Suicide probability in university students

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ABSTRACT

Purpose: This study was conducted to determine the probability of suicide in university students and the related factors.

Materials and methods: The sample group consisted of 1015 university students who received formal education in the faculties and high schools. The participants were administered a Personal Information Questionnaire and the Suicide Probability Scale (SPS).

Results: 24.2% of the students were normal with respect to suicide probability, 66.2% were at slight risk, 9.1% at moderate risk and 0.5% at high risk. The mean score of the SPS was 32.50±12.31. A statistically significant difference was found in the mean SPS scores of the students in relation to the variables of age, gender, department, willingness to study in that department, family type, income status, accommodation and physical self-harm. The suicide probability levels also showed a significant difference with respect to the variables of department, willingness to study in that department, family type, income status, accommodation and physical self-harm.

Conclusions: We recommend that it should be the first priority of the student advisors and Psychological Counseling and Guidance units to support the students who are at risk in terms of suicide probability.

Key words: Young, suicide probability, university, student, risk factors

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INTRODUCTION

Suicide, which has become an important public health issue in human life, has significant effects not only on the individual but also on their associates and the community in which they live [1]. For this reason, it should be evaluated multi-dimensionally and dealt with meticulously.

It is stated in the list named "Five Problems in Preventing Suicides" that was prepared by the World Health Organization (WHO) that suicide was one of the top three causes of death among people aged between 15 and 34 years and the second leading cause of death among people aged between 10 and 24 years. As per the data in the list, the rate of suicide worldwide is 16 in one hundred thousand on the average [2]. The highest rate of suicide in the world is seen in Lithuania with 95.3 in a hundred thousand, followed by Russia with 87.4. In America, 30.000 people lose their lives every year due to suicide. The rate of suicide was found to be 10.7 in a hundred thousand in America as per 2001 data and this was reported to be the eleventh cause of death [3-5].

According to the data of the State Statistics Institute, the incidences of suicide differ from region to region in Turkey, increasing when going from east to west with higher rates in larger cities. Looking at the age groups of those who lost their lives due to suicide, we see that the highest figures belong to the young population in Turkey as is the case worldwide. According to the data of the Turkish Statistics Agency, suicides in our country are concentrated in the 15-24 and 25-34 age intervals [6].

Considering the problems experienced by the youth studying at universities, it is important to identify the probability of suicide to structure protective and preventive mental health services to be planned for students [1,7,8]. Garlow et al. [9] reported in their study that suicide probability was 11.1% in university students. Mackenzie et al. [10] identified suicide ideation in 10% of female and 13% of male university students. In Turkey, Gürkan and Dirik [11] found in their study with university students that 10.91% of the students had suicide ideation. Therefore, there is a lot to do for the agencies and institutions serving in the field of healthcare. As important members of healthcare teams, nurses should very well assess the groups at risk in the community and play an effective role in the prevention, early diagnosis and treatment of suicidal behavior [12]. While the risk factors will be reduced when nurses assume an effective role in preventive works, it will also be possible to encourage young people in taking heed of healthy behaviors when the protective factors are fortified.

Studies in the literature have reported that suicide ideation is associated with depression and hopelessness [9,13].

Much work is currently underway to elucidate the relationships between adverse life events, psychopathology, substance use, bullying, internet use, and youth suicidal behavior. Recent evidence also suggests sex-specific and moderating roles of gender in influencing risk for suicide [14-16]. It has been concluded that deficient problem-solving skills, impulsiveness, anger, weak family relations, loneliness, hopelessness, and lack of joy in life are the factors that increase suicide probability [17-21]. Skills in coping with stress, using social support as a way of coping, having the habit of healthy living, and physical activities and sports have been found to reduce suicide probability [11,22-24]. Ceyhun and Ceyhun [25] have also investigated in their study suicide probability in high school and university students. The results obtained in the study may provide important information at an institutional level on suicide probability of the youth and the related factors. It will also provide important contributions to nurses in identification of suicide risk in young individuals for early intervention. For this reason, the study was carried out to determine suicide probability in university students and the related factors.

The research questions were:

1. How is the suicide probability of university students?
2. What are the factors influencing the suicide probability in university students?

MATERIALS AND METHODS

Design and participants

The population of the study consisted of 11.499 university students who studied at the faculties and high schools of Mersin University between February and March 2011, a period including the spring semester of the 2010-2011 academic year.

The study sample comprised 1015 university students who studied at these schools, who had not been diagnosed with a mental illness previously, who did not have any chronic disease, whose general health conditions allowed the completion of the questionnaires to be used for collecting the study data and who agreed to take part in the study. Permission could not be obtained for the study from Tarsus Technical Education Faculty and Foreign Languages High School; therefore, students studying in these school could not be included in the sample. The sample group was established using the stratified random sampling method and the sample size was determined with the help of the Med-Calc 11.2.1 package program.

Data collection

The study data were collected using a 29-item "Personal Information Questionnaire" for the descriptive information of students and the "Suicide Probability Scale" for measuring their suicide probability levels.

The Personal Information Questionnaire was developed by the investigator after a search through the literature and it included questions on the socio-demographic, academic, family, social and personal characteristics of adolescents.

The "Suicide Probability Scale", which was developed by Cull and Gill (1990) to measure suicide probability in adolescents and adults who have risk of suicide attempt, is a 4-point Likert-type scale consisting of 36 items, each of which are scored from 1 to 4. The scale was tested for reliability and validity by Tuğcu in 1996 and by Atlı, Eskin and Dereboy in 2009. It comprises 4 subscales; hopelessness with 12 items, suicide ideation with 8 items, hostility with 7 items and negative self-evaluation with 9 items. The scoring involves giving weights from 0 to 5 to each choice of an item. The highest score obtainable from the scale is 144 and the lowest is 36. A high score obtained from the scale is directly proportional to suicide probability, showing that suicide risk is also high. The alpha coefficient is 0.85 for the scale and between 0.74 and 0.79 for the subscales. Its test-retest reliability is 0.98 [26]. In this study the alpha value of the scale is 0.84.

Within the knowledge of the institution managers, the data collection instruments were administered after holding a meeting with the students in the sample group to explain the purpose and method of the study as well as the questionnaire and scale to be used in the study. The data were collected by six people, an investigator and five surveyors. The surveyors were 3rd grade students of the Health High School. Prior to the collection of data, the investigator gave a 3-hour training to the surveyors about the study objective, characteristics of the sample group, inclusion criteria, data collecting instruments and duration of the procedure. The training involved explanations and question-answer technique. The investigator supervised the surveyors throughout the data collecting process.

Data analysis

Normality controls of continuous measurements tested with Shapiro-Wilk test and it has been found to show a normal distribution. The Pearson Chi-Square test was used in comparing the qualitative data. Statistical methods (frequency, percentage, mean and standard deviation) were used to evaluate the study data, the independent samples *t*-test was used for comparing quantitative data, the One Way Anova test for intergroup comparisons when more than two groups were involved and the Bonferroni and LSD tests for identifying the group that caused the difference. The results were assessed with a 95% two-sided confidence interval and at $p<0.05$ significance level.

Ethical considerations

An ethics committee (Mersin University Clinical Studies Ethics Committee) approval and the necessary institutional permissions have been obtained. Participation was voluntary and no identifying information has been used.

Limitations

This research utilized a cross-sectional design. Thus, causality cannot be interpreted from these results. Second, all data were collected based on self-report measures. Thus, the data may be influenced by individuals' subjective responses. Additionally the university students in this study are not the representative the whole of Turkish university students.

RESULTS

It was found that 68.8% of the students were in the 21-25 age group, 51% of them were male, 88.1% were single, 11.9% were economically independent of their families and 65.6% had a moderate level of income (Table 1).

Table 1. Socio-demographic characteristics of students

Characteristics	n	%
Age		
17-20	275	27.1
21-25	698	68.8
26-30	42	4.1
Gender		
Female	497	49
Male	518	51
Marital status		
Married	121	11.9
Single	894	88.1
Economically independent of the family		
Yes	121	11.9
No	894	88.1
Income status		
Good	251	24.7
Moderate	666	65.6
Poor	98	9.7

According to the Suicide Probability Scale (SPS), 24.2% of the students were normal with respect to suicide probability, 66.2% were at slight risk, 9.1% at moderate risk and 0.5% at high risk

(Table 2). The mean score of the Suicide Probability Scale was calculated as 32.50±12.31.

Table 2. Students' suicide probability levels

Suicide Probability Levels	**n**	**%**
Normal	246	24.2
Slight risk	672	66.2
Moderate risk	92	9.1
High risk	5	0.5
Total	1015	100

A significant difference was found in the SPS scores with respect to the variable age (p=0.048). The mean suicide probability scores were highest in the 26-30 age group (35.7±13.2) and this was followed by the students in the 17-20 age group (33.4±11.8). As a result complementary LSD post-hoc analysis conducted to determine the sources of differences; SPS scores of students in the 21-25 age group were lower than those of students in the 26-30 age group (p=0.04).

However, no significant difference was seen in the variable age in terms of suicide probability levels (p=0.056) (Table 3).

Table 3. Suicide probability scores of students with respect to their socio-demographic and educational characteristics

Characteristics	**SPS**	**Normal**		**Slight risk**		**Moderate or high risk**		*p*
		n	**%*****	**n**	**%*****	**n**	**%*****	
Age								
17-20	33.4±11.8	54	19.6	194	70.5	27	9.8	0.056
21-25	31.9±12.3	183	26.2	453	64.9	62	8.9	
26-30	35.7±13.2	9	21.4	25	59.5	8	19.5	
p	0.048*							
Gender								
Female	33.4±11.9	110	21.1	332	66.8	55	11.1	0.125
Male	31.5±12.4	136	26.3	340	65.6	42	8.1	
p	0.011*							
Department								
Health Sciences	30.2±9.7	40	27.0	104	70.3	4	2.7	0.002**
Arts	34.5±11.9	17	17.5	67	69.1	13	13.4	
Technical Sciences	33.9±13.6	52	19.8	179	68.1	32	12.2	
Educational Sciences	30.2±11.6	52	34.9	85	57.0	12	8.1	
Social Sciences	32.7±12.1	85	23.7	237	66.2	36	10.1	
p	0.002**							
Studying in the department willingly								
Yes	31.2±11.3	190	26.1	486	66.7	53	7.3	0.001*
No	35.6±13.7	56	19.6	186	65.0	44	15.4	
p	0.001*							

*p<0.05, **p<0.01, ***Line percentages were obtained from totals for each category

There was a significant difference in the mean SPS scores when they were evaluated with respect to the variable gender (p=0.011). The mean SPS scores of female students (33.4±11.9) were higher than the mean scores of male students (31.5±12.4). However, no significant difference was found with respect to suicide probability levels (p=0.125) (Table 3).

A statistically significant difference was found in the mean SPS scores with respect to the variable department (p=0.002). When the results were evaluated, the mean SPS scores of the students studying in the Arts Department (faculty of communication, state conservatory, high school for jewelry designing, faculty of architecture and faculty of fine arts) were found the highest (34.5±11.9), which was followed by the students studying in the

Technical Sciences Department (engineering, water products, Erdemli technical school, Silifke technical school and, tourism and hotel management high school) (33.9±13.6) and those in the Social Sciences Department (collage of science and literature, faculty of economics) (32.7±12.1). As a result complementary post-hoc Bonferroni analysis conducted to determine the sources of differences; SPS scores of students studying in technical sciences department were higher than those of students studying in educational and health sciences department (p=0.03). The suicide probability levels showed a significant difference with respect to the department in which the students were studying (p=0.002). It was found that 13.4% of the students studying in the Arts Department, 12.2% of those studying in the Technical Sciences and 10.1% of those studying in the Social Sciences had moderate to high suicide risk (Table 3).

There was a statistically significant difference in the mean SPS scores with respect to the variable willingness to study in that department (p=0.001). The mean suicide probability scores of the students who stated that they did not study in their department willingly were the highest (35.6±13.7) (Table 3). Similarly, their suicide probability levels also showed a significant difference (p=0.001). 15.4% of the students who stated that they did not study in their department willingly were found to be at moderate to high suicide risk (Table 3).

A statistically significant difference was found in the mean SPS scores of the students and their suicide probability levels with respect to the variable family type (p=0.001). The mean SPS scores of the students classified as other (those who had no parents and stayed with their relatives or in a social service institution) were the highest (40.7±17.2) and this was followed by the students who had broad-type families (35.0±12.8).

As a result complementary post-hoc Bonferroni analysis conducted to determine the sources of differences; SPS scores of students family types are “other” were higher than those of students with nuclear and single parent family type (p=0.003). 26.1% of the students classified as other (those who had no parents and stayed with their relatives or in a social service institution) and 15.7% of the students who lived with broad families were at moderate to high risk of suicide (Table 4).

Table 4. Suicide probability scale scores of students with respect to their family types and income statuses

Characteristics	**SPS**	**Normal**		**Slight Risk**		**Moderate or high risk**		***P***
		n	**%*****	**n**	**%*****	**n**	**%*****	
Family Type								
Nuclear	32.0±11.6	185	24.0	526	68.1	61	7.9	0.001**
Broad	35.0±12.8	15	16.9	60	67.4	14	15.7	
Single Parent	31.9±13.4	42	32.1	73	55.7	16	12.2	
Other	40.7±17.2	4	17.4	13	56.5	6	26.1	
p	0.001**							
Income Status								
Good	30.7±11.7	74	29.5	156	62.2	21	8.4	0.033*
Moderate	32.7±12.3	159	23.9	441	66.2	66	9.9	
Poor	35.2±12.1	13	13.3	75	76.5	10	10.2	
p	0.007**							

*p<0.05, **p<0.01, ***Line percentages were obtained from totals for each category

There was a statistically significant difference in the mean SPS scores of the students and their suicide probability levels with respect to the variable income status (p=0.007, p=0.033). The students who stated their income status as “poor” had the highest mean SPS score (35.2±12.1). As a result complementary post-hoc Bonferroni analysis conducted to determine the sources of differences; SPS scores of students who have a good level of income were lower than those of students with poor income (p=0.007). 76.5% of the students who stated their income status as “poor” were at a slight risk of suicide and 10.2% of them at moderate to high risk of suicide (Table 4).

Table 5. Suicide Probability Scale Scores of Students with respect to their Social and Personal Characteristics

Characteristics	**SPS**	**Normal**		**Slight Risk**		**Moderate or high risk**		***p***
		n	**%*****	**n**	**%*****	**n**	**%*****	
Accommodation								
Home	32.4±11.9	126	24.5	344	66.8	45	8.7	0.002**
State dormitory	34.6±11.7	23	13.5	130	76.5	17	10.0	
Private dormitory	32.3±12.5	43	25.6	109	64.9	16	9.5	
Family	29.7±13.2	49	36.3	71	52.6	15	11.1	
Other	34.2±10.8	5	18.5	18	66.7	4	14.8	
p	0.013*							
Engagement in any social activity								
Yes	32.4±11.7	88	21.9	280	69.8	33	8.2	0.137
No	32.5±12.5	158	25.7	392	63.8	64	10.4	
p	0.885							
Physical self-harm								
Yes	37.7±14.4	33	16.1	132	64.4	40	19.5	0.001**
No	31.1±11.2	213	26.3	540	66.7	57	7.0	
p	0.001**							

*p<0.05, **p<0.01, ***Line percentages were obtained from totals for each category

There was a statistically significant difference in the mean SPS scores of the students with respect to their accommodation (p=0.013). Those who stayed in state dormitories had the highest mean SPS scores (34.6±11.7).

As a result complementary post-hoc Bonferroni analysis conducted to determine the sources of differences; students staying with family were lower than those of students staying in the private dormitory (p=0.01).

The suicide probability levels also showed a significant difference with respect to the accommodations of the students (p=0.002). 14.8% of the students who stayed in other places (youth hostels, with relatives, social service facilities, etc.) were at moderate to high risk of suicide (Table 5).

No statistically significant difference was found in the mean SPS scores of the students and their suicide probability levels with respect to engagement in a social activity (p=0.885, p=0.137).

A statistically significant difference was found in the mean SPS scores with respect to physical self-harm (nail-biting, hair pulling, etc.) (p=0.001).

The students who stated that they harmed themselves physically had the highest mean suicide probability scores (37.7±14.4).

Similarly, the suicide probability levels showed a significant difference (p=0.001). 19.5% of the students who stated that they harmed themselves physically were at moderate to high risk of suicide (Table 5).

DISCUSSION

The mean SPS score was calculated as 32.50±12.31 in this study. In the studies where suicide probability in university students was assessed using a similar measurement instrument, the mean SPS score was 65.43±12.03 [16], 67.29±11.51 [21] 70.54±9.6 [23] and 59.51 [25]. In the study carried out by Uğurlu and Ona [22] with the students of Health High School, the mean SPS score was found to be 68.78±20.48. In the study of Tuğcu [27] the mean SPS score was found to be 70.67 in healthy adults. In the study made by Hisli Şahin et al. [18] with public employees, the mean SPS score was found to be 77.88±12.88. In the study of Atlı et al. [26] the mean SPS score was found to be 60.86±11.13 in healthy individuals. The suicide probability in students was found quite lower in the present study than in the other studies. We think this difference in the results originated from age groups, education levels and regional differences.

A significant difference was found in the mean SPS scores with respect to age groups. The 26-30 age group was found to have the highest mean SPS scores and this was followed by the students in the 17-20 age group. There are also studies that are similar to the present study reporting that there is a relationship between age and suicide probability [19,23]. We think that the students in the 26-30 age group try to struggle with negative factors such as decreased financial support from their families, expectations of their families, increased

responsibilities (i.e. marriage and having children), economic needs, worries about finding a job and tiredness and exhaustion caused by a prolonged education process. We also think that the students in the 17-20 age group try to overcome a number of problems such as being a university student, having an occupation and having ideals to plan for their future and their efforts to adapt to a new school, a new city and a foreign environment. All these problems may lead to emergence of various problems including interpersonal conflicts in many young people in the first or last year of their university life, many neurotic tendencies, risky health behaviors and suicide probability.

There was a statistically significant difference in the present study in the mean SPS scores of the students with respect to their gender. The mean SPS scores of female students were higher than those of male students. Similar studies report that suicide ideation or probability do not show a difference with respect to gender [11,21]. Contrary to the present study, some other studies have found that suicide probability is higher in males than females [19,22,25]. This difference in the results may be because students coming from regions with different cultural values formed the sample group. Higher suicide probability in female students may suggest that female students have more sources of stress. The roles and responsibilities assumed by women in the society in Turkey and the expectations of their families and community can lead to an emotional load in female students [28].

A statistically significant difference was also found in the mean SPS scores and suicide probability levels with respect to the variable department. The highest suicide probability was in the students studying in the Arts Department and this was followed by the students studying in the Technical Sciences and Social Sciences departments. The students studying in Health Sciences and Education Sciences had the lowest suicide probability. Studying at a university is expected to have, for a young individual, meanings such as critical thinking, analytical reasoning, problem solving, and access to universal information, gaining vision, learning how information is built and developing the culture. The reasons for the students in Turkey to receive university education include having an occupation and a job, gaining economic-social freedom and having a diploma [29]. Gizir [30] investigated in their study the breakdown of occupation-related worries of students by their faculties. According to this, the students of the Faculty of Sciences and Literature experienced anxiety with respect to "failing to find a job", the students of the Faculty of Architecture with respect to "failing to find an appropriate job in financial terms" and the students of the Faculty of Economics and Administrative Sciences with respect to "failing to find a job in their profession" (38.5%) and with respect to "not knowing what to do after graduation" (7.5%). We think that those students who have anxiety about their profession may experience hopelessness and depression, and this can increase their tendency to commit suicide.

We found in the present study that the students who did not study in their departments willingly had a higher suicide probability. When a student is pleased with the department where he/she studies, this may be helpful for the student in having positive views about his/herself and his/her future and protecting his/her psychological health. However, family demands and surrounding factors rather than the individual's talents have become the determinant factor in occupational guidance in our country [31] In the study of Uğurlu and Ona [22], the students who said that "they would leave the department if they had the choice" had the highest level of suicide probability. This is similar to the results we obtained in our study.

We found that the suicide probability of the students who did not have parents was significantly high. In order for students to have basic confidence and a healthy personality, they need unconditional love. Being deprived of parents who would give such love and support may increase the suicide probability of the young individual. Uğurlu and Ona [22] reported in their study that whether or not the mother was alive made a significant difference in the student's mean SPS scores. This supports the results of the present study.

The students who stayed in a state dormitory, hostel, relative house or social services facility and who stated that their income status was "poor" had significantly higher suicide probability. Students have some needs such as adequate sleep, rest, studying, establishing communication, security, hygiene and personal care. A student should have the appropriate conditions to meet these needs in the place he/she stays. Family support and financial income are important for a student to have a healthy shelter. Şahin et al. [8] found in their study that the major problem of university students was economic problems and being unable to meet their basic needs.

No statistically significant difference was found in the mean SPS scores of the students and their suicide probability levels with respect to engagement in a social activity. Taliaferro et al. [24] found in their study that physical activity and sporting reduced the suicide risk in the youth. The difference in the results may have originated from individual and cultural differences and study populations. We think that the contribution of an activity to a student's mental and physical health is as important as the event itself as named by the student as a social activity.

The students who stated that they had previously given physical harm to themselves had higher risk of suicide probability. When a university

student gives physical self-harm, this may be a sign of the anxiety, hopelessness, tension, frustration and even despair experienced by him/her. All these emotions can lead to suicide ideation in the young individual.

Similar to our results, it is reported in the literature that those who have the behavior of physical self-harm are more prone to suicide [32,33].

CONCLUSIONS

We found in this study that more than a half of the students were in the slight-risk group with respect to suicide probability. The 26-30 age group, females, those studying in Arts department, those who stated that they studied in their department unwillingly, those who had no parents, those who stayed with their relatives or in state dormitories and social service facilities, those with poor income status and those who reported physical self-harm had the highest mean suicide probability scores. Those studying in Arts department, those who stated that they studied in their department unwillingly, those who had no parents, those who stayed with their relatives or in hostels and social service facilities and those who reported physical self-harm were found to be at moderate to high suicide risk.

In view of these results;

- Since the students who studied in their department unwillingly in the first and last years of their university life, those who had no parents, those who stayed with their relatives or in state dormitories or social service facilities, those who reported physical self-harm, those who have low family income and especially female students have a high level of suicide probability, the students who carry these risks should be supported as a priority group by their advisors and the Psychological Counseling and Guidance units.
- Periodical screenings should be carried out to closely monitor the health conditions of university students.
- Students with low income should be informed about scholarship, loan and part-time job opportunities.
- Secure, clean and economical dormitory environments where students can shelter should be increased.
- Training or elective courses should be provided to students about crisis and fighting with a crisis, depression and methods to cope with it, developing problem-solving skills, self-knowledge and communication, and related subjects and the outcomes of these should be evaluated.
- Studies involving large sample groups should be carried out in universities to explore psychosocial aspects of students.

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