001).

By using Bonferroni correction according to suicide years, the statistical result was at 0.05 significance level; “Other causes (P=0.001) and other methods (P=0.001) and job failure (P=0.029) account for significantly higher suicide deaths over the years. The most commonly used suicide methods among those living in Turkey were hanging, using firearms, throwing oneself from height and taking chemicals (Table 1). The most common reason for suicide among people living in Turkey were found as unknown methods, illness, economic problems and family conflicts (Table 1). Gender differences were observed among all suicide methods and causes. Illness and economic problems are the most common causes of suicide in men whereas illness and family incompatibility constituted the causes of suicide in women (Table 2). In this context firearm suicides and suicide by hanging are most common in men whereas suicide by hanging and jumping from a high place was most common in women. The least observed cause of suicide was educational failure and its method was seen as using and burning natural gas or liquefied petroleum gas (Table 1).
The causes and methods of suicide also differ according to age groups. <24 year old suicides were the most common. In particular, 2013 was the most common year for suicides aged <24 years (χ²(120, N=15351)=1162.8, P<0.001). When examining the causes and methods of suicide cases according to age groups, family disharmony (P=0.002), emotional relationships (P=0.021), education failure (P=0.001), using of firearms (P=0.019), using of natural gas or LPG (P= 0.009) and jumping in front of a motor vehicle (P=0.024) were found to be statistically significant. The most common reason for suicide among women aged 15-19 was family discord. The suicide method in women aged 15-19 yr differs from men of the same age and suicide in women by taking chemical substances, jumping from height and other causes were more frequent and statistically significant compared to men (P<0.001) (Table 3). Between 2009 and 2017, disease and unknown methods were common in men (P<0.01).

### Table 1: Suicides by method and gender 2009-2017

| Year | Gender | Total | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
|------|--------|-------|------|--------|------|--------|------|--------|------|--------|------|--------|------|--------|------|--------|
| 2017 | Total  | 3,069 | 2,368 | 701    | 3,069 | 2,368  | 701  | 3,069  | 2,368 | 701    | 3,069 | 2,368  | 701  | 3,069  | 2,368 | 701    |
|      |        | 1,459 | 1,109 | 350    | 1,459 | 1,109  | 350  | 1,459  | 1,109 | 350    | 1,459 | 1,109  | 350  | 1,459  | 1,109 | 350    |
| 2016 | Total  | 3,193 | 2,426 | 767    | 3,193 | 2,426  | 767  | 3,193  | 2,426 | 767    | 3,193 | 2,426  | 767  | 3,193  | 2,426 | 767    |
|      |        | 1,495 | 1,126 | 369    | 1,495 | 1,126  | 369  | 1,495  | 1,126 | 369    | 1,495 | 1,126  | 369  | 1,495  | 1,126 | 369    |
| 2015 | Total  | 3,246 | 2,538 | 888    | 3,246 | 2,538  | 888  | 3,246  | 2,538 | 888    | 3,246 | 2,538  | 888  | 3,246  | 2,538 | 888    |
|      |        | 1,528 | 1,099 | 429    | 1,528 | 1,099  | 429  | 1,528  | 1,099 | 429    | 1,528 | 1,099  | 429  | 1,528  | 1,099 | 429    |
| 2014 | Total  | 3,169 | 2,352 | 817    | 3,169 | 2,352  | 817  | 3,169  | 2,352 | 817    | 3,169 | 2,352  | 817  | 3,169  | 2,352 | 817    |
|      |        | 1,491 | 1,098 | 393    | 1,491 | 1,098  | 393  | 1,491  | 1,098 | 393    | 1,491 | 1,098  | 393  | 1,491  | 1,098 | 393    |
| 2013 | Total  | 3,252 | 2,382 | 870    | 3,252 | 2,382  | 870  | 3,252  | 2,382 | 870    | 3,252 | 2,382  | 870  | 3,252  | 2,382 | 870    |
|      |        | 1,632 | 1,206 | 426    | 1,632 | 1,206  | 426  | 1,632  | 1,206 | 426    | 1,632 | 1,206  | 426  | 1,632  | 1,206 | 426    |
| 2012 | Total  | 3,287 | 2,377 | 910    | 3,287 | 2,377  | 910  | 3,287  | 2,377 | 910    | 3,287 | 2,377  | 910  | 3,287  | 2,377 | 910    |
|      |        | 1,641 | 1,199 | 442    | 1,641 | 1,199  | 442  | 1,641  | 1,199 | 442    | 1,641 | 1,199  | 442  | 1,641  | 1,199 | 442    |
| 2011 | Total  | 2,677 | 1,876 | 801    | 2,677 | 1,876  | 801  | 2,677  | 1,876 | 801    | 2,677 | 1,876  | 801  | 2,677  | 1,876 | 801    |
|      |        | 1,391 | 948   | 443    | 1,391 | 948   | 443  | 1,391  | 948   | 443    | 1,391 | 948   | 443  | 1,391  | 948   | 443    |
| 2010 | Total  | 2,933 | 2,073 | 860    | 2,933 | 2,073  | 860  | 2,933  | 2,073 | 860    | 2,933 | 2,073  | 860  | 2,933  | 2,073 | 860    |
|      |        | 1,528 | 1,080 | 448    | 1,528 | 1,080  | 448  | 1,528  | 1,080 | 448    | 1,528 | 1,080  | 448  | 1,528  | 1,080 | 448    |
| 2009 | Total  | 2,898 | 2,111 | 787    | 2,898 | 2,111  | 787  | 2,898  | 2,111 | 787    | 2,898 | 2,111  | 787  | 2,898  | 2,111 | 787    |
|      |        | 1,557 | 1,121 | 436    | 1,557 | 1,121  | 436  | 1,557  | 1,121 | 436    | 1,557 | 1,121  | 436  | 1,557  | 1,121 | 436    |

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| Year | Gender | Total | Illness | Family income problem | Economic problem | Business failure | Emotional relation | Educational | Other | Unknown |
|------|--------|-------|---------|----------------------|-----------------|-----------------|-------------------|-------------|-------|---------|
| 2017 | Total  | 3,069 | 653     | 128                  | 233             | 6               | 86                | 3           | 712   | 1,248   |
|      | Male   | 2,368 | 482     | 95                   | 224             | 6               | 67                | 2           | 523   | 969     |
|      | Female | 701   | 171     | 9                    | -               | 19              | 1                 | 189         | 279   |          |
| 2016 | Total  | 3,193 | 680     | 126                  | 274             | 7               | 84                | 12          | 39    | 1,971   |
|      | Male   | 2,426 | 473     | 86                   | 257             | 7               | 74                | 6           | 32    | 1,491   |
|      | Female | 767   | 207     | 40                   | 17              | -               | 10                | 6           | 7     | 480     |
| 2015 | Total  | 3,246 | 955     | 257                  | 298             | 8               | 72                | 6           | 66    | 1,584   |
|      | Male   | 2,358 | 649     | 169                  | 263             | 8               | 54                | 3           | 45    | 1,147   |
|      | Female | 888   | 306     | 88                   | -               | 18              | 3                 | 21          | 437   |          |
| 2014 | Total  | 3,169 | 549     | 275                  | 40               | 96              | 4                 | 220         | 1,725 |          |
|      | Male   | 2,352 | 376     | 198                  | 244             | 39              | 74                | 4           | 148   | 1,269   |
|      | Female | 817   | 173     | 77                   | 12              | 1               | 22                | 4           | 72    | 456     |
| 2013 | Total  | 3,252 | 522     | 302                  | 221             | 62              | 109               | 16          | 261   | 1,759   |
|      | Male   | 2,382 | 380     | 205                  | 205             | 59              | 81                | 9           | 179   | 1,264   |
|      | Female | 870   | 142     | 83                   | 77              | 1               | 22                | 3           | 45    | 495     |
| 2012 | Total  | 3,287 | 560     | 259                  | 250             | 67              | 136               | 19          | 242   | 1,754   |
|      | Male   | 2,377 | 370     | 176                  | 235             | 66              | 99                | 12          | 175   | 1,244   |
|      | Female | 910   | 190     | 83                   | 15              | 1               | 37                | 7           | 67    | 510     |
| 2011 | Total  | 2,677 | 519     | 252                  | 215             | 60              | 146               | 15          | 222   | 1,248   |
|      | Male   | 1,876 | 350     | 156                  | 196             | 58              | 98                | 10          | 171   | 837     |
|      | Female | 801   | 169     | 96                   | 19              | 2               | 48                | 5           | 51    | 411     |
| 2010 | Total  | 2,933 | 595     | 296                  | 273             | 62              | 136               | 22          | 195   | 1,354   |
|      | Male   | 2,073 | 384     | 195                  | 254             | 61              | 97                | 14          | 145   | 923     |
|      | Female | 860   | 211     | 101                  | 19              | 1               | 39                | 8           | 50    | 431     |
| 2009 | Total  | 2,898 | 559     | 266                  | 318             | 90              | 123               | 15          | 176   | 1,351   |
|      | Male   | 2,111 | 386     | 174                  | 305             | 89              | 89                | 11          | 131   | 926     |
|      | Female | 787   | 173     | 92                   | 13              | 1               | 34                | 4           | 45    | 425     |

$\chi^2$ for 
- $\chi^2(8, N=559) = 19.5, \chi^2(8, N=398) = 19.5, P=0.01$.

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Table 3: Suicide cause age group and gender in 2009-2017

| Age group | Gender | Illness | Family incompatibility | Economic problems | Business failure | Emotional relationship and not marrying | Educational failure | Other | Unknown |
|-----------|--------|---------|------------------------|-------------------|-----------------|----------------------------------------|-------------------|-------|---------|
|          | Male   | 22      | 31                     | 0                 | 0               | 8                                      | 12                | 35    | 298     |
|          | Female | 34      | 52                     | 4                 | 0               | 9                                      | 8                 | 31    | 303     |
|          | Male   | 180     | 129                    | 44                | 2               | 167                                    | 29                | 164   | 1053    |
|          | Female | 133     | 166                    | 10                | 0               | 85                                     | 25                | 111   | 917     |
|          | Male   | 352     | 137                    | 103               | 14              | 186                                    | 19                | 194   | 1268    |
|          | Female | 127     | 124                    | 14                | 1               | 62                                     | 6                 | 83    | 531     |
|          | Male   | 431     | 174                    | 191               | 24              | 144                                    | 7                 | 177   | 1056    |
|          | Female | 142     | 115                    | 19                | 1               | 38                                     | 4                 | 66    | 340     |
|          | Male   | 415     | 184                    | 254               | 48              | 66                                     | 2                 | 167   | 921     |
|          | Female | 168     | 78                     | 17                | 1               | 21                                     | 2                 | 59    | 325     |
|          | Male   | 317     | 175                    | 264               | 58              | 45                                     | 1                 | 138   | 803     |
|          | Female | 172     | 44                     | 15                | 0               | 10                                     | 0                 | 42    | 244     |
|          | Male   | 299     | 176                    | 314               | 61              | 32                                     |                   | 127   | 786     |
|          | Female | 168     | 34                     | 14                | 2               | 11                                     |                   | 38    | 198     |
|          | Male   | 268     | 140                    | 301               | 54              | 23                                     |                   | 104   | 786     |
|          | Female | 141     | 29                     | 8                 | 1               | 3                                      |                   | 35    | 190     |
|          | Male   | 300     | 102                    | 257               | 50              | 13                                     | 1                 | 118   | 743     |
|          | Female | 145     | 14                     | 8                 | 1               | 6                                      | 0                 | 22    | 153     |
|          | Male   | 312     | 61                     | 220               | 44              | 13                                     |                   | 79    | 596     |
|          | Female | 115     | 16                     | 9                 | 0               | 5                                      |                   | 20    | 137     |
|          | Male   | 253     | 47                     | 119               | 15              | 10                                     |                   | 65    | 432     |
|          | Female | 106     | 12                     | 8                 | 1               | 0                                      |                   | 13    | 119     |
|          | Male   | 191     | 26                     | 74                | 12              | 6                                      |                   | 53    | 329     |
|          | Female | 102     | 6                      | 2                 | 0               | 0                                      |                   | 14    | 101     |
|          | Male   | 144     | 25                     | 25                | 1               | 4                                      |                   | 46    | 280     |
|          | Female | 61      | 5                      | 3                 | 0               | 1                                      |                   | 11    | 103     |
|          | Male   | 357     | 40                     | 30                | 5               | 10                                     |                   | 76    | 618     |
|          | Female | 120     | 9                      | 4                 | 0               | 2                                      |                   | 36    | 248     |
|          | Male   | 9       | 7                      | 7                 | 5               | 6                                      |                   | 6     | 101     |
|          | Female | 8       | 3                      | 0                 | 1               | 2                                      |                   | 3     | 15      |

\( \chi^2 \)
\( (\chi^2(14, N=5592)=85.9, p=0.000)**
\( (\chi^2(14, N=2161)=44.7, p=0.000)**
\( (\chi^2(14, N=2338)=11.6, p=0.000)**
\( (\chi^2(13, N=402)=1.6, p=0.053) \)
\( (\chi^2(14, N=988)=5.1, p=0.013) \)
\( (\chi^2(14, N=116)=5.1, p=0.531) \)
\( (\chi^2(14, N=2133)=61.9, p=0.000)**
\( (\chi^2(14, N=13994)=689.4, p=0.000)**

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Suicide due to family incompatibility ($P=0.001$), emotional relationship and not marrying the desired person one wants ($P=0.012$), educational failure and unknown reasons ($P=0.001$) was mostly seen in the 15-19 yr age group.

Table 4: Suicide method age group and gender in 2009-2017

| Age group | Gen | By hanging | By drowning | By poisoning | By burn | Us- | ing a | By burn | Us- | ing | Thr- | ow- | ing | Oth- | er |
|-----------|-----|------------|-------------|--------------|---------|-----|------|---------|-----|------|------|-----|-----|-----|----|
| <15       |     | 251        | 4            | 22           | 3       | 113 | 1    | 3       | 3   | 1    | 5    |
| 15–       |     | 217        | 27           | 51           | 5       | 124 | 0    | 1       | 0   | 0    | 16   |
| 19        |     | 824        | 63           | 129          | 40      | 621 | 7    | 10      | 11  | 8    | 55   |
| 20–       |     | 538        | 169          | 220          | 14      | 444 | 1    | 3       | 0   | 3    | 55   |
| 24        |     | 962        | 96           | 182          | 42      | 804 | 13   | 64      | 10  | 11   | 89   |
| 25–       |     | 403        | 93           | 184          | 18      | 212 | 0    | 1       | 0   | 1    | 36   |
| 29        |     | 996        | 79           | 191          | 38      | 760 | 8    | 24      | 14  | 17   | 77   |
| 30–       |     | 366        | 68           | 127          | 12      | 114 | 3    | 2       | 3   | 1    | 29   |
| 34        |     | 967        | 71           | 201          | 53      | 635 | 8    | 35      | 13  | 7    | 67   |
| 35–       |     | 318        | 69           | 127          | 12      | 100 | 4    | 6       | 2   | 3    | 30   |
| 39        |     | 842        | 106          | 135          | 36      | 571 | 9    | 20      | 11  | 7    | 62   |
| 40–       |     | 276        | 53           | 93           | 15      | 51  | 1    | 7       | 1   | 4    | 28   |
| 44        |     | 896        | 74           | 117          | 31      | 565 | 9    | 28      | 12  | 10   | 53   |
| 45–       |     | 259        | 31           | 84           | 17      | 45  | 2    | 0       | 0   | 6    | 21   |
| 49        |     | 871        | 97           | 120          | 31      | 483 | 3    | 21      | 3   | 4    | 43   |
| 50–       |     | 236        | 34           | 72           | 9       | 31  | 1    | 6       | 2   | 4    | 12   |
| 54        |     | 824        | 74           | 93           | 15      | 487 | 7    | 31      | 8   | 8    | 37   |
| 55–       |     | 216        | 33           | 53           | 12      | 12  | 1    | 2       | 1   | 2    | 17   |
| 59        |     | 727        | 71           | 94           | 17      | 351 | 7    | 17      | 2   | 4    | 35   |
| 60–       |     | 193        | 24           | 56           | 8       | 8   | 1    | 5       | 1   | 2    | 4    |
| 64        |     | 483        | 52           | 93           | 16      | 245 | 5    | 19      | 1   | 4    | 23   |
| 65–       |     | 163        | 14           | 46           | 7       | 3   | 2    | 5       | 1   | 0    | 18   |
| 69        |     | 354        | 36           | 61           | 13      | 189 | 1    | 15      | 1   | 3    | 18   |
| 70–       |     | 144        | 18           | 41           | 4       | 3   | 3    | 2       | 0   | 0    | 10   |
| 74        |     | 268        | 26           | 59           | 12      | 133 | 0    | 10      | 0   | 1    | 16   |
| 75+       |     | 116        | 12           | 32           | 7       | 3   | 2    | 3       | 0   | 0    | 9    |
| Unknown   |     | 639        | 56           | 132          | 16      | 226 | 4    | 25      | 2   | 2    | 34   |
|           |     | 275        | 24           | 86           | 5       | 4   | 3    | 4       | 0   | 0    | 18   |
|           |     | 82         | 0            | 11           | 4       | 31  | 2    | 0       | 1   | 1    | 4    |
|           |     | 16         | 0            | 2            | 1       | 2   | 0    | 1       | 0   | 0    | 2    |

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Other causes were most common in the 20-24 age group ($P=0.001$). Suicide due to illness was observed between the ages of 30-34 ($P=0.000$). Between the ages of 40-44 yr, economic problems ($P=0.001$) and suicides due to job failure were seen. Among the causes of suicide with the Anova method, disease ($P=0.10$); job failure ($P=0.41$) and other causes ($P=0.001$) differed statistically.

As the most common method of suicide; hanging oneself, using a firearm, throwing oneself from a high place and using chemicals were found to be statistically significant. Suicide methods by hanging and using firearms were the most frequently used methods ($P<0.001$). The use of these two methods varied according to age group and gender. (Table 3 or 4).

**Discussion**

Unfortunately, suicides occur all over the world. According to the statistics of the WHO in 2015, suicide death rates per hundred thousand. It was detected in Sao Tome and Principe as (2.0), in Antigua and Barbuda as (0.0), in Azerbaijan as (3.3), in Pakistan as (2.1) and in Turkey as (8.7).

This speed is lower than Europe and other low-income countries (15). Although the WHO reported the approximate death rate as 8.7 in Turkey, the average 10-year approximate death rate in Turkey was 4.04 and in 2015 the approximate death rate was 4.15. In 2017 it was 3.82 (14, 5).

Suicide rates also differ in Turkey according to gender and age, for example, in Klonsky's study, suicides are three times more common in men than in women. On the other hand, these suicide rates were 1.7 (1). Only in China and Bangladesh, women had higher suicide rates than men (16).

In a Hungarian study, the rate of completed suicide was three to four times higher in men than in women, and in England and Wales the suicide rate in young men had doubled in the last two decades and was the most common cause of death in young men under 35 (17, 18).

In this study, suicide rates were found to be high in people under the age of 30 yr regardless of gender and our male-female suicide rate was 2.7 in other age groups. The compatibility of the result with the world literature has led to the fact that it can be seen as a result of suicide due to multifactorial causes. The prevalence of suicide in men almost all over the world may be the cause of suicide which may be related to the nature of men and the male gender model in society. Culture, personal sensitivity, personal tolerance and the influence of the environment can be quite effective in the inner world of men. Because in Turkey causes of suicide such as illness, economic problems, family adjustments are active factors that create responsibility in the dominant role of the male gender. Socio-cultural responsibility attitudes in Turkey are predominantly directed towards male characters. Age patterns also often differ between countries.

Suicide is the second leading cause of death among young women aged 15 to 29 yr, and in some countries among young women aged 15 to 19 yr (1). Our country data also support these findings. In this context, the age, causes and consequences of suicide are still discussed in the world, because suicidal behaviors are the result of situations that can cause a series of long-term negative consequences in adults, such as psychological distress, low academic performance, mental and physical health problems, unemployment, loneliness, and low life satisfaction (19). In adolescents, multifactorial factors such as personal, interpersonal and environmental variables, may be associated with adolescent suicidal ideation and attempts (20). People between the ages of 10 and 24 yr make up about 38.3% of the population. The transition from childhood to adolescence is the process in which there are important developmental changes accompanied by physical and psychological difficulties and risky behaviors are the most common form of behavior in which difficulties increase vulnerabilities in this change process (4).

In our study, the causes of suicides in the adolescent age group are seen as family...
disharmony, emotional relationship problems, forced marriage or not being able to marry the desired people, unsuccessful education and unknown reasons. This situation appears to be demanding of adolescents’ individuality or self-expression, their own ideas and opinions being valued. For example, in our study, high-dose drug use or jumping from height was common in adolescents for suicidal purposes. These can be interpreted as manifestations of excessive behavior. In addition, we think that changes in body and hormonal chemistry in some risky behaviors during adolescence may pave the way for suicide, perhaps by the parameters that can form the definition of adolescence.

The prevalence of suicide methods also differs between countries. For example, pesticides appear to be used for suicides, with around 30% of global suicides occurring in rural farming areas, most of them in low- and middle-income countries. Other common suicide methods are hanging and the use of firearms (5). These differences can be seen more clearly in this way. For example regarding Africa, South Africans mostly hang themselves (69% for men, 41% for women). Pesticide and drug poisoning appears to be the second most common method used (35%, mostly women). For the Americacontinent, in the United States suicides are most common by firearms with 61% by men and 36% by women; women also die from poisoning at a rate of 31%. For Asia, in the Asian region, people mostly choose to hang themselves (23% in Hong Kong, 69% in Japan, 92% in Kuwait), but Hong Kong men end their lives in falls more frequently (43%) and with other unspecified methods (23%). European men also die by hanging the most (33% in Finland, 91% in Poland). The use of firearms in male suicide was the second most common method in Finland, Norway, France, Austria and Croatia (21-27%), while falls were common in Luxembourg, Spain and Malta (18-22%). In European women, hanging themselves (15% in Luxembourg, 83% in Lithuania) and other poisonings (7-43%), even in Moldova and Portugal women poisoned themselves with pesticides (18 and 24%), as well as falls ( high)

(Luxembourg: 29%, Spain: 37%, Malta: 57%) was used as a form of suicide (16). Our results showed almost the same changes. Availability, acceptability, as well as lethality of methods of suicide may vary over time, gender, age, and may depend on modernization. Life changes may also affect methods and causes.

**Conclusion**

Suicide is not inexplicable but is a complex situation which is major problem all over the world. We have seen our detailed parameters in Turkey. There were differences between gender, method, cause, and also age groups. The variability of many parameters of suicides may explain the multidimensional nature of suicides in Turkey. Healing all these factors in themselves can be effective in creating a healthier society and preventing suicide.

**Ethical considerations**

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the author.

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**Conflict of interest**

The author has no conflicts of interest to declare

**References**

1. Klonsky ED, May Ma, Saffer BY (2016). Suicide, suicide attempts, and suicidal ideation. *Annu Rev Clin Psychol*, 12:307-30.
2. Tisirigotis K, Gruszczynski W, Tisirigotis-Woloszczak M (2010). Indirect (chronic) self-destructiveness and modes of suicide attempts. *Arch Med Sci*, 6(1): 111-116.
3. Bulut ER, Kıcüker H, Bulut NS (2012). A general look at suicide, from its short history to its causes and used method. Cumhuriyet Med J, 34:128-37.

4. Asante KO, Kugbey N, Osafo J, et al (2017). The prevalence and correlates of suicidal behaviours (ideation, plan and attempt) among adolescents in senior high schools in Ghana. SSM - Popul Health, 3:427-434.

5. World Health Organization. Global Health Estimates 2015 Summary tables: Global deaths by cause, age and sex, 2000–2015. World Health Organization; Geneva: Switzerland, 2016. Date of Access: 20.05.2018. http://www.who.int/entity/healthinfo/global_burden_disease/GHE2015_Deaths_Global_2000_2015.xls

6. Shah MA, Ahmed S, Arafat Y (2017). Demography and risk factors of suicide in Bangladesh: a six-month paper content analysis. Psychiatry J, 2017:3047025.

7. Baty GD, Kivimaki M, Bell S, et al (2018). Psychosocial characteristics as potential predictors of suicide in adults: an overview of the evidence with new results from prospective cohort studies. Transl Psychiatry, 8(1):22.

8. Caup S, Steffan J, Shi J, et al (2018). Opioid drug poisonings in Ohio adolescents and young adults, 2002–2014. Clin Toxicol (Phila), 56(8): 765-772.

9. Cukier W, Allen Eagen S (2018). Gun violence. Current Opinion in Psychology, 19:109-12.

10. Mortensen HL, Torssander J (2017). Family of origin and educational inequalities in mortality: Results from 1.7 million Swedish siblings. SSM Popul Health, 3:192–200.

11. Wen Koo Y, Kölves K, de Leo D (2019). Profiles by suicide methods: An analysis of older adults. Aging Ment Health, 23(3): 385-91.

12. Ferencic A, Sosa I, Cuculic D, et al (2017). Temporal trends in rainwater tank suicides in Rijeka, Croatia-A 30 year study. J Forensic Sci, 63(4):1168-1170.

13. Kölves K, McDonough M, Crompton D, et al (2018). Choice of a suicide method: Trends and characteristics. Psychiatry Res, 260: 67-74.

14. Turkish Statistical Institute (TURKSTAT) of the Republic of Turkey. (2018). Address based population registration system and suicide statistics. Date of Access: 20.05.2018. https://data.tuik.gov.tr/Bulten/Index?p=Solid-Fuels-June-2021-37453&dil=2

15. World Health Organisation. Mental health. Suicide data. 2017. World Health Organization; Geneva: Switzerland, 2018. Date of Access: 20.05.2018. http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/

16. Bachman S (2018). Epidemiology of suicide and the psychiatric perspective. Int J Environ Res Public Health, 15(7): 1425.

17. Harmançlı P (2015). Dünyadaki ve Türkiye’deki intihar vakalarının sosyodemografik özellikler açısından incelenmesi. Hazettepe Health Sci J, (1):1-15.

18. Abbas MJ, Alhamiary N, Razaaq EA, et al (2018). The Iraqi national study of suicide: Report on suicide data in Iraq in 2015 and 2016. J Affect Disord, 229:56-62.

19. O’Neill S, McLaugherty M, Ennis E, et al (2018). Socio-demographic, mental health and childhood adversity risk factors for self-harm and suicidal behaviour in College students in Northern Ireland. J Affect Disord, 239: 58-65.

20. Brent DA, Mann JJ (2006). Familial pathways to suicidal behaviour-understanding and preventing suicide among adolescents. N Engl J Med, 355(26); 2719–21.