Associations of State and Trait Loneliness with Gender and Psychosocial Factors in Undergraduates

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Abstract

Loneliness influences well-being and academic performance of undergraduates. This study investigates how gender and loneliness measures associate with psychosocial factors. A weak positive association between state and trait loneliness is hypothesized with men exhibiting higher trait loneliness than women, and trait loneliness more closely linked with psychosocial factors. Participants were 239 undergraduates from Turkey. Trait loneliness (UCLA Loneliness Scale) and state loneliness (single-item) were measured separately. Psychosocial factors were depressive symptoms, social support, self-esteem and life satisfaction. Results showed a weak positive correlation between state and trait loneliness that is stronger in women, with men exhibiting higher trait loneliness. Psychosocial factors had significant correlations with loneliness that were stronger for trait loneliness. Results are important for developing specialized education and intervention programs for undergraduates.

Keywords: Loneliness, gender differences, depression, life satisfaction, social support, self-esteem

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Introduction

Loneliness is individuals' subjective dissatisfaction from the quality and quantity of their social relationships (Peplau & Perlman, 1982). Various research from different fields associated loneliness as a risk factor for lifelong physical and mental health problems (Hawkley & Cacioppo, 2010). While loneliness is influenced by genetic factors as shown by twin studies (Bartels, Cacioppo, Hudziak, & Boomsma, 2008; Boomsma, Willemsen, Dolan, Hawkley, & Cacioppo, 2005), there are various demographic and psychosocial factors that associate with loneliness (Cacioppo et al., 2006). For instance, studies report associations between loneliness and social isolation, depression, self-esteem, life satisfaction and social support that may change by age and gender (Cacioppo et al., 2006; Matthews et al., 2016). Apart from these, recent studies also indicate that these associations, as well as the health implications of loneliness, may depend on whether it is state or trait (Nicolaisen & Thorsen, 2014; van Roekel et al.,

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2018). Furthermore, as explained by the differential reactivity hypothesis, trait loneliness may influence state loneliness at different contexts (van Roekel et al., 2018). Considering these findings, in this study with undergraduates from Turkey, we investigate a) the relationships between state and trait loneliness, b) their associations with the aforementioned psychosocial factors, and c) how these associations change by gender.

Research with different populations revealed differences in loneliness by demographic factors, such as age and gender. Both cross-sectional and longitudinal studies around the world emphasized the varying percentages of loneliness across the lifespan. Some of these studies suggested the highest incidence of loneliness in early adulthood that decreases with age, while others reported a U-shaped relationship with young and very old adults being the loneliest (Barreto et al., 2020; Lasgaard, Friis, & Shevlin, 2016; Luhmann & Hawkley, 2016; Schultz & Moore, 1988; Victor & Yang, 2012). According to a large study with more than sixteen thousand people living in Germany, Luhmann and Hawkley (2016) reported the highest loneliness in young adults (age < 30) and elderly (age > 80) through a 3-item scale. Similarly, in a sample from United Kingdom, Victor & Yang (2012) reported the loneliest individuals to be younger than 25 and older than 55 years of age by utilizing a single self-report item. Another study from Norway with over fourteen thousand individuals aged 18 to 81 measured loneliness by two scales: a direct single-item self-report, and a standardized scale with multiple items. Their results showed that when asked directly with a single-item, the loneliest individuals were younger than 30 and older than 65 years of age. On the other hand, using a standardized trait-like scale with less direct items, loneliness increased with age (Nicolaisen & Thorsen, 2014). While no studies from Turkey yet investigated loneliness across a large range of age, there are reports of health implications in young adults and elderly with loneliness (Duru, 2008; Erol, Sezer, Şişman, & Öztürk, 2016). Considering these findings, many studies on loneliness focus on undergraduate populations as a risk group and investigate the influence of demographic, psychosocial, and measurement-related factors on loneliness and its health and academic performance (Diehl et al., 2018; Ponzetti, 1990; Stoliker & Lafreniere, 2015). Since there are over seven million undergraduates in Turkey (YÖK, 2020), understanding these relationships in undergraduates from Turkey becomes crucial.

Another factor that is associated with young adults' differences in loneliness is gender. Studies on this topic show conflicting findings, with some reporting higher loneliness in men, whereas others report higher loneliness in women or no difference by gender. In relation to this, some researchers proposed that the measurement of loneliness might be one of the causes of this discrepancy, particularly in young adults (Borys & Perlman, 1985; de Jong Gierveld, van Tilburg, & Dykstra, 2006; Nicolaisen & Thorsen, 2014). They suggested that since loneliness is often portrayed as an undesired experience that may be subject to social stigma, together with the influence of gender norms, asking about it directly or indirectly matters. In relation to this, findings may differ by whether loneliness is measured as state or trait. Direct measures often ask state loneliness with a single item, such as "How lonely do you feel?", while indirect measures assess trait loneliness by multiple items, such as the widely used UCLA Loneliness Scale (Russell, Peplau, & Ferguson, 1978). In this respect, studies with trait loneliness measures showed higher loneliness in young men than women (de Jong

Gierveld & van Tilburg, 2010; Henninger IV, Eshbaugh, Osbeck, & Madigan, 2016; Nicolaisen & Thorsen, 2014), although conflicting studies exist (Lee & Goldstein, 2016; Pinquart & Sörensen, 2003). While majority of the studies with undergraduates from Turkey reported similar findings (Demir, 1990; Özkaya, 2017; Yıldırım, Aşılar, Karakurt, Çapık, & Kasımoğlu, 2018), some reported no differences in trait loneliness (Buluş, 1997; Çeçen, 2008b; Duru, 2008). Therefore, the findings on gender differences in trait loneliness of undergraduates is not yet consistent. In contrast to findings for trait loneliness, with respect to state loneliness commonly questioned directly with a single item, several studies, including those with young adults, report women being lonelier than men (Luhmann & Hawkley, 2016; Nicolaisen & Thorsen, 2014; Victor & Yang, 2012). There are yet no studies in Turkey with similar measures of state loneliness. Due to the discrepancies in findings between trait and state loneliness, a study assessed both state (via a direct single-item question) and trait (via an indirect multiple-item questionnaire) loneliness in the same population, showing higher trait loneliness in men and state loneliness in women (Nicolaisen & Thorsen, 2014). These findings altogether suggest the importance of using both types of loneliness measures in future studies.

Apart from the role of gender differences, a recent study with early and late adolescents suggested that considering both trait and state loneliness are important to explain how being lonely is reflected into loneliness levels in daily life. Considering the differential reactivity hypothesis, researchers suggested that individuals with higher trait loneliness may exhibit differential state loneliness depending on contextual factors, such as the day of the week, time of the day and being alone or not, when compared to those with lower trait loneliness (van Roekel et al., 2018). Their results indeed indicated that high lonely individuals reported higher state loneliness in some contexts compared to low lonely individuals. These findings further support the need for measuring trait and state loneliness together with a consideration of contextual factors. In this study, we further examined how these two measures of loneliness is associated with psychosocial factors and whether these associations differ by gender.

The psychosocial factors most closely associated with loneliness are depressive symptoms and perceived social support. Many studies around the globe reported strong positive associations between loneliness and depression (e.g., Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Mahon, Yarcheski, Yarcheski, Cannella, & Hanks, 2006; Richardson, Elliott, & Roberts, 2017; Victor & Yang, 2012;). In studies with undergraduates from Turkey, two studies reported strong positive associations between the two constructs (Ceyhan & Ceyhan, 2011; Özdemir & Tatar, 2019), while one study reported a weak positive association (Yıldırım et al., 2018). In contrast to depressive symptoms, perceived social support is associated with lower loneliness. Majority of research on this topic utilized the Multidimensional Scale of Perceived Social Support that has the subscales of support of family, friends and significant other. While these studies reported negative associations between social support and loneliness, (Cacioppo et al., 2006; Henninger IV et al., 2016, Lee & Goldstein, 2016; Mahon et al., 2006; Peltzer & Pengpid, 2017; Sadoughi & Hesampour, 2017), there is evidence that the significance of subscales may differ in undergraduates. For instance, perceived social support of friends is shown to have the highest associations with loneliness in undergraduates (Henninger IV et al., 2016, Lee & Goldstein, 2016). Furthermore, Lee & Goldstein (2016) showed that when controlling for social support of friends and

significant other, social support of family becomes nonsignificant in undergraduates. Moreover, Henninger IV et al. (2016) noted that for undergraduates, social support of family may be positively associated with loneliness. On the other hand, these relationships are influenced by gender, such that women's loneliness is suggested to be more dependent on support of family and friends than men's. Similar findings are reported in research from Turkey (Duru, 2008, 2016; Özdemir & Tatar, 2019; Yıldız & Karadaş, 2017; Yılmaz, Yılmaz, & Karaca, 2008). For instance, Özdemir and Tatar (2019), reported negative associations between loneliness and all subscales of social support in undergraduates, with the highest associations for social support of friends. Duru (2008) and Yılmaz et al. (2008) also showed the highest association with the friends subscale. In contrast, Oktan (2015) did not find a significant association between loneliness and perceived social support. These studies underline the importance of associations between loneliness and social support in undergraduates that may change by gender. Two other psychosocial factors investigated in relation to loneliness are life satisfaction and self-esteem. Previous studies report negative associations of both factors with loneliness (Cacioppo et al., 2006; Mahon et al., 2006; Ye & Lin, 2015). Similar findings were reported in studies with undergraduates from Turkey with self-esteem (Güloğlu & Karaırmak, 2010; Kılıç & Karakuş, 2016; Yıldız & Karadaş, 2017; Yöyen, 2017) and life satisfaction (Çeçen, 2008a; Özkaya, 2017; Tuzgöl Dost, 2007; Yıldız & Karadaş, 2017). While these findings emphasize the associations between loneliness and psychosocial factors, majority of these studies utilized trait loneliness measures.

Considering the studies from different population around the world, it is seen that the relationship between loneliness and psychosocial factors may change according to gender and by whether it is state or trait loneliness. While the influence of gender is more frequently investigated in this respect, very few studies utilized trait and state loneliness measures simultaneously and lacked information on how they associate with psychosocial factors separately. Due to lack of such studies, together with lack of studies from Turkey using state loneliness measures, this study examines the associations of both state and trait loneliness with psychosocial factors, taking into account the role of gender. Firstly, a weak but positive association between state and trait loneliness is hypothesized, with men having higher trait loneliness than women and women reporting higher state loneliness than men. Secondly, loneliness measures are expected to show positive associations with depressive symptoms and negative associations with self-esteem, life satisfaction and perceived social support. Finally, these relationships are hypothesized to be stronger for trait loneliness compared to state loneliness.

Method

Participants

Participants were 18-29 years old undergraduate students ($N = 239$, $M_{Age} = 20.49$, $SD_{Age} = 1.73$, 49% female) registered at Introduction to Psychology course at Bogazici University, Istanbul, Turkey. Participants were invited to the study by flyers posted on the department board and received course credits for compensation. Data collection was

completed across 3 semesters before the COVID-19 pandemic and some data are available 143 participants if measures were added later on. Participant numbers for each measure is given together with related results.

Measures

For demographic factors, age, gender, maternal and paternal education, source and amount of personal income was measured. In addition, participants reported if they were diagnosed with any ongoing psychological disorders. Trait loneliness was measured by UCLA Loneliness Scale (Russell et al., 1978). This scale has 10 positively- and 10 negatively-framed items, such as "I have nobody to talk to" and "My social relationships are superficial". Items are rated from 1: I never feel this way to 4: I often feel this way and total scores range from 20 to 80. Higher scores indicate higher trait loneliness. The scale is widely used in undergraduates, including those from Turkey. Turkish translation showed high validity and reliability (1990). Cronbach alpha in this study was .92. State loneliness was measured by a single-item asking how lonely participants feel on two separate weekdays (N = 143). The item was rated from 1: Very little to 7: Very much, with higher ratings indicating higher state loneliness.

Psychosocial factors investigated in relation to loneliness were depressive symptoms, self-esteem, life satisfaction and perceived social support. Recent depressive symptoms were measured by Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). BDI-II assesses 21 depressive symptoms like "Sadness" and "Loss of Pleasure" and total scores range from 21 to 63. Turkish translation of the scale has good validity and reliability and has been tested in undergraduate populations frequently (Canel-Çınarbaş, Cui, & Lauridsen, 2011; Kapci, Uslu, Turkcapar, & Karaoglan, 2008). Cronbach alpha in this study was .89.

Self-esteem was measured by 10 items in the Rosenberg Self-Esteem Scale (Rosenberg, 1965). It includes items like “I am able to do things as well as most other people” and “On the whole, I am satisfied with myself”. In the Turkish version, items are rated from 0: Strongly disagree to 3: Strongly agree (Çuhadaroğlu, 1986). Total scores range from 0 to 30, with higher scores indicating higher self-esteem. Cronbach alpha in this study was .76.

Life satisfaction was measured with Satisfaction With Life Scale that has 5 items like "I am satisfied with my life" and "In most ways my life is close to my ideal" (Diener, Emmons, Larsen, & Griffin, 1985). Items are rated from 1: Strongly disagree to 7: Strongly agree. Total scores range from 5 to 35 with higher scores indicating higher life satisfaction. Turkish version has good validity and reliability and has been used widely in undergraduates (Durak, Senol-Durak, & Gençöz, 2010). Cronbach alpha in this study was .82.

For the assessment of perceived social support, participants (N = 147) completed the 12-item Multidimensional Scale of Perceived Social Support that consists of family, friends and significant other subscales besides the total score (Zimet, Dahlem, Zimet, & Farley, 1988). It consists of items like "My friends really try to help me", "My family is willing to help me make decisions" and "There is a special person in my life who cares about my feelings". The items are rated from 1: Very strongly disagree to 7: Very strongly agree. Total scores range from 12 to 84, with subscale scores ranging

from 4 to 28, with higher scores indicating higher perceived social support. The scale has been used in undergraduates from Turkey and has good validity and reliability (Eker & Arkar, 1995). Cronbach alpha in this study was .85.

Procedure

This study was part of a larger study approved by Human Research Ethics Committee of Bogazici University. Participants were invited to the computer lab and verbal and written consents were obtained. All measures were collected in this session, except state loneliness, which was measured on two separate weekdays after the lab sessions. Debriefing forms were e-mailed to participants at the end of the study.

Data Analysis

IBM SPSS version 25 was used in data analysis. Differences by gender were investigated by t-tests or chi-square tests. Associations between loneliness and demographic and psychosocial factors were examined by Pearson correlations and multiple linear regressions. Power analysis (G-Power software) for correlations and regressions indicated a minimum of 0.80 power with small effects and multiple testing. For all analyses, alpha level is considered as 0.05.

Results

Descriptive Statistics

Descriptive statistics of the participants are summarized in Table 1. There were no significant differences in age, maternal and paternal education by gender. Primary income of undergraduates came from family and scholarships, with average personal income reported as 501-750 TL. In general, males reported higher income, with having 1001 TL or more income more frequently than females, whereas females more frequently reported 251-500 TL income ($p < .01$).

Table 1

Demographic Characteristics of the Participants

Demographics	*n*	*%*
Gender	239	
Women	117	49%
Men	122	51%
Maternal education		
Primary school or less	72	30.2%
Middle to high school	84	35.2%
University or more	83	34.7%
Paternal education		
Primary school or less	26	10.9%
Middle to high school	85	35.5%
University or more	128	53.5%
Source of personal income		
Family	85	35.6%
Scholarship	25	10.5%
Work	1	0.4%
Family & scholarship	88	36.8%
Family & work	15	6.3%
Scholarship & work	10	4.2%
Family, scholarship & work	15	6.3%
Personal income (TL)		
0-250	15	6.3%
251-500	53	22.2%
501-750	57	23.8%
751-1000	43	18.0%
1001-1500	38	15.9%
1501-2000	18	7.5%
2001 and more	12	5%

Descriptive statistics of psychosocial factors by gender were summarized in Table 2. According to BDI-II classification, 59%, 18%, 15% and 8% of the participants showed minimal, low, medium, and high levels of depressive symptoms. A small portion of participants (n = 11) reported experiencing psychological disorders, such as depression, anxiety and bipolar disorder. Females had higher total and subscale (family, friend, significant other) perceived social support scores than males ($p < .05$). They also exhibited a tendency for higher depressive symptoms compared to males ($p = .058$).

Table 2

Descriptive Statistics of Loneliness and Psychosocial Factors by Gender

Variable	Women			Men			
	M	*SD*	*Range*	*M*	*SD*	*Range*	*p*
Trait loneliness	41.29	10.55	21-71	46.79	11.63	24-78	***
State loneliness							
Day 1	2.62	1.75	1-7	2.68	1.63	1-7	
Day 2	2.35	1.61	1-7	2.37	1.43	1-6	
Days average	2.50	1.51	1-7	2.53	1.31	1-6.5	
Depressive symptoms	14.61	9.44	0-36	12.43	8.17	0-37	†
Life satisfaction	22.41	5.71	5-31	21.98	6.20	6-31	
Self-esteem	19.16	4.82	6-30	19.54	5.86	5-30	
Perceived social support							
Total	63.73	12.81	39-84	57.78	13.68	23-84	*
Family	23.63	4.46	11-28	20.97	5.48	8-28	**
Friends	23.71	3.89	15-28	21.74	5.81	8-28	*
Significant other	16.40	9.39	4-28	15.07	9.23	4-28	

Note. $^{\dagger}p < .1$, $^{*}p < .05$. $^{**}p < .01$, $^{***}p < .001$

State and trait loneliness

Descriptive statistics of state and trait loneliness by gender is summarized in Table 2. As expected, state loneliness across two days were very similar and showed a significant positive correlation (M_{Day1}= 2.66, SD_{Day1}= 1.66; M_{Day2}= 2.36, SD_{Day2} = 1.49; r = .52, p < .001). Therefore, average state loneliness (M_{Avg} = 2.52, SD_{Avg} = 1.37) is utilized in all subsequent analyses. No gender differences were observed in state loneliness. As expected, trait loneliness, as measured by UCLA Loneliness Scale, showed a weak but significant correlation with state loneliness (r = .35, p < .001). This relationship was stronger in females (r = .43, p < .01) than males (r = .32, p < .01). On the other hand, as hypothesized, males reported higher trait loneliness than females, $t(237)$ = 3.83, p < .001. Similar results were obtained when analyses were repeated without participants with psychological disorders. There were no significant correlations of state and trait loneliness with age, personal income and maternal and paternal education.

Loneliness and psychosocial factors

Investigating the relationships between loneliness and psychosocial factors, several significant results were obtained as expected (Table 3). As state and trait loneliness increased, depressive symptoms increased, whereas life satisfaction, self-esteem and perceived social support (with subscales) decreased. Trait loneliness of undergraduates was most strongly associated with perceived social support of friends (r = -.67), followed by total perceived social support (r = -.57), and life satisfaction (r = -.41). On

the other hand, state loneliness was most strongly associated with total perceived social support (r = -.31), followed by social support of friends (r = -.29), and depressive symptoms (r = .29). For all associations, trait loneliness was more strongly correlated with psychosocial factors than state loneliness. Constraining the analyses only to those participants with state loneliness measures available (N = 143) yielded similar results. The results remained the same, although weaker, when state loneliness was controlled for in associations between trait loneliness and psychosocial factors ($p < .05$).

Table 3

Pearson Correlations between Loneliness Measures and Psychosocial Factors

Variable	1	2	3	4	5	6	7	8	9
1. Trait loneliness	—								
2. State loneliness	.35***	—							
3. Depressive symptoms	.30***	.29***	—						
4. Life satisfaction	-.41***	-.21*	-.43***	—					
5. Self-esteem	-.37***	-.19*	-.58***	.50***	—				
6. MSPSS Total	-.57***	-.31***	-.31***	.32***	.35***	—			
7. MSPSS Family	-.39***	-.23**	-.28**	.43***	.33***	.54***	—		
8. MSPSS Friends	-.67***	-.29***	-.22**	.38***	.35***	.69***	.38***	—	
9. MSPSS Significant other	-.23**	-.16†	-.18*	.01	.13	.77***	.01	.23**	—

Note. MSPSS: Note. MSPSS: Multidimensional Scale of Perceived Social Support. †$p < .1$, *$p < .05$, **$p < .01$, ***$p < .001$.

Considering previous literature on loneliness and gender differences, the associations were investigated separately for males and females (Table 4). For trait loneliness, all associations were weaker for males compared to females, except for self-esteem and social support of friends. In particular, social support of significant others was only marginally significant (r = -.17, $p < .1$). For state loneliness, relationships with psychosocial factors were again weaker in males than females, with life satisfaction becoming marginally significant (r = -.18, $p < .1$) and self-esteem and social support of significant others becoming nonsignificant.

Table 4

Pearson Correlations between Loneliness Measures and Psychosocial Factors by Gender

	Women		Men		Total	
Variable	1	2	1	2	1	2
1. Trait loneliness	—		—		—	
2. State loneliness	.43**	—	.32**	—	.35***	—
3. Depressive symptoms	.36***	.42**	.32***	.21*	.30***	.29***
4. Life satisfaction	-.44***	-.28†	-.40***	-.18†	-.41***	-.21*
5. Self-esteem	-.37***	-.41**	-.40***	-.11	-.37***	-.19*
6. MSPSS Total	-.64***	-.45**	-.54***	-.25*	-.57***	-.31***
7. MSPSS Family	-.49***	-.25†	-.35***	-.23*	-.39***	-.23**
8. MSPSS Friends	-.64***	-.38**	-.68***	-.27**	-.67***	-.29***
9. MSPSS Significant other	-.38**	-.35†	-.17†	-.06	-.23**	-.16†

Note. MSPSS: Multidimensional Scale of Perceived Social Support. †$p < .1$, *$p < .05$, **$p < .01$, ***$p < .001$.

In order to examine how psychosocial factors (depressive symptoms, self-esteem, life satisfaction, perceived social support scales) predict trait loneliness, a multiple linear regression was conducted (Table 5). Results indicated a significant model ($F = 32.00$, $p < .001$) explaining 58% of variation in trait loneliness. Only depressive symptoms and social support of friends significantly predicted trait loneliness. As depressive symptoms increased and social support of friends decreased, trait loneliness increased. When investigated by gender, the model explained 66% of the variance in females and 55% of the variance in males. Both for males ($\beta = -.55$, $p < .001$) and females ($\beta = -.39$, $p < .001$), social support of friends remained significant. Including state loneliness in the model did not change the results.

Table 5

Regression Analysis of Psychosocial Measures Predicting Trait Loneliness

Variable	*B*	*SE*	*Beta*	*t*	*p*
Depressive symptoms	.243	.092	.184	2.645	**
Life satisfaction	-.171	.135	-.088	-1.264	
Self-esteem	-.299	.156	-.141	-1.917	
Friends support	-1.060	.133	-.513	-7.979	***
Family support	-.129	.132	-.062	-.978	
Significant other support	-.075	.068	-.064	-1.100	

Note. **$p < .01$, ***$p < .001$.

When the same regression was run for state loneliness, the model was significant ($F = 4.03$, $p < .001$), explaining 15% of the variance in state loneliness. As depressive symptoms increased ($\beta = .23$, $p < .05$) and social support of friends decreased ($\beta = -.19$, $p < .05$) state loneliness increased. Examined by gender, the model was significant and explained a much higher variance in females (29%) compared to males (12%, $p < .1$). None of the variables significantly predicted state loneliness. Similar results were obtained including trait loneliness in the model.

Discussion

The first aim of this study was to investigate how measures of state and trait loneliness are related in undergraduate students. As expected, there was a weak but positive association between the two, similar to the previously reported in adolescents and young adults (Nicolaisen & Thorsen, 2014; van Roekel et al., 2018). When the role of gender was examined, women showed a higher association between state and trait loneliness measures compared to men, suggesting women may be more comfortable than men in disclosing their loneliness when asked directly (Borys & Perlman, 1985; Nicolaisen & Thorsen, 2014). In terms of trait loneliness, average levels were similar to other studies from Turkey. Men reported higher loneliness than women, supporting the findings of many studies (Demir, 1990; de Jong Gierveld & van Tilburg, 2010; Henninger IV et al., 2016; Nicolaisen & Thorsen, 2014; Özkaya, 2017; Yıldırım et al., 2018), but not others (Buluş, 1997; Çeçen, 2008b; Duru, 2008; Lee & Goldstein, 2016; Pinquart & Sörensen, 2003). It is possible that these differences may relate to additional demographic and psychosocial factors, as well as the characteristics of locations influencing gender norms (Pinquart & Sörensen, 2003; van Roekel et al., 2018). In relation to state loneliness, no differences by gender were found, in line with some studies, but not others (Nicolaisen & Thorsen, 2014; Victor & Yang, 2012; Luhmann & Hawkley, 2016). Gender differences were not influenced by age or personal income. Apart from the direct and indirect questioning, researchers also suggested that the reason we observe gender differences in trait measures may be better due to their better capability in capturing the emotional and social aspects of loneliness (de Jong Gierveld & van Tilburg, 2010). It is proposed that one of the reasons for men having higher trait loneliness is due to the social aspect of loneliness, which is only revealed by trait measures. Together with previous research, findings of this study support the simultaneous use of trait and state loneliness measures in future studies, particularly with young adults.

When the relationship of trait and state loneliness with psychosocial factors was examined, expected associations were observed: as loneliness increased, depressive symptoms increased, while self-esteem, perceived social support and life satisfaction decreased. These associations led to three important findings. First of all, compared to state loneliness, psychosocial factors showed stronger correlations with trait loneliness. Similarly, regression analyses revealed a higher percentage of variance explained by psychosocial factors for trait loneliness and results remained the same controlling for state loneliness. The reasons behind this may be due to trait measures' ability to capture different aspects of loneliness (e.g., social, emotional), question loneliness in an indirect way (de Jong Gierveld & van Tilburg, 2010) and influence state loneliness depending on the context (van Roekel et al., 2018). In relation to this, the second important finding

is that almost in all analyses, women showed stronger associations between loneliness and psychosocial factors than men. In support of this, regression analyses revealed that psychosocial factors explained a higher variance in both state and trait loneliness in women compared to men. These findings may be due to previously reported hesitations of men in disclosing loneliness when asked directly, as well as gender differences in the relationship of loneliness with psychosocial factors (Gardner & Gabriel, 2004). Finally, similar to previous research in undergraduates (Henninger IV et al., 2016, Lee & Goldstein, 2016), for both state and trait loneliness, the strongest associations were observed with perceived social support of friends in men and women. Considering that the university education provides a new socialization environment apart from family, possessing satisfying peer relationships play an important role in the prevention of loneliness. Apart from social support, depressive symptoms showed significant associations with loneliness, in particular for state loneliness, suggesting its influence on recent mood (Peltzer & Pengpid, 2017).

The findings of this study from Turkey contributes to national and international literature by being one of the few studies in the world and the first in Turkey to utilize state and trait loneliness measures simultaneously in undergraduates and report their relationships with psychosocial factors by gender. The study has several strengths. Firstly, it is conducted in an undergraduate population originating from different cities of Turkey and vary in age, major, personal income and parental education. Secondly, trait and state loneliness measures are collected on different days that are close to each other, minimizing the effect of one on the other. Thirdly, considering recent research underlining the importance of data collection times and circumstances on loneliness (van Roekel et al., 2018), collecting state measures on two separate weekdays around the same times was a strength. Finally, since psychological disorders may interact with loneliness, controlling for this variable in analyses was important.

Apart from the strengths, the study has some limitations to mention. First of all, even though the undergraduates were from different cities in Turkey, they live in the metropolitan city of Istanbul. It is possible that the results in such cities may not be the same with smaller cities in terms of living conditions, social norms and relationships (Diehl et al., 2018). Therefore, it is of importance to conduct similar research in undergraduates from different cities of Turkey. Secondly, despite its fit with power analysis and repetition of the analyses within the smaller portion of the sample (N = 143), differences in sample size between analyses is a limitation. Similarly, although for some scales there were participants across the whole range, for some scales like depressive symptoms, the whole range of the scale was not covered (i.e., participants with high depressive symptoms). While this may be beneficial for the additional impact of depression on loneliness, it still limits our understanding of the relationships in highly depressed individuals. Future studies with such individuals as well as with clinical groups would complement the findings of this study.

The results of the study may be extended by several lines of future research. For instance, van Roekel et al.'s recent study on differential reactivity hypothesis (2018) suggested changes in loneliness by state factors, such as whether the individual is alone or not during data collection and the data collection day of the week. In this study, trait loneliness and psychosocial factors data were collected in a computer lab with a small group of participants, whereas state loneliness measures were collected in the mornings

of weekdays, often on consecutive days. However, for state loneliness no data was collected on whether the participant was alone or not, which may be considered in future studies. Furthermore, utilizing measures that clearly differentiate between state and direct measures (i.e. "How lonely do you feel now?" vs. "How lonely do you feel?") would help differentiate the impact of state influences from the influence of measurement types. Incorporation of such strategies would be helpful in terms of both theoretical and methodological concerns related to loneliness research.

Since the findings show associations of both state and trait loneliness with psychosocial factors, similar to research on elderly (Martina & Stevens, 2006), the results may be utilized in developing prevention and intervention programs for undergraduates. Similarly, considering the impact of loneliness on academic performance (Stoliker & Lafreniere, 2015), the findings may contribute to developing educational programs and optimizing learning conditions for students at risk. For instance, as reported by these researchers, loneliness influences students' perceived stress and academic performance through academic coping strategies (i.e. approach and avoidance coping). In addition to academic performance, loneliness may alter students' vulnerability to burnout (e.g. Lin & Huang, 2012), which may have more widespread impact on their well-being. Considering these findings together with the physical and mental health and social detachment effects of loneliness, it is of importance to incorporate related education programs for academics and students. Furthermore, since the importance of perceived social support of friends, rather than of family or significant other, was found to be especially critical, these educational programs may particularly focus on fostering meaningful peer relationships. For instance, designing group activities within and outside of classrooms may help in lowering feelings of loneliness (Masi, Chen, Hawkley, & Cacioppo, 2011). On the other hand, as suggested by this meta-analysis, apart from activities that increase social engagement, interventions targeting social cognition may be more effective in reducing loneliness. Among several intervention programs, authors emphasize the importance of social cognitive training of individuals to work better in reducing loneliness as it allows individuals to realize the differences between feelings of loneliness and being alone (Masi et al., 2011). Therefore, educational programs targeted towards enhancing students' self-awareness and social cognition skills on this matter would be beneficial. Authors later suggested that these trainings may also be combined with psychological and pharmacological interventions to prevent further health problems (Cacioppo, Grippo, London, Goossens, & Cacioppo, 2015). Considering the studies focusing on developing education and intervention programs on loneliness, a recent meta-analysis targeting younger people (3-25 years of age) suggests the prioritization of developing high-quality intervention programs targeted specifically for youth loneliness by bringing together experts from research, applied and policy fields (Eccles & Qualter, 2021). Considering the COVID-19 pandemic and its effects on education, such as online education, social distancing and computer use, developing such programs is of utmost urgency (Williams et al., 2021). Finally, considering cross cultural differences in norms of loneliness (van Staden & Coetzee, 2010), future research would benefit from conducting similar research in different countries, advancing our understanding of cultural factors.

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Üniversite Öğrencilerinde Durumluk ve Sürekli Yalnızlığın Cinsiyet ve Psikososyal Faktörlerle İlişkisi

Öz

Yalnızlık üniversite öğrencilerinin iyi oluş halini ve akademik performansını etkilemektedir. Bu çalışma cinsiyet ve yalnızlık ölçümlerinin psikososyal faktörlerle ilişkisini incelemektedir. Durumluk ve sürekli yalnızlık arasında zayıf ama anlamlı bir ilişki olması, erkeklerin kadınlardan daha fazla sürekli yalnızlığı olması, ve sürekli yalnızlığın psikososyal faktörlerle daha güçlü ilişkili olması beklenmektedir. Katılımcılar Türkiye'den 239 üniversite öğrencisidir (Myaş=20.49, SDyaş=1.73; %49 kadın). Sürekli yalnızlık (UCLA Yalnızlık Ölçeği) ve durumluk yalnızlık (tek madde) ayrı olarak ölçülmüştür. İncelenen psikososyal faktörler depresif belirtiler, sosyal destek, benlik saygısı ve yaşam doyumudur. Sonuçlar, durumluk ve sürekli yalnızlık arasında zayıf ama anlamlı, kadınlarda daha güçlü olan bir ilişki göstermiştir. Erkeklerde sürekli yalnızlık kadınlara göre daha fazla görülmüştür. Psikososyal faktörlerin yalnızlıkla ilişkileri sürekli yalnızlık için daha kuvvetlidir. Sonuçlar, üniversite öğrencilerine özel eğitim ve müdahale programları geliştirilebilmesi açısından önemlidir.

Anahtar sözcükler: Yalnızlık, cinsiyet farkları, depresyon, yaşam doyumu, sosyal destek, benlik saygısı