

# The Magnitude of Loneliness and Associated Risk Factors among University Students: A Cross-Sectional Study

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## Abstract

**Objective:** Nowadays, loneliness is one of the foremost common issues among university students that may negatively affect their physical and mental states and academic performance. Accordingly, this research project intended to investigate the incidence of loneliness and its related risk factors among students studying at universities of medical sciences.

**Method:** The participants in this cross-sectional study were 538 Tabriz University of Medical Sciences students, selected using a simple random sampling method. Loneliness was measured using the UCLA Loneliness questionnaire with 20 questions. Descriptive statistics, multiple logistic regression, and Chi-square were used to identify factors affecting loneliness.

**Results:** The results showed that the mean loneliness score and the magnitude of the students' loneliness were 41.42 and 26.4%, respectively. The magnitude of loneliness was higher among female respondents (OR = 1.86, P = 0.005), cigarette smokers (OR = 0.39, P < 0.001), freshman students (OR = 2.76, P = 0.021), sophomore students (OR = 2.36, P = 0.040), those with low financial status (OR = 1.80, P = 0.037), and those residing in dormitories (OR = 1.73, P = 0.013).

**Conclusion:** In general, loneliness was widespread among the students. Based on the findings, the magnitude of loneliness was higher among the first-year student group, female students, students with poor economic status, and those who smoked and lived in dormitories. Therefore, this study's findings underline the significance of making students aware of loneliness, investigating the circumstances and factors that exacerbate this sensation among first-year students (mainly between 18-21 years old), and devising intervention to alleviate it.

**Key words:** Iran; Loneliness; Risk Factors; Students; University

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Various social transitions occur throughout different stages of life. One's move from high school to university is considered an essential incident in late adolescence and is associated with social and structural alterations affecting routines, relationships, roles, and assumptions (1). As university students' individualization and independence in the new role increase, they increasingly make independent decisions. Although this situation may provide them with many opportunities, it can be dangerous to let them be alone and feel lonely in a new environment (1, 2). Loneliness is referred to as a condition in which an individual experiences a mental defect in social relationships qualitatively and quantitatively (3). Loneliness can occur throughout a person's life, although it is more likely to happen in situations such as the prolonged absence from one's home or the loss of an important person in life (4).

Evidence indicates that loneliness is related to various negative mental health consequences. Related studies demonstrate that loneliness is connected to many negative issues such as hopelessness, depression, suicidal behavior, ineffective social skills, low sleep quality, reduced positive emotions and general health, as well as physiological changes (5-7). Moreover, loneliness was linked to low levels of resilience and life satisfaction, especially in men (8). Loneliness is associated with poor health behaviors (9). Life quality is adversely influenced in individuals with loneliness (10), which persuades adolescents to consume hazardous materials including Marijuana (11). Lonely individuals have a higher chance of being cigarette smokers, especially in societies where it is socially acceptable (12). According to a study in China, loneliness leads to poor quality of life and increases the rate of mortality (13).

Although loneliness may be experienced by all age groups, it is more common among university students (6). Previous studies reported that the prevalence of loneliness varies among the students in different settings. For example, findings of a study reported that 60.2% of students of the Ankara University experienced loneliness, and the necessity of social interaction, romantic relationships, and economic support contributed to students' loneliness (14). The findings of another research in Ethiopia showed that loneliness in university students had a 45.5% prevalence, and the year of study was significantly related to loneliness (15).

Diehl *et al.* reported that loneliness was widespread among the university students of Germany and 32.4 and 3.2% of them felt moderately and severely lonely, respectively (1). Based on the findings of a study in Iran, the prevalence of severe loneliness was 31.6%, where gender was a predictor (16).

Previous research into loneliness among university students has revealed that loneliness is associated with residence in low or middle-income countries, family wealth (17), and year of the study (15, 16), gender (16,

18), mental distress, academic performance (19), and the necessity of romantic relationships, social interactions, and economic support (20). Given the cultural differences among countries, one may not readily generalize these findings to students of Iranian universities.

Many university students find the transfer from senior high school to university level to be extremely difficult. College students are more prone to feel lonely owing to the difficulty adjusting to new situations and creating new social contacts, as well as being removed from close relationships. Thus, loneliness among university students deserves special research attention. Therefore, to tackle this knowledge gap, the current study intended to evaluate how prevalent loneliness is and what the related risk factors are among university students of medical sciences.

## Materials and Methods

A cross-sectional survey was carried out at Tabriz University of Medical Sciences, Tabriz, Iran.

### Study population

The study population included students studying at Tabriz University of Medical Sciences.

### Eligibility criteria

Inclusion criteria

All full-time students at the university (bachelor students of dentistry and pharmacy, and medical students).

### Exclusion criteria

1. Students in clinical fields;
2. Students who provided no informed consent form for participation in the study or incompletely responded to the questionnaire.

### Sample size determination

The required sample size was computed to be 558 students with a power analysis conducted using a significance level of 0.05, a 0.95 confidence interval, a 0.04 effect size, and a 0.95 ability to indicate the population. The smallest required sample that was computed was 580, by the addition of 5% (the expected non-response rate). Using the proportionate sample approach, we picked at most two classes in each faculty at random. All students in the chosen classes ( $n = 580$ ) were requested to partake in the study; 24 students refused, leaving 556 students to complete the questionnaires. Eighteen questionnaires had missing information and were discarded, leaving 538 for analysis (response rate: 92.8 percent).

### Measures

A reliable and validated questionnaire was utilized for data collection, consisting of two sections. The first section collected demographic characteristics, while the second section was the revised version of the University of California Los Angeles Loneliness scale (UCLA-R) that was utilized to gather data regarding the subjective feelings of loneliness (20). This measure has nine positive and 11 negative items scored on a 1-4 scale (1 =

never and 4 = always). The overall score runs from 20 to 80, with a higher number indicating greater loneliness. The cutoff point for loneliness was computed using the mean, and loneliness was defined as a total score of 42 or above (out of 80) (15). Russell *et al.* reported the reliability of the test to be 89% through retesting (21). The validity of the Loneliness scale has already been reported by Alaviani *et al.* (16). The Cronbach's alpha value in this investigation was determined as 0.98.

**Data collection**

In the current study, the simple random sampling method was used to select students from colleges, and the data were collected from 558 students attending Tabriz University from September to December 2019. Questionnaires were returned by the students after one week.

**Ethical considerations**

The Research Ethics Committee, affiliated with Tabriz University of Medical Sciences, granted approval to this study (identifier: IR.TBZMED.REC.1398.673). Participation in the study was completely optional. After obtaining written consent, participants were assured of data confidentiality and anonymity.

**Data analysis**

IBM SPSS-23 was used to analyze the obtained data. Descriptive analysis was conducted to obtain the frequencies, percentages, means, and standard deviations (SD) of the baseline characteristics of the sample and the items of loneliness. The Chi-square test was employed to compare lonely and non-lonely students in terms of the baseline characteristics. In addition, the link between the influencing factors (independent variables) and loneliness (the dependent variable) was examined using

univariate and multivariate logistic regression. Variables with p-values smaller than 0.2 were included in the logistic regression model. The model findings were interpreted at a 5% significance level.

**Results**

**Description of sample characteristics**

In general, 538 students participated in this study, considering a response rate of 92.8%. Of this number, 301 (59.9%) students were females. A fraction of the samples (n = 282, 52.4%) aged below 21 years, and the mean age amounted to 22.2 years (SD = 2.9). Only 10.4% of students were married, and most students (68.7%) lived with their families. Overall, 24.3% of the respondents reported cigarette smoking in the past or present. Additionally, 48.1% of students reported their economic situation to be at a good level, and 38.1% of them studied in the faculty of medicine (Table 1).

Table 2 displays loneliness-associated factors among the study participants. The prevalence of loneliness among female students was 1.86 times higher than among male students (OR = 1.86, P = 0.005). The extent of loneliness was higher in those individuals who had the experience of cigarette smoking either in the past or the present (OR = 0.39, P < 0.001). First- and second-year students were lonelier than fourth-year students and above (OR = 2.76, P = 0.021; OR = 2.36, P = 0.040, respectively). Students with poor financial status felt lonelier than students with good financial status (OR = 1.80, P = 0.037). Furthermore, the prevalence of loneliness among dormitory residents was 1.72 times higher compared to those living with their family (OR = 1.73, P = 0.013).

**Table 1. The Distribution of Loneliness According to the Demographic Characteristics (n = 538)**

Factors	Frequency (n)	Percentage (%)	Loneliness Status		P-value
			Lonely	Not Lonely	
Gender					
Male	237	44.1	56 (23.6)	181 (76.4)	0.116
Female	301	55.9	86 (28.6)	215 (71.4)	
Age (years)					
21 and lower	256	47.6	73 (28.6)	182 (71.4)	0.145
22 and above	282	52.4	69 (24.4)	214 (75.6)	
Marital status					
Single	482	89.6	130(27.0)	352 (73.0)	0.236
Married	56	10.4	12 (21.4)	44 (78.6)	
Residence					
With family	370	68.7	77 (21.9)	274 (78.1)	0.001
Dormitory	168	31.3	65 (34.8)	122 (65.2)	
Year of study					
First	112	20.8	17 (20.2)	67 (79.8)	0.031
Second	256	47.6	38 (33.9)	74 (66.1)	
Third	86	16.0	72 (28.1)	184 (71.9)	

Fourth and above	84	15.6	15 (17.4)	71 (82.6)	
Experience of cigarette smoking					
Yes	131	24.3	91 (22.4)	316 (77.6)	< 0.001
No	407	75.7	51 (38.9)	80 (61.1)	
Economic situation					
Bad	88	16.4	67 (25.9)	192 (74.1)	0.001
Middle	191	35.5	39 (20.4)	152 (79.6)	
Good	259	48.1	36 (40.9)	52 (59.1)	
Current faculty of study					
Medicine	205	38.1	59 (28.8)	146 (71.2)	0.549
Dentistry	96	17.8	22 (22.9)	74 (77.1)	
Pharmacy	55	10.2	18 (32.7)	37 (67.3)	
Nursing and midwifery	60	11.2	14 (23.8)	46 (76.7)	
health and Nutrition	122	22.7	29 (23.8)	93 (76.2)	

**Table 2. The Results of Uni- and Multivariate Logistic Regression Models of Loneliness-Related Factors among Study Participants**

Factors	Category	Univariate model		Multivariate model	
		OR (95% CI)	P-value	OR (95% CI)	P-value
Age	18-21	1		1	0.203
	22 and above	0.80 (0.55 – 1.18)	0.256	1.39 (0.84 - 2.29)	
Gender	Male	1	0.197	1	0.005
	Female	1.29 (0.88 – 1.91)		1.86 (1.20 - 2.87)	
Current year	Fourth and above	1		1	0.031
	First	2.02 (1.05 – 3.92)	0.036	2.76 (1.16 – 6.16)	0.021
	Second	1.54 (0.85 – 2.80)	0.156	2.36 (1.03 – 3.98)	0.040
	Third	0.83 (0.39 – 1.80)	0.641	0.97 (0.43 – 2.62)	0.940
Experience of cigarette smoking	No	1	< 0.001	1	< 0.001
	Yes	0.45 (0.30 – 0.69)		0.39 (0.24 – 0.65)	
Economic situation	Good	1		1	0.005
	Poor	1.98 (1.19 – 3.30)	0.008	1.80 (1.04 – 3.13)	0.037
	Middle	0.74 ( 0.47 – 1.15 )	0.179	0.68 (0.43 – 1.09)	0.113
Residence	With family	1	0.001	1	0.013
	Dormitory	1.90 (1.28 – 2.81)		1.73 (1.12 - 2.68)	

Note. CI: Confidence interval; OR: Odds ratio; Nagelkerke R-square = 0.125.

### Discussion

The current study sought to investigate the incidence of loneliness among university students and associated risk factors. The rate of loneliness was 26.4% among the students based on the results of the present study.

The shift from high school to university frequently leads to excessive stress for the majority of students. Students repeatedly encounter different interpersonal, social, and academic demands in a new university environment, each of which can definitely generate stressful circumstances for the majority of cases, resulting in particular problems in adjustment (22). Alaviani *et al.* reported that 18.0% of Iranian university students

experienced loneliness (16). Our findings report a lower percentage than the two reports about university students in Ethiopia and Turkey, representing 49.5% and 60.2% of loneliness, respectively (14, 15). In the study conducted by Kiliñç *et al.*, high rates of loneliness were found in 58.3% of participants (2). In contrast, the results of the present study demonstrated a higher incidence of loneliness in comparison with the two studies in Germany, reporting 10.5% (18) and 10.2% loneliness rates (23). Such discrepancy may be related to sample size, participants, and cultural, economic, and social variations.

The findings of the current study indicated that loneliness was more common among female than male students, which is compatible with Alaviani *et al.*'s findings (16). Women report lower amounts of self-esteem than men, which can be the cause of more loneliness in the female group. However, some studies reported that loneliness is more common among male students than females (24, 25), which contradicts our findings. Gender differences in the sense of loneliness are because men, considering their more dominant manly role, do not tend to express their emotions; therefore, they do not reveal their loneliness as much as women (14). This disparity can be due to sample size discrepancies and/or variances in cultural and social variables.

The results showed that loneliness decreases by the increase in the year of study. This means that the higher the year is, the lower the feeling of loneliness will be. This finding is compatible with findings from other studies conducted in Iran and Ethiopia, showing that students feel less lonely as they go through the semesters (15, 16). According to research findings from Ethiopia, first-year students had problems adjusting themselves to the new environment (26). The research performed at the University of Washington by English *et al.* supported these findings and indicated that attending universities increases the students' potential to experience loneliness (27). The high incidence of loneliness among first-year students is probably because of their short-term residence at the university to adapt to the new environment. For this reason, it is necessary for university managers to provide some kind of recreational activities and programs for freshmen.

Moreover, our study results demonstrated that the magnitude of loneliness was higher among students reporting cigarette smoking in the past or present compared to non-smokers. This conforms with the findings of a Chinese investigation, revealing a positive and direct relationship between smoking and loneliness among first-year students (28). Furthermore, the findings of another study showed that smokers feel lonely more than non-smokers (29). People smoke cigarettes to escape from the feeling of loneliness, especially in societies where smoking is socially acceptable. It is unlikely that the social benefits of smoking reduce the risk of students' feeling of loneliness. These results indicated that smoking is affected by a set of psychological factors. Therefore, prevention and treatment plans might be able to reduce students' smoking rates by targeting these factors.

It was found that participants with poor economic status reported 1.81 times higher amounts of loneliness compared to those with a good financial situation. Considering that poverty is regarded as a determinative factor of loneliness (30, 31), this finding is significant. Kilinc *et al.* reported similar findings in this regard (2). In addition, the results of a study conducted in Turkey among university students revealed that participants

reporting the need for economic support represented higher rates of loneliness (32).

Eventually, our study results showed that students living in dormitories experience further loneliness compared to those who live with their families. This could be because of students' separation from their families, the unfamiliar environment, and confrontation with new people in the dormitory. This contradicts the findings of Kilinc *et al.*, suggesting that students who lived with their families felt lonelier than others (2). Consequently, the youths of western countries are exposed to different degrees of autonomy and are taught to be able to support themselves and become independent. Therefore, beginning one's studies with changes in domicile and the relationships with family members can bring about many benefits. However, they can also pose risks: being alone in a new setting (for example, a new city) and not knowing anyone can contribute to loneliness.

### Limitation

There are a few limitations to keep in mind when analyzing the results. This study used a cross-sectional design to examine the magnitude of loneliness among the students at a specific time. This kind of design does not check the longitudinal changes of loneliness. Therefore, longitudinal studies are required to study social-psychological factors among university students. A self-report questionnaire was used to obtain the data. Social desirability can alter the accuracy of the replies in all self-report surveys, mainly because the participants in this study were pursuing a degree in a health-related field. Participants were given privacy to complete the questions and were informed of the survey's anonymity to reduce this sort of bias. Lastly, because our research was conducted among students of Tabriz University of Medical Sciences, caution should be made when extending these findings to other universities in Iran and beyond.

### Conclusion

The findings give insight into university students' feelings of loneliness. In summary, the present study's findings revealed that 26% of students were lonely. The magnitude of loneliness was higher among first-year students, females, students with poor economic status, those reporting cigarette smoking in the past or present, and those living in dormitories. Therefore, university managers should interfere and seek to decrease the magnitude of loneliness among students. They might try to create cultural and recreational activities. They should also avoid loneliness and enhance students' health by encouraging students to engage actively in these activities, improving student counseling centers, and providing welfare facilities in dorms, because students are the country's future workforce and specialists. Since many teenagers in a cohort pursue a university education, and because the move from high school to

university is a big life event in and of itself, additional study is needed to dig deeper into this issue.

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### Conflict of Interest

The authors declare that they have no conflict of interest.

### References

1. Diehl K, Jansen C, Ishchanova K, Hilger-Kolb J. Loneliness at Universities: Determinants of Emotional and Social Loneliness among Students. *Int J Environ Res Public Health*. 2018;15(9):1865.
2. Kılınç G, Aylaz R, Güneş G, Harmancı P. The relationship between depression and loneliness levels of the students at the faculty of health sciences and the factors affecting them. *Perspect Psychiatr Care*. 2020;56(2):431-8.
3. de Jong-Gierveld J. Developing and testing a model of loneliness. *J Pers Soc Psychol*. 1987;53(1):119-28.
4. Sawir E, Marginson S, Deumert A, Nyland C, Ramia G. Loneliness and international students: An Australian study. *J Stud Int Educ*. 2008;12(2):148-80.
5. Majd Ara E, Talepasand S, Rezaei AM. A Structural Model of Depression Based on Interpersonal Relationships: The Mediating Role of Coping Strategies and Loneliness. *Noro Psikiyatı Ars*. 2017;54(2):125-30.
6. Kılıç M, Karakuş Ö. The study of the relationships between social appearance anxiety, self-esteem and loneliness level among university students. *Üniversite öğrencilerinin sosyal görünüş kaygıları ile benlik saygıları ve yalnızlık düzeyleri arasındaki ilişkinin incelenmesi*. *J. Hum. Sci*. 2016;13(3):3837-52.
7. Erzen E, Çikrikci Ö. The effect of loneliness on depression: A meta-analysis. *Int J Soc Psychiatry*. 2018;64(5):427-35.
8. Zebhauser A, Hofmann-Xu L, Baumert J, Häfner S, Lacruz ME, Emeny RT, et al. How much does it hurt to be lonely? Mental and physical differences between older men and women in the KORA-Age Study. *Int J Geriatr Psychiatry*. 2014;29(3):245-52.
9. Wootton RE, Greenstone HSR, Abdellaoui A, Denys D, Verweij KJH, Munafò MR, et al. Bidirectional effects between loneliness, smoking and alcohol use: evidence from a Mendelian randomization study. *Addiction*. 2021;116(2):400-6.
10. Świtaj P, Grygiel P, Chrostek A, Wciórka J, Anczewska M. Investigating the roles of loneliness and clinician- and self-rated depressive symptoms in predicting the subjective quality of life among people with psychosis. *Soc Psychiatry Psychiatr Epidemiol*. 2018;53(2):183-93.
11. Stickley A, Koyanagi A, Kuposov R, Schwab-Stone M, Ruchkin V. Loneliness and health risk behaviours among Russian and U.S. adolescents: a cross-sectional study. *BMC Public Health*. 2014;14:366.
12. DeWall CN, Pond Jr RS. Loneliness and smoking: The costs of the desire to reconnect. *Self Identity*. 2011;10(3):375-85.
13. Gerst-Emerson K, Jayawardhana J. Loneliness as a public health issue: the impact of loneliness on health care utilization among older adults. *Am J Public Health*. 2015;105(5):1013-9.
14. Ozdemir U, Tuncay T. Correlates of loneliness among university students. *Child Adolesc Psychiatry Ment Health*. 2008;2(1):29.
15. Dagne B, Dagne H. Year of study as predictor of loneliness among students of University of Gondar. *BMC Res Notes*. 2019;12(1):240.
16. Alaviani M, Parvan R, Karimi F, Safiri S, Mahdavi N. Prevalence of loneliness and associated factors among Iranian College students during 2015. *J. Arch. Mil. Med*. 2017;5(1):1-5.
17. Peltzer K, Pengpid S. Loneliness: Its correlates and associations with health risk behaviours among university students in 25 countries. *J Psychol Afr*. 2017;27(3):247-55.
18. Beutel ME, Klein EM, Brähler E, Reiner I, Jünger C, Michal M, et al. Loneliness in the general population: prevalence, determinants and relations to mental health. *BMC Psychiatry*. 2017;17(1):97.
19. Stoliker BE, Lafreniere KD. The influence of perceived stress, loneliness, and learning burnout on university students' educational experience. *Coll. Stud. J*. 2015;49(1):146-60.
20. Russell D, Peplau LA, Ferguson ML. Developing a measure of loneliness. *J Pers Assess*. 1978;42(3):290-4.
21. Russell D, Peplau LA, Cutrona CE. The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. *J Pers Soc Psychol*. 1980;39(3):472-80.
22. Sadoughi M, Hesampour F. Relationship between social support and loneliness and academic adjustment among university students. *Int J Acad Res Psychol*. 2016;3(2):1-8.
23. Menec VH, Newall NE, Mackenzie CS, Shooshtari S, Nowicki S. Examining individual and geographic factors associated with social isolation and loneliness using Canadian Longitudinal Study on Aging (CLSA) data. *PLoS One*. 2019;14(2):e0211143.
24. Fujimori A, Hayashi H, Fujiwara Y, Matsusaka T. Influences of attachment style, family functions and gender differences on loneliness in Japanese university students. *Psychology*. 2017;8(4):654-62.
25. Nazzal FI, Cruz O, Neto F. Psychological predictors of loneliness among Palestinian

- university students in the West Bank. *Transcult Psychiatry*. 2020;57(5):688-97.
26. Belay Ababu G, Belete Yigzaw A, Dinku Besene Y, Getinet Alemu W. Prevalence of Adjustment Problem and Its Predictors among First-Year Undergraduate Students in Ethiopian University: A Cross-Sectional Institution Based Study. *Psychiatry J*. 2018;2018:5919743.
  27. English T, Davis J, Wei M, Gross JJ. Homesickness and adjustment across the first year of college: A longitudinal study. *Emotion*. 2017;17(1):1-5.
  28. Zhang CL, Xu YM, Zhong BL. The association between smoking and loneliness among Chinese university freshmen. *Ann Transl Med*. 2020;8(10):649.
  29. Habibi M, Hosseini F, Darharaj M, Moghadamzadeh A, Radfar F, Ghaffari Y. Attachment Style, Perceived Loneliness, and Psychological Well-Being in Smoking and Non-Smoking University Students. *J Psychol*. 2018;152(4):226-36.
  30. Refaeli T, Achdut N. Perceived poverty, perceived income adequacy and loneliness in Israeli young adults: Are social capital and neighbourhood capital resilience factors? *Health Soc Care Community*. 2022;30(2):668-84.
  31. Sahin Kiralp FS, Serin NB. A Study of Students' Loneliness Levels and Their Attachment Styles. *J Educ Train Stud*. 2017;5(7):37-45.
  32. Ozdemir U, Tuncay T. Correlates of loneliness among university students. *Child Adolesc Psychiatry Ment Health*. 2008;2(1):29.