

## Belongingness, Social Connectedness, and Life Satisfaction in College Students after COVID-19 Pandemic

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### Abstract

University students' sense of belonging has been greatly underrated since the pandemic, despite the fact that school belonging has been studied for many years. Due to school closings during the pandemic, college students lost the majority of their social connections at their university, and they have trouble rebuilding their social networks after the pandemic. In the present study, the mediating role of social connectedness in the relationship between life satisfaction and university sense of belonging was investigated. The University Belonging Questionnaire was consequently initially translated into Turkish. The study sample included 456 college students from a public university in Turkey, with 75% of them being female. Findings demonstrated the validity and reliability of the University Belonging Questionnaire as a tool for Turkish culture. The findings showed that life satisfaction was significantly predicted by a sense of belonging. The findings also indicated that social connectedness has an indirect but significant influence on the link between a sense of belonging and life satisfaction. Implications for future studies and practice are discussed.

**Keywords:** University belonging, social connectedness, wellbeing, college students

Individuals struggle to be successful in the future, and one of the places where this struggle takes place is the university. University life is an essential factor affecting the future of individuals, and many concepts related to the education process are emphasized in order to evaluate this life with high standards and achievements. In recent years, the importance of belonging to the university has emerged once again in the studies that aimed at evaluating and boosting the success of students in post pandemic. In order to minimize the problems and improve student achievement, it is important to identify the factors effect university belonging.

### University Belonging

The individual's feeling of belonging to the institution, environment, social activity and culture contributes to wellness in many areas such as intellectual, occupational, psychological, and physical (Arslan & Duru, 2017; Baumeister & Leary, 1995; Deci & Ryan, 2000). Students' low level of sense of belonging has been found to be associated with social anxiety, loneliness, distress, and suicidal thoughts (Arslan, 2019, 2020a; Arslan & Coşkun, 2023; Hurst et al., 2013; Moeller et al., 2020). Terlizzi and Villarreal (2019) also reported that as emerging adults, college students report more depressive symptoms than other age group. Arnett (2006) stated that emerging adults especially form their identity through social connections and this period coincides with their university years. Von Soest et al. (2020) added students are also at risk of declining mental health when they feel low level of sense belonging in this developmental period. In addition, School dropouts are one of the leading problems in university education. Suhlman et al. (2018) reported that one of the most important reasons for school dropouts is a low sense of belonging to school.

On the contrary, developing and strengthening relationship during university years is undergirded by belongingness that promotes high level of wellbeing (Arslan, 2020b, 2021a; Lambert et al., 2013). High sense of

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belonging increases the quality of life, life satisfaction, academic success and motivation that protect individuals against possible psychological problems (Arslan, 2021; 2022). Students' feeling of secure and being valued are also associated with a high sense of belonging (Yıldız & Kutlu, 2015). These students also tend to have healthy relationships with other people in their schools, and they experience less loneliness by participating in school activities (İhtiyaroglu & Demir, 2015). Accordingly, students with a high sense of belonging to the school decreases their depression and social rejection feelings, their perspectives become more optimistic, and there is a decrease in the problems experienced at school (Anderman, 2002; Arslan, 2018; Arslan et al., 2020). Baumeister and Robson (2021) found that students with a high level of belonging to school do not have negative emotions such as school phobia and loneliness. Consequently, the rate of absenteeism is low and independence, positive social behaviors, intrinsic motivation and academic achievement are at high levels. There is also reciprocal relationship that academically successful students have a high sense of belonging (Gencer, 2019). Levett-Jones et al. (2007) also indicated that the high level of belongingness, in turn, enhanced students' potential for learning and influenced their future career decisions.

Sense of belonging is differed by students' characteristics. According to Baumeister and Sommer (1997) while men pursue belongingness in groups, women prefer different dyadic relationships. Bowman (2011) reported that senior students feel more connected to their university and schoolmates compared to their first-year counterparts. Additionally, Glass and Westmont (2014) stated that students' social and academic interactions (e.g., classroom discussions, participation in extracurricular activities, leadership programs) throughout university contribute to a sense of belonging.

### **Measuring University Belonging**

Sense of belonging for university students is formed by meeting the expectations of the institution, providing the necessary educational, social and cultural support, and making career planning (Meehan & Howells, 2019). The multifaceted nature of belonging is also reflected in the literature and is discussed with its conceptual dimensions that are behavioral, affective, and cognitive (Fredricks, Blumenfeld & Paris, 2004). There are psychometrically validated instruments which measure sense of belonging reveal different factors such as motivation, expectations, identification (Karaman & Cirak, 2017), perceived peer support, perceived faculty support, perceived empathy, perceived classroom comfort, and isolation (Hoffman et al., 2002), acceptance/inclusion and rejection/exclusion (Malone, Pillow & Osman, 2012), acceptance by faculty members, belonging, and acceptance by students (Alkan, 2016; Goodenow 1993), social acceptance and social exclusion (Arslan 2021). Kızılkaya and Dogan (2022) developed academic engagement scale for university students that revealed three sub-dimensions: participation in the course, library, resource access, communication with faculty members, and participation in scientific and cultural activities. Arslan (2020b) developed College Belongingness Questionnaire (CBQ) aimed to measure the sense of belonging among university students. Slaten et al., (2017) developed a measure of university belonging that their study suggested three dimensions: University affiliation, university support and acceptance, and faculty and staff relations.

### **Sense of Belonging, Social Connectedness, and Life Satisfaction**

While positive terms such as belonging, participation, attachment, engagement are used for successful students to develop a sense of identification with the school, situations where unsuccessful students do not show commitment are expressed as alienation, loneliness or giving up (Graf & Bolling, 2022). In Turkish university culture, safety needs are met but psychological needs such as belongingness and connectedness have not been focused much. For Turkey, which is a collectivistic culture, the social ties necessary for the physical and psychological development of individuals are of great importance (Arslan 2021; Kagıtcıbası & Ataca, 2005). Therefore, the belonging needs that seems to be the most common challenge for Turkish university students.

Blumenfeld et al. (2005) indicated that a student is likely to have different levels of belonging in behavioral, affective and cognitive dimensions. While some of them show a high level of belonging in behavioral dimensions such as obeying the rules and participating, they may have a low level of belonging in affective and cognitive dimensions such as being bored while learning or indifference towards learning. Apart from this, a student who has positive feelings by feeling belonging to the learning environment (affective belonging) may show inconsistency in participation in the learning process (behavioral belonging) (Blumenfeld et al., 2005). In short, the path that leads

the student to belonging may be social or academic. In a recent study, Meehan and Howells (2019) indicated that a combination of environmental, social and cognitive elements is necessary for students in higher education to have a sense of connection with their university and a sense of purpose regarding their studies and career goals. Moreover, social connectedness has been found to be one of the reliable indicators of student satisfaction and that it is associated with reduced stress and greater resiliency in the face of adversity. Williams and Johnson (2011) indicated that lack of meaningful relationships with the campus community is associated increased sense of isolation. On the other hand, strong social ties are related diminished emotional distress, improved quality of life, increased performance and positive psychological functioning and performance (Arslan, 2022). Tanhan (2020) found that having social connections with peers and friends are significant facilitators for Turkish college students during the pandemic. Arslan (2021) also stated that social connections increase well-being by positively affecting emotions, behaviors and thoughts.

Wellbeing is a complex concept that includes different components such as happiness, flourishing, vitality, life satisfaction, quality of life, and prosperity. Tian et al. (2021) argued happiness which is used interchangeably with wellbeing is vital component in facilitating students' sense of belonging. Although university students' wellbeing is significantly differed by gender, socioeconomic status, and academic achievement, the sense of university belonging is positively correlated with life satisfaction (Wang et al., 2016). In their study, the sense of university belonging has been found to be strong predictor of subjective wellbeing and having positive emotions. Like university belongingness, social connectedness is positively associated with wellbeing and negatively related to anxiety and depression (Malaquias et al., 2015). Engagement and supportive relationships are related to connectedness that individuals with low level of social connectedness experience depression, anxiety, and stress, and accordingly, result in diminished wellbeing (Liao & Weng 2018; McLoughlin et al., 2019).

### **The Present Study**

Sense of belonging has increasingly been acknowledged and received research attention in the past years. Although the theories have defined the sense of belonging from different perspectives, university belonging is generally defined as the subjective sense of connection and integration of students with their institutions and campus community (Gillen-O'Neel 2019). With the purpose of encouraging and filling the gap of research on belonging, Slaten et al. (2017) have developed University Belonging Questionnaire. Despite a vast amount of literature regarding school belonging throughout the years, university belonging has been underestimated that one of the groups most affected by Covid-19 is university students, and it is seen that the sense of belonging to the school has decreased significantly with distance education (Tice et al., 2021). Although students have digitally engaged with their school, classmates and instructors, it can negatively influence the formation of social ties. According to Williamson et al. (2018), insufficient interpersonal communication at university can cause feelings such as depression, anxiety, and guilt. Astin (1993) stated that peer groups contributed positively to both university life and cognitive development of students. Apart from the negative effects of the pandemic, it may be a major problem to re-establish and maintain the social ties created during the period from childhood to university life for students who have started a new life during the university period.

University life is a process that is worth all the toil in the end with what it incorporated in students. The post-pandemic adaptation to school, renovation of social ties and the importance of students' wellness have prompted educators and administrators to once again ask questions about the sense of belonging to the university. Thus, the current study aims (1) to conduct the adaptation study of University Belonging Questionnaire into Turkish culture and (2) to examine the mediating effect of the social connectedness on the association of sense of belonging with wellbeing among university students.

## **Method**

### **Procedure and Data Collection**

The researcher's University of Institutional Review Board (protocol number 2023/63) approved all materials and procedures. In the beginning of the survey, an informed consent form explaining purpose of the study, confidentiality, voluntariness was obtained from participants. The study used an Internet-based survey (Google Forms) questionnaire to collect data. Instructors were asked to distribute the survey link to students via mass email and online classroom portal after the pandemic.

## Translation Process

Before starting the translation process, researcher contacted and received permission to adapt the UBQ from Christopher D. Slaten. UBQ was translated into Turkish by using a translation and back-translation method in accordance with the International Test Commission (Muniz et al., 2013). First, four bilingual experts from counseling and psychology faculty translated UBQ into Turkish. One expert from Turkish Language and Literature faculty checked the translated items of UBQ and suggested minor grammatical modifications. After these modifications, Turkish form of the scale was back-translated by an English expert from Department of Translation and Interpretation in English. After this procedure, the scale was reevaluated with three counseling faculty and the Turkish version of UBQ was finalized.

## Participants

Four hundred fifty-six undergraduate and graduate students participated in the survey. The mean age of the participants was  $22.26 \pm 3.43$ , and the grade point average of the participants was  $3.10 \pm 0.41$ . The sample was 75.7% female ( $n = 345$ ) and 24.3% male ( $n = 111$ ). In regard to school year, the sample was 21.9% ( $n=100$ ) first year students, 26.5% ( $n=121$ ) second year, 24.1% ( $n=110$ ) third year, 23.0% ( $n=105$ ) fourth year, and 4.4% ( $n=20$ ) master students. Finally, in regard to perceived SES, 69.1% ( $n=315$ ) of participants identified as middle class, 27.2% ( $n=124$ ) as low SES, and 3.7% ( $n=17$ ) as high SES.

## Measures

**Demographic Questionnaire.** Participants provided their gender, age, grade point average (GPA), socioeconomic status, and year in school.

**University Belonging Questionnaire (UBQ).** The University Belonging Questionnaire (UBQ; Slaten et al., 2017) examines the extent to which students feel they belong at their college or university. The UBQ consists of 24 items, with responses ranging from 1 (strongly disagree) to 4 (strongly agree), which capture factors of university affiliation, university support and acceptance, and faculty-staff relations. In the current study, a total summed score was used in mediation analyses. Validity and reliability analyses of the scale were performed in the present study and findings from these analyses are presented in the results section.

**Psychological Sense of University Membership Scale (PSSM).** PSSM was originally developed by Goodenow (1993), and adopted into Turkish by Alkan (2016). It measures sense of school membership on three dimensions: acceptance by faculty members, belonging, and acceptance by students. PSSM has 18 items (e.g., "People at this university notice when I'm good at something" and "It is hard for people like me to be accepted at this university") on a 5-point Likert scale ranging from (1) totally disagree (5) totally agree. For the Turkish version of PSSM, Alkan (2016) found Chronbach's alpha coefficient of .84. For the current study, internal consistency coefficient was found as .88, which means a high level of reliability.

**Satisfaction with Life Scale (SWLS).** Diener et al. (1985) developed the SWLS, and Durak et al. (2010) adapted it into Turkish. SWLS is a unidimensional 5-item, 7 point, Likert type (1=strongly disagree to 7=strongly agree) self-report measure used to assess the level of life satisfaction. Diener et al.(1985) reported that the internal consistency of the instrument was .87. The internal consistency was .80 in the adapted version of SWLS. The reliability coefficient of the scale was found .85 in the present study.

**Social Connectedness Scale (SCS).** SCS was developed by Lee and Robbins (1995) and adapted into Turkish by Duru (2007). The scale consists of eight items. In each item of the scale, a situation that indicates feelings and thoughts about social relations is presented and individuals are asked to evaluate how often they experience this situation on a six-point scale ranging from "totally agree" to "strongly disagree". A high score from the scale is accepted as an indicator of a high sense of connectedness. The internal consistency was reported .91 in the original form and .90 in the adapted version. The internal consistency was .95 in the current study.

## Data Analysis

Data analyses were conducted in several phases. In phase one, the psychometric properties of the UBQ was examined. SPSS v26 statistical package program (SPSS for Windows version 26.0; SPSS Inc., Chicago, IL) was used to complete all basic statistics (frequency analysis, mean, standard deviation, skewness, kurtosis, correlation, and reliability). Skewness- kurtosis values were examined to determine the distribution of the data. Skewness-kurtosis values being in the range of -2, +2 indicate that scores were normally distributed (Hair et al., 2010; Byrne,

2013). The results indicated that skewness ranged from  $-.650$  to  $-.062$ , and kurtosis ranged from  $-.574$  to  $.223$ , and were normally distributed. In addition, visual control by histograms and Q-Q plots indicated that the data were normally distributed. Overall, it can be concluded that the distribution of the data would not be a concern for the present study. IBM SPSS Amos Graphics was used to test the fit of the model on the University Belonging Questionnaire (UBQ). Pearson's correlation was used to examine the convergent validity of the UBQ. In phase two, independent-samples t-test and one-way ANOVA were used to determine whether UBQ scores differed by gender, socioeconomic status (SES), and school year. Finally, PROCESS macro for SPSS (Model 4, Hayes, 2018) was used to determine the mediation effects of social connectedness on the relationship between university belonging (independent variable) and satisfaction with life (dependent variable). A  $p$ -value of  $< .05$  was considered statistically significant.

## Results

### Reliability and Construct Validity of UBQ

CFA was performed to test the fit of the three-factor model on UBQ. Model chi-square test ( $\chi^2$ ), Tucker-Lewis index (TLI), standardized root mean square residual (SRMR), root mean square error of approximation (RMSEA), and comparative fit index (CFI) was used to evaluate model fit. The findings revealed that three-factor model provided a good fit to the data ( $\chi^2(246) = 814.71, p < .001$ ; CFI = .91; TLI = .90; RMSEA = .07, SRMR = .05, see Table 2). Standardized loadings ranged from .56 to .76 for university support and acceptance, .37 to .83 for university affiliation, and .62 to .80 for faculty and staff relations (see Table 1). According to these values, it can be concluded that the scale had an acceptable level of validity.

**Table 1.** Standardized factor loadings for the 3-Factor CFA model

| Factor/Item  | Loading | 90% CI     |
|--|---------|------------|
| UBQ_University Affiliation ( $\alpha = .90$ )            |         |            |
| UBQ5   | .69     | (.64, .74) |
| UBQ24  | .80     | (.76, .82) |
| UBQ22  | .66     | (.61, .71) |
| UBQ20  | .83     | (.79, .85) |
| UBQ10  | .52     | (.45, .58) |
| UBQ12  | .71     | (.67, .76) |
| UBQ18  | .72     | (.66, .76) |
| UBQ13  | .45     | (.38, .52) |
| UBQ8   | .76     | (.72, .80) |
| UBQ15  | .52     | (.44, .58) |
| UBQ3   | .37     | (.29, .43) |
| UBQ4   | .77     | (.72, .80) |
| UBQ_University Support and Acceptance ( $\alpha = .89$ ) |         |            |
| UBQ6   | .68     | (.63, .73) |
| UBQ7   | .76     | (.72, .80) |
| UBQ2   | .73     | (.68, .78) |
| UBQ14  | .76     | (.72, .80) |
| UBQ19  | .56     | (.48, .63) |
| UBQ9   | .79     | (.75, .83) |
| UBQ11  | .69     | (.63, .74) |
| UBQ16  | .65     | (.58, .71) |
| UBQ_Faculty and Staff Relations ( $\alpha = .82$ )       |         |            |
| UBQ1   | .62     | (.72, .83) |
| UBQ17  | .75     | (.71, .80) |
| UBQ21  | .80     | (.74, .85) |
| UBQ23  | .76     | (.72, .81) |

Note. UBQ: University Belonging Questionnaire; CI: Confidence interval.

The Cronbach Alpha coefficient of the total 24-item UBQ was .94, and the three subscales had Cronbach's estimates of  $\alpha = .89$  (university support and acceptance),  $\alpha = .90$  (university affiliation), and  $\alpha = .82$  (faculty and staff relations). Based on these figures, it can be concluded that the data obtained from the UBQ are reliable.

**Table 2.** Fit Indices for the CFA model

| Fit criteria | The value obtained from CFA | Perfect fit               | Acceptable fit            |
|--------------|-----------------------------|---------------------------|---------------------------|
| $\chi^2/sd$  | 3.31                        | $0 \leq \chi^2/sd \leq 2$ | $0 \leq \chi^2/sd \leq 5$ |
| RMSEA        | .07                         | $0 \leq RMSEA \leq .05$   | $.05 < RMSEA \leq .08$    |
| RMSEA 90% CI | .07, .08                    |                           |                           |
| SRMR         | .05                         | $0 \leq SRMR \leq .05$    | $.05 < SRMR \leq .08$     |
| CFI          | .91                         | $.95 \leq CFI \leq 1.00$  | $.90 \leq CFI < .95$      |
| TLI          | .90                         | $.95 \leq TLI \leq 1.00$  | $.90 \leq TLI < .95$      |

*Note.* Model fit indices were produced based on Bentler & Bonett, 1980; Hu & Bentler, 1999; Kline, 2011; Tabachnick & Fidell, 2012; and Vieira, 2011.

After proving the construct validity of the UBQ by CFA, Pearson's correlation was used to examine the relationships between UBQ and PSSM, and to support the convergent validity of the UBQ (see Table 3). Preliminary analyses showed the relationship to be linear with the variables normally distributed, as assessed by skewness-kurtosis, and there were no outliers. The results showed that UBQ\_Total score moderately associated with PSSM\_AFM ( $r = .67, p < .01$ ), PSSM\_B ( $r = .72, p < .01$ ), PSSM\_AS ( $r = .62, p < .01$ ). UBQ\_UA score moderately associated with PSSM\_AFM ( $r = .59, p < .01$ ), PSSM\_B ( $r = .72, p < .01$ ), PSSM\_AS ( $r = .56, p < .01$ ). In addition, UBQ\_USA score moderately associated with PSSM\_AFM ( $r = .61, p < .01$ ), PSSM\_B ( $r = .65, p < .01$ ), PSSM\_AS ( $r = .69, p < .01$ ). Finally, UBQ\_FSR score moderately associated with PSSM\_AFM ( $r = .69, p < .01$ ), PSSM\_B ( $r = .50, p < .01$ ), PSSM\_AS ( $r = .53, p < .01$ ).

**Table 3.** The Relationships of UBQ and Psychological Sense of School Membership Scale

|           | <i>M</i> | <i>SD</i> | UBQ Total | UBQ_UA | UBQ_USA | UBQ_FSR |
|-----------|----------|-----------|-----------|--------|---------|---------|
| UBQ Total | 60.88    | 14.33     | -         |        |         |         |
| UBQ_UA    | 29.21    | 7.58      | 0.96**    | -      |         |         |
| UBQ_USA   | 20.86    | 5.33      | 0.92**    | 0.80** | -       |         |
| UBQ_FSR   | 10.81    | 2.81      | 0.77**    | 0.65** | 0.63**  | -       |
| PSSM_AFM  | 27.98    | 5.71      | 0.67**    | 0.59** | 0.61**  | 0.69**  |
| PSSM_B    | 15.32    | 4.41      | 0.72**    | 0.72** | 0.65**  | 0.50**  |
| PSSM_AS   | 18.11    | 3.89      | 0.62**    | 0.56** | 0.59**  | 0.53**  |

*Note.* *M*= Mean, *SD*= Standard deviation, UBQ= University Belonging Questionnaire, UBQ\_UA= University Affiliation, UBQ\_USA= University Support and Acceptance, UBQ\_FSR= Faculty and Staff Relations, UBQ\_Total= Total score of University Belonging Questionnaire. UBQ total scores were calculated as the sum of the scores of the subscales. PSSM: Psychological Sense of School Membership Scale, PSSM\_AFM= Acceptance by Faculty Members, PSSM\_B= Belonging, PSSM\_AS= Acceptance by Students, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### University Belonging Questionnaire (UBQ) by Demographic Variables

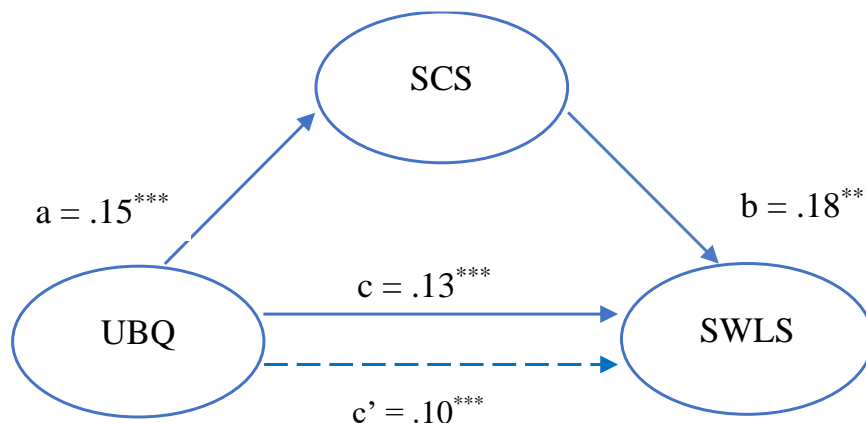
The independent-samples t-test was used to determine whether UBQ scores differed between males and females. There were homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .42$  for UBQ\_UA,  $p = .95$  for UBQ\_USA,  $p = .09$  for UBQ\_FSR, and  $p = .31$  for UBQ\_Total). UBQ\_Total scores for females ( $M = 61.63, SD = 14.11$ ) and males ( $M = 58.54, SD = 14.79$ ) demonstrated a statistically significant difference ( $t(454) = 1.98, p < .05$ ). However, UBQ\_UA, UBQ\_USA, and UBQ\_FSR scores for females and males demonstrated no statistically significant differences ( $t(454) = 1.93, p > .05$ ;  $t(454) = 1.66, p > .05$ ;  $t(454) = 1.73, p > .05$ , respectively).

One-way ANOVAs were performed to compare the effect of SES and school year on UBQ\_UA, UBQ\_USA, UBQ\_FSR, and UBQ\_Total scores. Preliminary analyses showed that there were no outliers, as assessed by boxplot; data was normally distributed, as assessed by Skewness-Kurtosis values; and there was homogeneity of variances, as assessed by Levene's test of homogeneity of variances. The findings revealed that there were statistically significant differences in UBQ\_UA ( $F(2,455) = 6.75, p < .01$ ), UBQ\_USA ( $F(2,455) = 11.80, p < .001$ ), UBQ\_FSR ( $F(2,455) = 5.67, p < .01$ ), and UBQ\_Total scores ( $F(2,455) = 9.71, p < .001$ ) between at least two groups for SES. Tukey's HSD Test for multiple comparisons found that the mean score of UBQ\_UA was significantly different between medium class ( $M = 29.91, SD = 7.18$ ) and low SES ( $M = 27.14, SD = 8.15$ ). The mean score of UBQ\_USA was significantly different between medium class ( $M = 21.57, SD = 5.03$ ) and low SES ( $M = 18.92, SD = 5.48$ ). In addition, the mean score of UBQ\_FSR was significantly different between medium class ( $M = 11.07, SD = 2.63$ ) and low SES ( $M = 10.08, SD = 3.10$ ). Finally, the mean score of UBQ\_Total was significantly different between medium class ( $M = 62.56, SD = 13.44$ ) and low SES ( $M = 56.16, SD = 15.16$ ). However, one-way ANOVA revealed that there were no statistically significant differences in UBQ\_UA, UBQ\_USA, UBQ\_FSR, and UBQ\_Total scores between at least two groups for school year ( $p > .05$ ).

### Results of Mediation Analyses

Mediation analysis was conducted using the PROCESS macro for SPSS (Model 4, Hayes, 2018) to determine mediation effects of SCS on the relationship between UBQ (independent variable) and SWLS (dependent variable). The statistical significance of the mediator variable was examined based on 5000 bootstrap samples. 95% confidence interval not straddling zero indicates that the indirect effect is significant in this method (Preacher & Hayes, 2008; Hayes, 2013).

Statistical assumptions required by mediation analyses were normality, linearity, and homoscedasticity (Abu-Bader & Jones, 2021). Skewness-kurtosis values were examined to determine the distribution of the data. The results indicated that the skewness ranged from  $-.650$  to  $-.062$ , and kurtosis ranged from  $-.574$  to  $.223$ , and were normally distributed (Byrne, 2013). The relationship between the independent, mediator, and dependent variables must be linear to examine the effect of a third variable on the relationship between the independent and dependent variables (Abu-Bader & Jones, 2021). All variables in the study were significantly correlated (see Table 4). The VIF and the tolerance values were  $.85$  and  $1.18$ , respectively, indicating that the assumption was met (Field, 2016).



**Figure 1.** The estimated mediation model

**Note.** \* $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$ . Based on 5000 bootstrap samples. UBQ= University Belonging Questionnaire, SCS= Social Connectedness Scale, SWLS= Satisfaction with Life Scale. The numbers in the figure represent unstandardized coefficients.

Results of mediation analysis showed that there was a significant positive relationship between UBQ and SCS ( $\beta = .146, p < .001$ ). Second, as predicted, there was a positive association between the SCS and SWLS ( $\beta = .181, p < .05$ ). Third, UBQ and SWLS were hypothesized to demonstrate a positive relation, and this was supported ( $\beta = .125, p < .001$ , total effect). When the mediator (SCS) was included in the analysis, this coefficient was reduced but was still statistically significant ( $\beta = .098, p < .001$ , direct effect). Finally, the SCS was found to be a significant mediator between UBQ and SWLS, the bootstrap confidence interval for the indirect effect did not contain zero ( $\beta = .026, SE = .007, 95\% CI = .013, .040$ ; see Table 4).

**Table 4.** Results of mediation analysis

| Effects         | Coefficient | SE   | <i>p</i> | 95% CI (LL-UL) |      |
|-----------------|-------------|------|----------|----------------|------|
| Direct effect   | .098        | .019 | <.001    | .060           | .137 |
| Indirect effect | .026        | .007 |          | .013           | .040 |
| Total effect    | .125        | .020 | <.001    | .087           | .163 |

Note. SE: Standard Error, LL: Lower Level, UP: Upper Level, CI: Confidence Interval.

## Discussion

Although there have been many studies and theories about belonging, the fact is that this situation is not stationary that might be influenced by social and environmental determinants like pandemic. Thus, this study firstly aimed to test validity and reliability of the University Belonging Questionnaire (Slaten et al., 2017) adapted to Turkish. The psychometric properties of the newly adopted UBQ have shown that the scale is a valid and reliable tool assessing university students' level of belonging. In the original form, the scale consisted of three factors; namely (1) university affiliation, (2) university support and acceptance, and (3) faculty and staff relations. In the current study, the results of the confirmatory factor analysis (CFA) showed that three-factor model provided a good fit to the data and support the original factor structure (Slaten et al., 2017).

After proving the construct validity of the UBQ, findings of convergent validity of total and all three subscales showed significant correlation with subscales of Psychological Sense of School Membership (acceptance by faculty members, belonging, and acceptance by students). When examining specific type of belonging, findings showed that higher level of sense of acceptance by faculty members was related to higher level of faculty and staff relations. These findings were in the same direction as expected that close relationships with faculty members are essential for a higher sense of belonging to the university (Alkan, 2016). In collectivistic Turkish culture, relationship with other members and interconnectedness are major traits that might have a central role each university student's level of belonging (Arslan, 2021).

Results showed that the Turkish version of UBQ has an excellent level of internal consistency as a total scale, and UBQ subscales ranged between good to excellent. In the current study, the Cronbach Alpha coefficient of the total 24-item UBQ was .94, and the three subscales had Cronbach's estimates of  $\alpha = .89$  (university support and acceptance),  $\alpha = .90$  (university affiliation), and  $\alpha = .82$  (faculty and staff relations). These findings were in line with the original results (Slaten et al., 2017). Based on all the above results, it can be concluded that the Turkish version of UBQ is a valid and reliable tool for its use in Turkish university students.

This study also sought to elucidate the association between belonging and wellbeing in college students. Specifically, the model tested whether social connectedness mediates the association between belonging and wellbeing after pandemic. The researcher hypothesized that students with stronger feeling of belonging would report higher level of connectedness, which, in turn, would be associated higher level of wellbeing. These hypotheses were broadly supported by the results that there was a significant positive association between the feeling of belonging and satisfaction with life. Also, as predicted, there was a positive association between social connectedness and satisfaction with life. These findings are in line with previous studies that belongingness (Arslan 2021; Moeller et al., 2020 and social connectedness (İhtiyaroğlu & Demir, 2015; Meehan & Howells, 2019; Williams & Johnson, 2011) are important for students' wellbeing.

The exception was that when the mediator, social connectedness, was included, the coefficient between belonging and satisfaction with life was reduced even was statistically significant. In other words, although social connectedness is an important factor in the relationship between belonging and well-being (Lambert et al., 2013), it adversely affected this relationship in the current study. While students are restructuring their social life outside the university that they lost their connections during pandemic, they may have put the school related factors into the background that might have reduced their level of belonging to the university.

Besides, students' lowest score on belonging was faculty and staff relations among subscales (University affiliation, support and acceptance) in the current study. The reason for the lowest level of faculty staff relations could be the lack of face-to-face class interactions with lecturers during pandemic (Daniel, 2020). University students put more emphasis on agents of socialization, particularly friendships, social networks, and social activities (Boda et al., 2020) rather than connected to the faculty or staff.



In addition to the challenging changes in existing social relations already in university life, students feel the need to connect to the new environment due to the decrease in their social support system (Hurst et al., 2013). Moreover, the pandemic has had a great impact on the lives of university students in many respects such as living conditions, financial problems, increased technology use, decreased academic opportunities and resources, and changes in social life last three years (Daniel, 2020). In this context, as the conditions change, the sense of belonging may change, and even fluctuations can be observed from moment to moment (Gillen-O'Neel, 2021). Studies on the effect of feeling of belonging on wellbeing and mental health were well documented (Arslan, 2021; Tian et al., 2021; Wang et al., 2016; Zhou et al., 2022) that the findings of the current study extend the existing research by demonstrating the partial mediation role of social connectedness on this relationship.

### **Implications**

This study emphasizes the importance of improving university students' life satisfaction in developing a sense of belonging via social connectedness. According to the results of the current study, it is seen that students' perceptions about the relationship with the faculty is weak compared to university affiliation and university support and acceptance. Moreover, administrators, lecturers, and counselors are considering how students can improve their belongingness after a long absence from the university environment and spending a lot of time online (Tice et al., 2021). Considering the importance of social connectedness in mediating the sense of belonging to university, students' belongingness with the broader campus community needs to be enhanced to augment sense of belonging and wellbeing as well. Thus, lecturers can improve student belongingness with activities that targeted socializing and group cohesion (Tastan, 2022). Also, the use of active and collaborative learning techniques by faculty members, interaction with students, and the use of high-level cognitive activities in the classroom can be effective in students' high level of participation and sense of belonging in terms of faculty relationship (Umbach & Wawrzynski, 2005). Socialization, which is one of the aims of the university, is to create a socialized personality that masters the social norms and values necessary for the student's self-realization in a socio-cultural environment (Haleta et al., 2021). This can be achieved when students feel a sense of commitment by feeling the support of their teachers (Allen et al., 2018).

Further, administrators and counselors might consider how belonging is an ongoing process instead of measuring belonging for one time. They can apply activities and programs from first to last year that students break down barriers, biases, and misconceptions about university and faculty. One-on-one, peer, and group mentoring may also increase students' belongingness and social connectedness. In the current study, the validity and reliability studies of university belonging questionnaire were carried for this specific population. Universities can intervene by periodically evaluating students' sense of belonging regarding their perceptions of faculty relationships, university affiliation, support, and acceptance.

### **Limitations and Future Research**

It bears repeating that sense of belonging is not a constant element for college students. Therefore, as the first limitation of the study, it can be said that the research is a cross-sectional study. Future studies may employ longitudinal design in terms of how sense of belonging change throughout university years. Second, the data reported here for study variables is limited to self-reported data. Future studies may also focus on qualitative, quantitative, and observational techniques. The sample of the study consists of 75% of female students. Baumeister and Sommer (1997) reported that men pursue belongingness in groups, women prefer different dyadic relationships. Due to the limited number of male students, sense of belonging and social connectedness might be changed in terms of gender differences. Hence, a replication study with an equal number of female and male college students is warranted for future research.

In conclusion, the results of the reliability and validity analyses were in line with the original findings of scale that UBQ is a valid instrument for Turkish college students. The findings showed significant relationship between belonging and social connectedness with life satisfaction. The study also provided evidence to support that social connectedness play a partial significant mediation role in this relationship. Research results can be used to implement effective strategies to boost the well-being of university students as well as their academic success and mental health.

## Compliance with Ethical Standards

### Ethical Standards

All study procedures involving human participants followed institutional and/or national research committee ethical standards and the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by the Institutional Review Board of Recep Tayyip Erdogan University, protocol number 2023/63.

### Declaration of Conflicting Interests

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### Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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