The Prevalence of Death Ideation and Attempted Suicide and the Associated Risk Factors in Isparta, Turkey

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SUMMARY

Objective: Suicide is a complex process from the initiation of ideation to planning, and finally to an attempt. This study aimed to investigate the prevalence of death ideation, attempted suicide, and the associated risk factors in Isparta, Turkey.

Materials and Methods: The study included 600 participants aged 18-65 years representative of the population of central Isparta that were selected via the stratified simple randomized sampling method. The participants were administered a questionnaire for collecting demographic data, and the participant's experiences of death ideations and suicide attempts, and the clinical version of SCID were used.

Results: The lifetime prevalence of attempted suicide and death ideations was 4.3% and 27.5%, respectively. Death ideas and attempted suicide were both more prevalent among women and younger adults. All those that attempted suicide were exposed to a stress factor prior to the attempt. The rates of death ideation and attempted suicide were lower among the participants that had children. A family history of attempted suicide was associated with an increase in the frequency of death ideations and attempted suicide. Attempted suicide and death ideas were more common among those with major depressive disorder. Generalized anxiety disorder was observed significantly more frequently among those that had attempted suicide. Panic disorder and a specific phobia were also significantly associated with death ideation.

Conclusion: The present study's findings indicate that there were common risk factors for attempted suicide and death ideations in the study group. Determination of the prevalence of attempted suicide and death ideation in a population, identification of the associated risk factors and assessment of their relationship to mental disorders can facilitate a better understanding of suicidal behaviour.

Keywords: Death ideation, suicide attempt, prevalence, risk factor.

INTRODUCTION

Suicide is a complex behavior that influences the individual, his/her environment, the society, and future generations in which biological, psychological and social factors interact. The WHO defined the act of suicide as self- harm with the conscious intention of death (Weis 1974). Suicide may be defined briefly as an act of aggression directed toward one's self. It can manifest as ideation, a tendency, or an attempt (Sayıl 2000); therefore, suicidal behavior involves 3 components, namely suicidal ideation, attempted suicide, and suicide. Suicidal ideation consists of thoughts of intentional self- harm or death and attempted suicide and suicide are voluntary self- harm behaviours. Suicide is defined as suicidal behavior resulting in death (Adam 1985).

Community studies report that the lifetime prevalence of attempted suicide varies between 720 and 5930/ 100.000 individuals (Welch 2001). In Turkey, suicides have been recorded by the State Statistics Institute (SSI) since 1962. According to SSI data, in 2000, there were 1802 suicides in Turkey (1114 male and 688 female), with a mean prevalence of 2,76/100.000 individuals (SSI 2000). Psychological autopsy studies report that the majority of completed suicides are completed on the first attempt (Cavanagh et al. 2003; Suominen et al. 2004); therefore, it is important to address suicidal ideas, which has a lifetime prevalance of %10- 14 and is associated with completed suicide (Kessler et al. 1999; Neeleman et al. 2004; Casey et al. 2006). According to the literature, death ideation and the intent to commit suicide are generally considered together

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as suicidal ideation; however, variation in the content of the suicidal thoughts and methodological variations lead to differences in results. (Kessler et al. 1999; Bebbington et al. 2010). In this context, it is suggested that death ideations should be evaluated as a process. Bebbington et al. (2010) suggest that most common death ideations are associated with less strong intention of death and also determined that the idea of "life is not worth living" is the most common.

Many risk factors associated with the prevalence of attempted suicide and suicide have been determined. It was reported that the highest rate of completed suicide in the US and Europe was in those aged≥ 65 years, whereas in Turkey both attempted suicide and completed suicide most commonly occurs is those aged 15- 24 years and 25-34 years (Koçal et al. 1994; Sayıl et al. 1997; Sayıl and Devrimci Ozguven 2002). In terms of gender, it was reported that women attempt suicide more frequently than men whereas the completed suicide rate was higher in men than in women (Schmidtke 1996; Sayıl and Devrimci Ozguven 2002). A 1- year follow- up study conducted in Turkey by Yasan et al. (2008) that examined the high rate of suicide among women reported that stress, low- level education, unemployment and exposure to domestic violence may be factors associated with an increase in the rate of attempted suicide. Being single or divorced, (Kesler et al. 1999; Lee et al. 2010), socioeconomic deprivation, low-level education (Schmidtke 1996), having a physical disease (Stenager et al. 2000), previous history of attempted suicide (Hjelmseted et al. 1996; Dieserud et al. 2000), and self- mutilation (Hawton et al. 2003; Owens et al. 2005) are the risk factors most strongly associated with attempted suicide.

A retrospective study on emergency services reported that the method used most frequently in completed suicide is by hanging which accounts for 41% of all completed suicides, followed by jumping from a high place (21%). The most common method of attempted suicide is prescription drugs (54%) followed by illicit substances (17%) (Pajonk et al. 2002). In more than 90% of completed suicides, there is a concurrent psychological disorder. The most common comorbid diagnosis in cases of attempted suicide is affective disorders, particularly depression (Welch 2001); however, alcohol abuse, schizophrenia, borderline and antisocial personality disorders, and anxiety disorders have also been reported to be risk factors associated with suicide (Işık 2003; Lee et al. 2010). It was reported that 75% of individuals in Turkey that were referred to emergency departments due to attempted suicide had a psychiatric disorder, and that among those 28. 5% met the criteria for major depressive disorder (Özdel et al. 2009).

There are many factors associated with the development of suicidal behavior. While considering suicidal behavior, it is important to evaluate its relationship with psychiatric diseases and sociodemographic factors in order to better understand and prevent such behavior. The aim of the present psychiatric health field survey study was to collect epidemiological data associated with the sociodemographic factors that influence death ideation and suicide. The relationship between the sociodemographic characteristics and psychiatric disorders, and death ideation and suicidal behavior in the study sample was investigated cross sectionally.

MATERIALS and METHODS

The study included 600 individuals aged 18- 65 years, a sample that was considered sufficient to be representative of the population of Isparta, Turkey, in accordance with data obtained via SSI stratified simple random sampling method. Of the 685 individuals evaluated, 7 were excluded due to severe cognitive impairment and agitation or severe psychotic symptoms, and 79 declined to participate; therefore, 600 individuals were included. Data collection was completed in 4 months. Level of education, marital status, and type of drinking water, toilet and heating used in their homes were recorded, and using these as criteria, the population of Isparta was divided into 3 groups: group1: (14%) low socioeconomic level, (higher education level under 30%, toilet not connected to the sewer system and heating home with wood and/or coal are); group 2: (59.7%) middle socioeconomic level (higher education level %30- 50, toilet connected to the sewer system, and heating home primarily with coal); group 3: (26. 3%) high socioeconomic level (high education level over 50%, toilet connected to the sewer system, and heating home primarly with coal and oil/natural gas). In all, 84 (14%) of the participants were in group 1, 358 (59.7%) were in group 2, and 158 (26,3%) were in group 3 that stratified simple sampling method was used. In the districts chosen for sampling, every house was visited in each street by skipping one house. In apartment houses with many flats, study was carried out by skipping one flat in each apartment. Care was taken to speak with each individual in a separate room if conditions were suitable. Each interview took 40- 90 min to complete.

Questionnaire Form and Diagnostic Methods

A standard questionnaire form was prepared to collect data on gender, age, occupation, marital status, level of education, size of household, place of longest residence, family economic level, and history of trauma, comorbid diseases, smoking, and alcohol and substance abuse, and family history of psychiatric or physical illness. In addition, the form collected data on death ideation, history of suicide planning and attempted suicide, challenging life events during that period, and family history of attempted suicide. Death ideation in subjects was formulated in the following sequence towards more serious intention: thinking that life is not worth living, thinking I wish I was dead and thinking to end his/her own life.

In the present study, the SCID I-clinical version (SCID-CV) developed by First et al. (1997) as a structured interview for diagnosis of DSM- IV Axis I disorders was used. SCID-I was translated into Turkish by Çorapçıoğlu et al. (1999), who reported that it was reliable and valid for use in Turkey.

Statistical analysis

Statistical analysis was performed using SPSS 11.0 for Windows. A "p" value of 0.05 was considered statistically significant. Differences in cross- sectional variables between the groups were evaluated with using the chi- square test and differences in the means of parametric variables were evaluated using Student's t test. Stepwise logistic regression analysis was used to identify the variables associated with death ideation and attempted suicide.

RESULTS

The study included 600 individuals aged 18- 65 years of which 56% (n= 336) were women and 44% (n= 264) were men. Distribution of the level of education was as follows: 3. 5% (n= 21) illiterate; 2. 3% (n= 14) literate; 46. 2% (n= 277) primary school graduate; 10. 3% (n= 62) middle school graduate; 20. 3% (n= 122) high school graduate; 4. 5% (n= 27) university student; 12. 8% (n= 77) university graduate. Distribution of age groups was as follows: 18- 24 years: 14. 8% (n= 89); 25- 34 years 22. 8% (n= 137); 35- 44 years 20. 7% (n= 124); 45- 54 years 22. 8% (n= 137); 55- 65 years 18. 8% (n= 113). In terms of socioeconomic level, 14% of the participants were low (n= 84), 59. 72% (n= 358) were middle and 26. 3% (n= 158) were high.

In all, 27. 5% (n= 165) of the participants thought that life is not worth living at least once. As seen in Tables 1- 4, the rate of death ideations and attempted suicide was higher in women. Among the 14 participants that had planned to commit suicide at least once, gender was not strongly associated with planning suicide. Death ideations were most common among those aged 18- 24 years (n= 31) and 25- 34 years (n= 46); however, the difference between age groups was not significant, except for thinking that life is not worth living. In total, 5. 6% (n= 5) of the participants that attempted suicide were aged 18- 24 age years, 8. 0 % (n=11) were aged 25- 34 years, 4. 8% (n= 6) were aged 35- 44 years, 2. 2% (n= 3) were aged 45- 54 years, and 0. 9% (n= 1) were aged 55- 65 years (p< 0. 05).

A significant relationship between marital status and death ideations and attempted suicide was not observed. Nor was there a significant difference in death ideations and attempted suicide between those that lived alone (n= 18), with a friend (n= 9), with a nuclear family (n= 516) and with an extended family (n= 57). There was no significant relationship between education level and the rates of ideation of death and suicide attempt; however 34. 2% (n= 89) of housewives (the most common occupation among the participants [n= 260]), thought that life is not worth living which was significantly more than for all other occupations (p< 0. 05). A relationship between a history of smoking and alcohol use, and death ideation and attempted suicide was not observed.

The factors associated with thinking life is not worth living are shown in Table 1. Logistic regression analysis was performed using the thought life is not worth living as the dependent variable, and gender, marital status, the family history of attempted suicide, comorbid medical disorder, job satisfaction, major depressive disorder and its subtypes, bipolar I- II disorder, affective disorders associated with a general medical condition, panic disorder with agoraphobia, obsessive compulsive disorder, a specific phobia, and adjustment disorder as predictive variables. Among these factors, female gender, family history of attempted suicide, comorbid disease, major depressive disorder, affective disorder associated with a general medical condition, and panic disorder with agoraphobia were associated with a significant increase in the frequency of thinking life is not worth living, whereas being officially married, being widowed, and having an adjustment disorder were associated with a decrease in its frequency.

For logistic regression analysis thinking I wish I were death was the dependent variable, and gender, socioeconomic level, number of children, family history of attempted suicide, major depressive disorder and its subtypes, bipolar II disorder, affective disorder associated with substance abuse, panic disorder with agoraphobia, a specific phobia, adjustment disorder, and generalized anxiety disorder not otherwise specified were used as independent variables. Female gender, family history of attempted suicide, major depressive disorder, panic disorder with agoraphobia, a specific phobia, and adjustment disorder were risk factors associated with an increase in the thought I wish I were dead, whereas having 3 children decreased it (Table 2).

Logistic regression analysis was used to evaluate the 62 participants that had death ideation; death ideation was the dependent variable, and gender, place of residence, level of education, family history of attempted suicide, history of a psychiatric disorder, major depressive disorder and its subtypes, bipolar I disorder, affective disorder associated with substance abuse, panic disorder with agoraphobia, obsessive-compulsive disorder, a specific phobia, and anxiety disorder not otherwise specified were the independent variables. The results showed that living most of one's life in a village, major depressive disorder, bipolar disorder, panic disorder with agoraphobia, a specific phobia, and a single episode of depressive disorder increased the risk of thinking to end his/her own life significantly (Table 3).

Table 1. Sociodemographic characteristics of the participants that thought that life is not worth living and the associated risk factors, according to logistic regression analysis.

	n (%)	Thinking life is not worth living (%)	OR (95% Cl)
Gender			
Female	336 (56. 0%)	118 (35. 1%) x^2= 22. 23	1
Male	264 (44. 0%)	47 (17. 8%) p= 0.000	0.4971 (0. 3103- 0. 7962)
Marital status			
Single	84 (14. 0%)	29 (34. 5%)	1
Religious marriage	5 (0. 8%)	3 (60. 0%)	3. 1251 (0. 3461- 28. 219)
Official marriage	468 (78. 0%)	118 (25. 2%)	0. 2924 (0. 0944- 0. 9056)
Divorced	12 (2. 0%)	7 (58. 3%) x^2= 3.16	0. 5879 (0. 1125- 3. 0725)
Widowed	31 (5. 2%)	8 (25. 8%) p= 0. 206	0. 1901 (0. 0431- 0. 8387)
Number of children			
0	113 (18. 8%)	7(6. 2%)	1
1	96 (16. 0%)	2(2. 1%)	2. 3102 (0. 7680- 6. 9495)
2	193(32. 2%)	10(5. 2%)	1. 8013 (0. 6243- 5. 1968)
3	126 (21. 0%)	6(4. 8%) t=2. 05	0. 8441 (0. 2680- 2. 6585)
4	72 (12. 0%)	2(2. 8%) p=0. 041	1. 1877 (0. 3549- 3. 9743)
Family history of attempted suicide			
No	561 (93. 5%)	146(26. 0%) x^2=9. 42	1
Yes	39 (6. 5%)	19 (48. 7%) p= 0. 002	3. 0048 (1. 4227- 6. 3462)
Comorbid medical disorder			
No	211 (35. 2%)	96(24. 7%) x^2= 4. 42	1
Yes	389 (64. 8%)	69(32. 7%) p= 0. 036	1.6781 (1. 0282- 2. 7388)
Job satisfaction			
Unsatisfied	147 (24. 5%)	51(34. 7%) x^2= 5. 05	1
Satisfied	453 (75. 5%)	114(25. 2%) p= 0. 025	0. 7999 (0. 4946- 1. 2938)
Major Depressive disorder			
No	378 (63. 0%)	62 (16. 4%) x^2=63. 11	1
Yes	222 (37. 0%)	103 (16. 4%) p= 0. 000	7. 0059 (3. 7615- 13. 0487)
Major Depressive disorder type			
Single episode	145 (24. 2%)	61 (42. 1%) x^2= 67. 04	1
Recurrent	77 (12. 8%)	42 (54. 5%) p=0. 000	0. 5977 (0. 3222- 1. 1087)
Bipolar I			
No	598 (99. 7%)	163 (27. 3%) x^2 =5. 29	1
Yes	2 (0. 3%)	2 (100% p =0. 021	9480. 9052(0. 000- 1. 102E+26)
Bipolar II			
No	597 (99. 5%)	162 (27. 1%) x^2 = 7. 95	1
Yes	3 (0. 5%)	3 (100. 0%) p= 0. 005	8543. 1150(0. 000- 4. 469E+20)
Affective disorder due to a general medical disorder			
No	592 (98. 7%)	160 (27. 0%) x^2 = 4. 98	1
Yes	8 (1. 3%)	5 (62. 5%) p= 0. 026	13. 3953 (1. 3255- 135. 3758)
Panic disorder with agoraphobia			
No	590 (98. 3%)	157 (26. 6%) x^2 = 14,64	1
Yes	10 (1. 7%)	8 (80. 0%) p= 0,000	7. 4325 (1. 20002- 46. 0266)
Obsessive- compulsive disorder			
No	570 (95. 0%)	156 (27. 4%) x^2 = 0. 10	1
Yes	30 (5. 0%)	9 (30. 0%) p= 0. 753	0. 4168 (0. 1589- 1. 0936)
Specific phobia			
No	552 (92. 0%)	145 (26. 3%) x^2 = 5. 25	1
Yes	48 (8. 0%)	20 (41. 7%) p= 0. 022	2. 0601 (0. 9997- 4. 2451)
Adjustment disorder			
No	567 (94. 5%)	154 (27. 2%) x^2 = 0. 60	1
Yes	33 (5. 5%)	11 (33. 3%) p= 0. 440	2. 5202 (1. 0729- 5. 9196)

x^2= Chi square test; t= independent Student's t test;
OR= odds ratio; CI= confidence interval.

Table 2. Sociodemographic characteristics of the participants that wished they were dead and the associated risk factors, according to logistic regression analysis.

	n (%)	Thinking I wish I were dead n (%)	OR (95% Cl)
Gender			
Female	336 (56. 0%)	101 (30. 1%)x^2= 21. 49	1
Male	264 (44. 0%)	37 (14. 0%)p= 0. 000	0. 4992 (0. 3081- 0. 8090)
Socioeconomic level according to place of residence			
Low	84 (14. 0%)	19 (22. 6%)	1
Middle	358 (59. 7%)	88 (24. 6%) x^2= 1. 53	1. 5314 (0. 7751- 3. 0257)
High	158 (26. 3%)	31 (19. 6%)p= 0. 465	0. 9007 (0. 4188- 1. 9368)
Number of children			
0	113 (18. 8%)	29 (21. 0%)	1
1	96 (16. 0%)	32 (33. 3%)	1. 2646 (0. 6362- 2. 5136)
2	193 (32. 2%)	41 (29. 7%)	0. 6561 (0. 3524- 1. 2215)
3	126 (21. 0%)	20 (15. 9%) t= 1. 85	0. 3913 (0. 1881- 0. 8137)
4	72 (12. 0%)	16 (22. 2%) p= 0. 063	0. 6348 (0. 2847- 1. 4158)
Family history of attempted suicide			
No	561 (93. 5%)	120 (21. 4%) x^2= 12. 63	1
Yes	39 (6. 5%)	18 (46. 2%) p= 0. 000	2. 9473 (1. 3752- 6. 3169)
Major depressive disorder			
No	378 (63. 0%)	47 (12. 4%) x^2= 64. 40	1
Yes	222 (37. 0%)	91 (41. 0%) p= 0. 000	7. 6987 (4. 1608- 14. 2446)
Major depressive disorder type			
Single episode	145 (24. 2%)	53 (36. 6%) x^2= 69. 06	1
Recurrent	77 (12. 8%)	38 (49. 4%) p= 0. 000	0. 5780 (0. 3149- 1. 0610)
Bipolar II			
No	597 (99. 5%)	136 (22. 8%) x^2= 3. 25	1
Yes	3 (0. 5%)	2 (66. 7%) p= 0. 072	12. 8294 (0. 9181- 179. 2751)
Affective disorder related to substance abuse			
No	599 (99. 8%)	137 (22. 9%) x^2= 3. 35	1
Yes	1 (0. 2%)	1 (100%) p= 0. 067	2288. 9238 (0. 0000- 7. 154E+14)
Panic disorder with agoraphobia			
No	590 (98. 3%)	130 (22. 0%) x^2= 18. 66	1
Yes	10 (1. 7%)	8 (80. 0%) p= 0. 000	9. 3209 (1. 5202- 57. 1491)
Specific phobia			
No	552 (92. 0%)	119 (21. 6%) x^2=8. 10	1
Yes	48 (8. 0%)	19 (39. 6%) p= 0. 004	2. 2066 (1. 0518- 4. 6294)
Anxiety disorder not otherwise specified			
No	585 (97. 5%)	134 (22. 9%) x^2= 0. 12	1
Yes	15 (2. 5%)	4 (26. 7%) p= 0. 733	1. 1127 (0. 2844- 4. 3539)
Adjustment disorder			
No	567 (94. 5%)	128 (22. 6%) x^2= 1. 05	1
Yes	33 (5. 5%)	10 (30. 3%) p=0. 305	2. 9741 (1. 2240- 7. 2265)

x^2= Chi square test; t= independent Student's t test;
OR= odds ratio; CI= confidence interval.

Among the 14 participants that had planned suicide at least once, 9 were female and 5 were male. Logistic regression analysis in which having a suicidal plan was the dependent variable, and major depression disorder, dysthymia, and delusion were independent variables showed that although there was a relationship between them, it was not statistically significant.

Sociodemographic characteristics related to attempted suicide and risk factors are shown in Table 4. In all, 24 of the 26 participants that attempted suicide were women. All 26 that attempted suicide reported that stress factor was the underlying factor and the most commonly reported stress was family related. The majority of those that attempted suicide (n=21) did so only once. The following methods were used to attempt suicide: 73. 1 % (n= 18) drugs, (3. 8% [n= 1] attempted suicide twice- once with drugs, and once by cutting the wrists); hanging 7. 7% (n= 2); jumping in front of a

Table 3. Sociodemographic characteristics of the participants thought to end their lives and the associated risk factors, according to logistic regression analysis.

	n (%)	Thinking to end his/her own life n (%)	OR (95% Cl)
Gender			
Female	336 (56. 0%)	46 (13. 7%) x^2= 9. 29	1
Male	264 (44. 0%)	16 (6. 1%) p= 0. 002	0. 5273 (0. 2550- 1. 0901)
Place of residence			
City	475 (79. 2%)	45(9. 5%)	1
Town	66 (11. 0%)	7 (10. 6%) x^2= 1. 67	1. 6760 (0. 6401- 4. 3886)
Village	59 (9. 8%)	10 (16. 9%) p= 0. 435	2. 6455 (1. 0586- 6. 6112)
Level of Education			
Illiterate	21 (3. 5%)	4 (19. 0%)	1
Literate	14 (2. 3%)	0 (0. 0%)	0. 0003 (0. 0000- 3.191E+17)
Primary school	277 (46. 2%)	27 (9. 7%)	0. 6591 (0. 1498- 2. 9001)
Secondary school	62 (10. 3%)	8 (12. 9%)	1. 6312 (0. 3133- 8. 4915)
Highschool	122 (20. 3%)	17 (13. 9%)	1. 5353 (0. 3266- 7. 2184)
University student	27 (4. 5%)	2 (7. 4%) x^2= 8. 03	0. 5406 (0. 0784- 3. 7264)
University graduate	77 (12. 8%)	4 (5. 2%) p= 0. 236	0. 4145 (0. 0596- 2. 8811)
Family history of attempted suicide			
No			
Yes	561 (93. 5%)	53 (9. 4%) x2= 7. 31	1
	39 (6. 5%)	9 (23. 1%) p= 0. 013	2. 7239 (0. 9544- 7. 7743)
Family history of psychiatric disorder			
No			
Yes	465 (77. 5%)	39 (8. 4%) x^2= 8. 45	1
	135 (22. 5%)	23 (17. 0%) p= 0. 004	1. 2228 (0. 5898- 2. 5355)
Major Depressive disorder			
No	378 (63. 0%)	15 (4. 0%) x^2=44. 67	1
Yes	222 (37. 0%)	47 (21. 2%) p= 0. 000	15. 0260(6. 0709- 37. 1910)
Major depressive disorder type			
Single episode	145 (24. 2%)	27 (18. 6%) x^2= 47. 61	1
Recurrent	77 (12. 8%)	20 (26. 0%) p= 0. 000	0. 4606 (0. 2178- 0. 9743)
Bipolar I			
No	598 (99. 7%)	61 (10. 2%) x^2= 3. 41	1
Yes	2 (0. 3%)	1 (50. 0%) p= 0. 065	67. 4751 (2. 9275- 1555. 2253)
Affective disorder related to substance abuse			
No	599 (99. 8%)	61 (10. 2%) x^2= 8. 69	1
Yes	1 (0. 2%)	1 (100%) p= 0. 003	991037. 49 (0. 0000- 6. 350E+90)
Agoraphobic panic disorder			
No	590 (98. 3%)	57 (9. 7%) x^2= 17. 27	1
Yes	10 (1. 7%)	5 (50. 0%) p= 0. 000	7. 0921 (1. 3072- 38. 4772)
Obsessive- compulsive disorder			
No	570 (95. 0%)	59 (10. 4%) x^2=0. 00	1
Yes	30 (5. 0%)	3 (10. 0%) p= 0. 951	0. 2682 (0. 0643- 1. 1187)
Specific phobia			
No	552 (92. 0%)	52 (9. 4%) x^2=6. 21	1
Yes	48 (8. 0%)	10 (20. 8%) p= 0. 013	3. 6544 (1. 3985- 9. 5489)
Generalised anxiety disorder not otherwise specified	585 (97. 5%)	62 (16. 0%) x^2=1. 77	1
No	15 (2. 5%)	0 (0. 0%) p= 0. 183	0. 0006 (0. 0000- 4. 517E+16)
Yes			

x^2= Chi square test; t= independent Student's t test;
OR= odds ratio; CI= confidecence interval.

Tablo 4. Sociodemographic characteristics of the participants that attempted suicide and the associated risk factors, according to results of logistic regression analysis.

	n (%)	Attempted Suicide n (%)	OR (95% Cl)
Gender			
Female	336 (56. 0%)	24 (7. 1%) x^2= 14. 54	1
Male	264 (44. 0%)	2 (0. 8%) p= 0. 000	0. 0905 (0. 0176- 0. 4657)
Marital status			
Single	84 (14. 0%)	4 (4. 8%)	1
Religious marriage	5 (0. 8%)	1 (20. 0%)	21. 3357 (0. 6353- 716. 5123)
Official marriage	468 (78. 0%)	20 (4. 3%)	1. 6513 (0. 2574- 10. 5931)
Divorced	12 (2. 0%)	1 (8. 3%) x^2= 1. 67	0. 7173 (0. 0505- 10. 1941)
Widowed	31 (5. 2%)	0 (0. 0%) p= 0. 435	0. 0002 (0. 0000- 1. 186E+31)
The number of children			
0	113 (18. 8%)	8 (7. 1%)	1
1	96 (16. 0%)	6 (6. 3%)	0. 5232 (0. 0933- 2. 9339)
2	193 (32. 2%)	9 (4. 7%)	0. 5573 (0. 1072- 2. 8964)
3	126 (21. 0%)	1 (0. 8%) t=2. 04	0. 0415 (0. 0031- 0. 5630)
4	72 (12. 0%)	2 (2. 8%) p=0. 042	0. 2070 (0. 0266- 1. 6087)
Trauma History			
No	500 (83. 3%)	17 (3. 4%) x^2= 6. 30	1
Yes	100 (16. 7%)	9 (9. 0%) p= 0. 012	2. 7276 (0. 9199- 8. 0877)
Family history of attempted suicide			
No	561 (93. 5%)	20 (3. 6%) x^2=12. 29	1
Yes	39 (6. 5%)	6 (15. 4%) p= 0. 000	5. 7167 (1. 6371- 19. 9623)
Major depressive disorder			
No	378 (63. 0%)	5 (1. 3%) x^2=22. 34	1
Yes	222 (37. 0%)	21 (9. 5%) p= 0. 000	13. 7977 (3. 4466- 55. 2356)
Dysthymia			
No	564 (94. 0%)	26 (4. 6%) x^2=1. 74	1
Yes	36 (6. 0%)	0 (0. 0%) p= 0. 188	0. 0001 (0. 000 - 1. 116E+28)
Social phobia			
No	577 (96. 2%)	26 (4. 5%) x^2= 1. 08	1
Yes	23 (3. 8%)	0 (0. 0%) p= 0. 298	0. 0002 (0. 000- 2. 088E+37)
Generalized anxiety disorder			
No	552 (92. 0%)	19 (3. 4%) x^2= 13. 22	1
Yes	48 (8. 0%)	7 (14. 6%) p= 0. 000	2. 9665 (0. 9845- 8. 9387)

x^2= Chi square test; t= independent Student's t test;
OR= odds ratio; CI= confidence interval

moving motor vehicle: 7. 7% (n= 2); cutting the wrists and asphyxiation via natural gas: 7. 7% (n= 2).

Logistic regression analysis was performed with attempted suicide as the dependent variable, and gender, marital status, number of children, history of trauma, family history of attempted suicide, major depressive disorder, dysthymia, social phobia and generalized anxiety disorder were the predicting variables. The results showed that female gender, family history of attempted suicide, major depressive disorder, depressive disorder not otherwise specified, and generalized anxiety disorder were associated with an increase in attempted suicide whereas having 3 children decreased it significantly.

DISCUSSION

In the present epidemiological study, death and suicidal ideation were assessed according to the 4 categories reported by Neeleman and Renberg, who reported that death ideation ranges from mild to severe. Renberg reported that 11. 5- 22. 3% of individuals thought that thinking life was not worth living, 8. 2% wished they were dead, and 3. 9%- 13% had a suicide plan (Renberg 2001; Neeleman 2004). In a similar community- based study Dennis et al. (2007) reported that the prevalance of thinking life is not worth living was 6%, and that its relationship with depression was stronger in the elderly than in the young. A follow- up study by Bebbington et al. (2010) that included 8580 individuals in England reported that 20. 3% thought life is not worth living, which

was defined as tedium vitae and 1 of 6 individuals had death and suicidal ideation. Thinking I wish I was dead was noted in 15. 3% of the participants versus thinking to end his/her own life in 14. 8%, and the former thought was suggested as less serious. In the present study 27. 5% of the participants thought life is not worth living, 23. 0% wished they were dead, 10. 3% thought to end his/her own life, and %2. 3 had a suicide plan. It is interesting that the prevalence of all death ideations are higher except for attempted suicide with similar distributions that higher prevalences may be attributed to socioeconomic and especially cultural factors in Turkey, e.g. widespread complaints expresssed in statements such as, I would be saved from all these troubles if I died.

Various field studies on the lifelong prevalence of attempted suicide reported that its prevalence is 720-5930/100,000 individuals (Welch 2001). A multicenter study performed in Turkey in colloboration with European countries during a 4-year period reported that the rate of attempted suicide was lower than that in Europe, but between 1998- 2001 it increased by %93. 59, which is a striking change (Devrimci and Sayıl 2003). A national comorbidity study carried out in the US reported that the lifelong prevalence was 4. 6% (Kessler et al. 1999). Another multi-center study involving 9 countries reported that the prevalance of attempted suicide was found 3%- 5% (Weissmann et al. 1999). A study from England that included 8580 participants reported that 4. 4% were determined to attempt suicide at some point. (Bebbington 2010). A field study performed in Manisa, Turkey reported that the prevalance of suicidal ideation was 6. 6% versus 2. 3% for attempted suicide (Deveci et al. 2005). An epidemiological study conducted in Sivas, Turkey reported that the lifelong prevalance of attempted suicide together with having a suicide plan was 3.58%, and that the prevalence of attempted suicide was 1. 3% based on assessments made using a suicidal behavior scale (Polatöz et al. 2011). In the present study, the lifelong prevalance of attempted suicide was 4. 3%, which is inagreement with the literature in general, but is higher than the rate observed in Manisa and Sivas. In the present study both death ideations and attempted suicide were more common in women than men, which supports the idea that, in women, suicidal behavior is most associated with seeking for help rather than intention of dying (Mc Clure 1984; Hawton 1987; Kesler 1999; Sayıl 2000).

It has been reported that completed suicide in Europe and the US occurs most commonly in those aged >75 years (Prasko et al. 2010), versus in women aged 15- 29 years and men aged 25-49 years in Turkey (TUIK 2009). In Turkey attempted suicide occurs most commonly among those aged 15- 24 years and 25- 34 years, which is similar to completed suicide (Koçal et al. 1994; Sayıl et al. 1997). In the present study, all death ideations and attempted suicide were common in those age 18- 24 years and 25- 34 years when anxiety about future is high, and professional and familial problems are experienced frequently.

Drug overdose, which is the most commonly used method reported in the literature, was also the most common method in the present study (73. 1%) (Goldstein et al. 1991; Bille-Brahe et al. 1997). It has been predicted that in large families and in the presence of adequate social support, the risk of suicide decreases (Nordentoft 2007). Accordingly, in the present study death ideations and attempted suicide rates among the participants from large families with 3 or more children were lower. Many studies reported that there is a relationship between stress and attempted suicide (Deveci et al. 2005; Katarina et al. 2004; Özdel et al. 2009). In addition, it is known that individuals with low- level impulse control have difficulty finding alternative solutions to problems and attempt suicide impulsively without actually wanting to die (Foster 1999; Mann 1999). In the present study, it was determined that almost all of the individuals attempted suicide experienced stress prior to the attempt, of which the most common problem were related to family and relationships among women and to family and work among men.

Many studies reported that there is a tendency for familial inheritance of suicidal behavior and twin and adoption studies have highlighted the importance of familial susceptibility (Brent et al. 1987; Bradley et al. 2004; Pedersen and Fiske 2010). Goodwin et al. (2004) reported that this relationship is especially strong in the presence of comorbid psychiatric disease. In the present study, death ideations were more common among those with a family history of attempted suicide. Moreover, logistic regresssion analysis showed that among those with a family history of attempted suicide, the rate of attempted suicide was 5- fold higher.

There is an important relationship between suicidal behavior and psychological disorders (Nordentoft 2007; Lee et al. 2010). It was reported that 90%- 95% of individuals that exhibit suicidal behavior have at least one psychological disorder (Sayıl 2002). The psychological disorder that accompanies suicidal behavior most frequently is major depressive disorder (Kessler et al. 1999; Welch 2001). A study on adolescents performed in Turkey reported that depression and low self- esteem are independent predictive factors for suicidial ideation and attempted suicide in boys and girls (Eskin et al. 2007). In agreement with these finding, in the present study major depressive disorder increased the frequency of death ideations and attempted suicide 13- fold, whereas the relationship with other affective disorders was not significant due to the limited number of such cases.

Some studies reported that anxiety disorders increase the risk of suicide (Weissman et al. 1989; Sareen et al. 2005), whereas Chioqeta and Stiles (2007) reported that there wasn't a significant relationship. In the present study, panic disorder with

agoraphobia was associated with an increase in all death ideations, and generalised anxiety disorder was associated with a 3- fold higher attempted suicide rate. Nevertheless, it should be kept in mind that comorbidity with other psychological disorders, especially major depressive disorder may be a factor in the comorbidity of anxiety and suicide. The lifelong prevalence of death ideations and attempted suicide in the present study was %27. 5 and %4. 3 respectively, with higher rates in young adults and women. All of the participants that had attempted suicide experienced some form of stress prior to the attempt. Being a parent was associated with lower rates of death ideations and attempted suicide whereas a family history of attempted suicide increased the rates. Moreover, the frequency of death ideations and attempted suicide was higher among those in the study with major depressive disorder. Generalized anxiety disorder was significantly more common in those that attempted suicide, and panic disorder and a specific phobia were associated with death ideations.

To the best of our knowledge, the present study is the most comprehensive study on death ideations and suicide conducted in Turkey; however, it does have some limitations that make interpretation of sociodemographic and sociocultural variables difficult. For example, in a region defined as low socioeconomic level, there may have been individuals from other socioeconomic levels. In addition, the fact that this study was conducted at daytime affected the ratio of women to men participating.

In conclusion, the present study examined the prevalance of different types of death ideations and attempted suicide, and epidemiologically evaluated some of the risk factors. The similarity between the risk factors for attempted suicide and death ideations, and the similarity between the protective factors are noteworthy, which supports the notion that death ideations and expressions regarding suicide may be parts of the process in suicidal behavior. Additional research is necessary to further clarify which factors lead to more serious intentions of dying, and studies on death ideation and attempted suicide will facilitate the identification of the protective factors and risk factors.

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