A Test of the Socioemotional Selectivity Theory Among Young Adults

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Abstract
The primary assertion of the Socioemotional Selectivity Theory (SST) is that with increasing age, individuals become more selective in their social networks and consciously reduce their social network size. Although SST has received considerable support from studies conducted in mostly individualistic countries, such as the United States and Germany, there are very few studies in which it has been tested in collectivistic countries. Therefore, the present study aimed to test the SST argument in Turkey. There were 219 Turkish young adult participants, aged 18–28 (Mage = 20.07 years, SD = 1.76). Participants completed a Social Convoy Questionnaire, Future Time Perspective (FTP) scale and Positive and Negative Affect Schedule. Via the structural equation model, it was found that (a) open-ended FTP directly and positively related to positive affect, higher level of social satisfaction, and smaller social network sizes; and (b) social satisfaction mediated the relationship between FTP and young adults' positive affect. The results confirm the SST's arguments and highlight the importance of social satisfaction in helping shape young adults' positive affect.

Sosyoduygusal Seçicilik Kuramının Genç Yetişkinlerde Test Edilmesi
Öz
Sosyo-duygusal Seçicilik Kuramı'nın (SSK) temel iddiasına göre, bireyler yaş ilerledikçe sosyal ağlarında daha seçici hale gelirler ve sosyal ağ boyutlarını bilinçli olarak küçültme eğilimindedirler. SSK'nın bu iddiaları, Amerika Birleşik Devletleri ve Almanya gibi çoğunlukla bireyselci ülkelerde yapılan çalışmalardan önemli ölçüde destek almış olsa da, bu iddianın kolektivist ülkelerde test edildiği çok az çalışma vardır. Bu nedenle, bu çalışmada SSK'nın sosyal gelişimle ilgili iddiasını Türkiye'de test etmek amaçlanmıştır. Çalışmaya Sosyal Konvoy Anketi, Gelecek Zaman Algısı (GZA) ölçeği ve Pozitif ve Negatif Duygu Durum Ölçeği'ni dolduran 18-28 yaş arası (Ort. = 20.07 yıl, S = 1.76) 219 genç yetişkin katılmıştır. Yapısal eşitlik modeli analizi sonucunda, (a) açık uçlu GZA'nın olumlu duygulanım ve daha yüksek sosyal memnuniyet düzeyi ile doğrudan ve pozitif bir şekilde ilişkili olduğu ve (b) sosyal doyumun GZA ile genç yetişkinlerin olumlu duygulanım arasındaki ilişkide aracı bir değişken olduğu bulunmuştur. Sonuçlar, SSK'nın iddialarını doğrulamakta ve genç yetişkinlerin olumlu duygularını şekillendirmeye yardımcı olmada sosyal doyumun önemini vurgulamaktadır.

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Researchers have identified that social network structure (i.e., size and satisfaction with social partners), is widely recognized to be a fundamental predictor of well-being and health across the lifespan using a variety of research methods and samples (Perkins et al., 2015; Pinquart & Sörensen, 2000). For example, after adjusting for confounding factors such as demographic and socioeconomic characteristics, Rafnsson et al. (2015) found that social network size and contact frequency were positively linked with the quality of life and life satisfaction in a longitudinal study conducted in England. Similarly, among older individuals in China, Wang (2016) found that one's social network size was strongly connected with subjective well-being, and perceived social support mediated the relationship between social network size and subjective well-being. More recently, Schwartz and Litwin (2019) suggest that there is a dynamic interplay between social networks and mental health, with the relative effect of mental health on social network connectedness being stronger than the equivalent effect of social network connectedness on mental health change. Lastly, Huang et al. (2019) indicated that the composition of one's social network, social attachment, perceived social support, and the volume of one's social resources are all connected with happiness and subjective well-being among Austrian residents aged 18 and older. Despite substantial research proving that positive social network characteristics are linked to beneficial outcomes (Huang et al., 2019; Perkins et al., 2015), few studies examine the relationship between social network characteristics and emotional state based on this theory. Moreover, most previous studies focused on the simple bivariate correlation among social network characteristics and emotional states. Therefore, in the current research, it was attempt to examine the effect of social network characteristics on the emotional experience from the perspective of Socioemotional Selectivity Theory (SST) using structural equation modeling.

SST is defined as a "lifespan theory of motivation that posits age differences in social goals result from shrinking time horizons" (English & Carstensen, 2016, p. 1). According to SST, future time perspective (FTP) refers to individuals' perceptions of their remaining life time and plays a fundamental role in social goals, social network structure, and emotional experience over the lifespan (Carstensen, 2006). FTP is inherently associated with chronological age; individuals perceive future time as more limited as they get older (Carstensen et al., 1999). However, age is not the only factor that influences the time horizon. Other variables, such as significant illnesses, war, regional relocations, losing a close friend, and even college graduations, may limit FTP (Carstensen, 2006).

According to the basic view of SST, FTP has systematic effects on social network structure. When future time is perceived as limited, individuals tend to narrow their social network size and interact with those who can offer them emotionally meaningful experiences. However, when individual's time horizon is open-ended or boundless, in contrast to limited, individuals focus on novelty and increase the social network size to fulfill their knowledge-related goals (Carstensen et al., 1999). This selective narrowing is a result of individual choice, and it maximizes gains while minimizing risks in social and emotional domains (Carstensen, 2006). The SST argues that this decrease in the social network size depending on the FTP does not adversely affect the experience of positive emotion. Because the quality of the satisfaction obtained from the social relationship - rather than the number of people with whom social relations are established - is the most important concept in obtaining emotional satisfaction (Carstensen, 2021; English & Carstensen, 2014; Lang & Carstensen, 1994; Lang et al., 1998). In other words, emotional closeness and pleasure with social partners were maintained or enhanced despite a decline in social connections and network size in life.

According to SST, when individuals (young or old) perceive time in life as limited, they valued highly on obtaining emotional significance and satisfaction from life (Carstensen, 2006). This is because a greater

emphasis on emotional goals leads to less emotional complexity and better emotional regulation in daily life (Carstensen et al., 2003). However, recently Liao and Carstensen (2018) reviewed empirical findings of some studies about FTP and well-being. They indicated that research results regarding the direct effect of the FTP on well-being are mixed and contrary to the idea that a limited FTP prompts well-being. Some researchers found that limited FTP was associated with higher depressive symptoms and lower subjective well-being (Coudin & Lima, 2011). Hicks et al. (2012) tested the assumptions of the SST in four studies and indicated that more open-ended FTP, in contrast to limited FTP, is positively related to higher positive affect but negatively related to negative affect. Similar to this findings, Hoppmann et al. (2017) examined data from a representative longitudinal study in the United States and showed that the view of time as more extended predicted fewer depressive symptoms, lower negative affect, higher life satisfaction, and more positive affect. More recently, Zhang et al. (2019) indicated that the focus on opportunities, that is one of the subscale of FTP, predicts subjective well-being, which is one of the indicators of positive and negative affect among people in China aged 50 years or older. Therefore, all of these findings from studies conducted in different countries, especially the United States, Germany, and China, provided evidence that open-ended FTP contributes to positive outcomes such as higher life satisfaction and positive emotional state in contrast to the SST's argument.

One of the most highly reliable findings regarding the SST's claim is that the size of the social network decreases when the future time is perceived as limited, or conversely, increases when the future time is perceived as open-ended (Carstensen et al., 1999). Western and Eastern countries have replicated this finding. For example, Lang and Carstensen (2002) indicated that there is a positive correlation between the open-ended future sense and the social network size in Germany. In another study conducted in Germany, it was stated that individuals who perceive the future time as limited have a smaller family social network and FTP explains 10% of the variance in the social network (Baldensperger et al., 2018). Windsor et al. (2011) included more than 500 community-dwelling adults from Australia and indicated that open-ended FTP was associated with larger friends and neighbor networks. Similar to this study, Zhang et al. (2019) indicated that an open-ended time perspective is positively related to social network size in China. These results strongly confirm the assertion of the SST and show that the open-ended FTP is related to greater social network size.

SST has received support from many studies conducted in Europe and the United States (English & Carstensen, 2014; Fisher & Nussbaum, 2015; Hicks et al., 2012; Huxhold et al., 2013); however, to the best of our knowledge, very few studies have been conducted in collectivistic or semi-individualistic cultures, such as Turkey, to test the social tenets of the SST. Compared to individualist cultures, collective cultures are less youth-oriented (Hess et al., 2017). Some previous studies indicated that the tenets of the SST may be differ on across culture. For example, Fung et al. (2008) indicated that age had a negative relationship with the percentage of nuclear families among Germans, but a positive relationship with Hong Kong Chinese. These results could be attributable, in part, to a familial in-group bias in the social network makeup that favors close relatives over acquaintances depending on the culture. Additionally, most of the previous studies conducted so far have focused on the effects of FTP and social network characteristics on the emotional state separately and have not considered them as a whole using the structural equation model. In the present study, we mainly aim to test the argument of the SST regarding social network characteristics and emotional state, considering FTP as an exogenous variable, social network size and social satisfaction as mediating, and emotional state as the outcome or endogenous variable. According to the framework of SST (Carstensen et al., 1999), we attempt to test the following research hypothesis: FTP is positively related to both social network size (H1), social satisfaction (H2), and emotional state (H3). We also expect a positive link between social satisfaction and emotional state (H4). However, we have no expectations in terms of the relationship between social network

size and emotional state (H5). Finally, we expect that through positive associations with social satisfaction, FTP relates to emotional state (H6).

Method

Participants

Participants were recruited from the undergraduate student population in the Western Region of Turkey. A total of 237 undergraduate students who studying in a state university completed on a self-administered questionnaire applied in their classrooms in the current study. Thirteen cases with more than 10% missing responses and five cases identified univariate (i.e., using a criterion z value and graphical methods) and/or multivariate outliers (i.e., computing the Mahalanobis distance) were eliminated. Consequently, data from 219 participants, among whom 169 (77.2%) were women ranging from 18 to 28 years ($M = 20.07$ years, $SD = 1.76$) was included in the analyses. Most participants ($n = 154$, 70.3%) were single or without a partner.

Measurements

Future Time Perspective (FTP): FTP was measured with a 10-item scale (Carstensen & Lang, 1996), in which participants were required to rate on a scale ranging from 1 ("very untrue") to 7 ("very true"). The scale consisted of two subscales, focusing on opportunities (e.g., "*Most of my life lies ahead of me.*") and limitations (e.g., "*There are only limited possibilities in my future.*"). Two scores were obtained by separately summing subscales items, with high values denoting high focus on opportunities or limitations. The scale was adapted to the Turkish context by Soylu and Ozekes (2020). The Cronbach alpha coefficient for focus on opportunities and focus on limitations were .92 and .85, respectively. In the current study, they were .85 and .73, respectively.

Social Network Size: A social convoy questionnaire was used to assess participants' social network size (Kahn & Antonucci, 1980). Participants were supplied with a circle diagram that included three-concentric circles grouped across the word "I" and requested to generate names or numbers of the social partners across regions in every circle. The inner circle represents social partners to whom respondents "sense very close, so near that it would be hard to assume life without." The middle circle represents social partners to whom respondents "don't feel quite so close as the ones in the inner circle, however, are nonetheless very near." The outer circle represents social partners to whom respondents "feel less close, but who are still important." The social network size was computed as the sum of all social partners in each circle diagrams ranging from 1 to 70 network partners ($M = 22.84$, $SD = 13.12$) in the current study.

Social Satisfaction: Similar to previous studies (Dumitrache et al., 2019; Lang & Carstensen, 2002), social satisfaction was measured using two items: a) "How satisfied are you with your family members and relatives?" and b) "How satisfied are you with your social partners in general?". Participants indicated social satisfaction using a five-point scale (1 = very dissatisfied; 5 = very satisfied). The two items were positively correlated ($r = .22$, $p < .01$) in the current study.

Positive and Negative Affect Schedule (PANAS): PANAS is a scale composed of 20 items and two subscales (Watson et al., 1988). Half of the items represent positive affect (PANAS-P), whereas the other half is indicative of negative affect (PANAS-N). Each item is related to an adjective, and the answers are categorized on a 5-point Likert scale from 1 ("very slightly or not at all") to 5 ("extremely") according to how the person has been feeling the emotion described by the adjective lately. A total score was calculated by adding the

scores for each of the ten items, where a higher score represented a higher positive or negative affect. The Turkish reliability and validity study of the scale was conducted by Gençöz (2000), and the Cronbach's alpha internal consistency was high: .83 for the PANAS-P and .86 for the PANAS-N. In the current study, the internal consistency of the scale for PANAS-P and PANAS-N was $\alpha = .88$ and $\alpha = .84$, respectively.

Procedure

We received the ethical approval for the current study from the researcher(s) university's ethical committee in Turkey (Approval Number = 06/02-221). The students decided whether to participate in the study, and all participants provided willful and explicit written informed consent to the procedures. The researcher(s) administered instruments in a face-to-face setting in the students' classrooms at the beginning of a class. It took an average of fifteen minutes to complete the questionnaire.

Data Analysis

We first checked our data for missing values and normality using histograms, kurtosis/skewness values, and Kolmogorov-Smirnov test (Tabachnick & Fidell, 2013). Normality assumptions were unviolated. We conducted descriptive and preliminary statistics using SPSS.25 and 'R 3.3.2' (R Core Team, 2021) and then performed structural equation modeling (SEM) with a maximum likelihood estimation using MPlus (Version 8.3; Muthén & Muthén, 1998-2017). Pearson correlations were conducted to determine the relationship between study variables (see Table 1). The scores of PANAS-P and PANAS-N were compared using an Independent Samples *t*-test depending on gender and partner status. SEM was performed the procedure and criteria were described in detail by Kline (2016). Firstly, confirmatory factor analysis (CFA) was performed to assess the assumed relationships between indicator variables and latent constructs. Secondly, SEM was used to analyze the paths in the model of the study. It was used the following criteria for the evaluation of model fit: $\chi2$ $p > .05$, CFI $> .95$, TLI $> .95$, RMSEA $< .06$, and SRMR $< .08$ (Hu & Bentler, 1999). To evaluate the model's mediation effects, we used the 5,000 bootstrapping approach (Hayes & Preacher, 2010). We judged an indirect impact significant if its 95% confidence interval (CI) excluded 0.

Results

Preliminary Analyses

Means, standard deviations, and Pearson correlations coefficient between the model variables are presented in Table 1. As expected, the preliminary findings indicate that both dimensions of FTP significantly relate to PANAS-P and PANAS-N.

Independent sample *t*-tests demonstrated that there were no significant differences between male and female participants regarding PANAS-P $t(217) = -1.472$, $p = .14$ and PANAS-N $t(217) = -1.365$, $p = .17$. Similarly, there were no significant differences between participants with and without a partner regarding PANAS-P $t(217) = -.213$, $p = .83$ and PANAS-N $t(217) = 1.105$, $p = .27$.

Table 1

*Means, Standard Deviations, and Correlations of the Study Variables*

Variables	M	SD	1	2	3	4	5	6	7	8	9
1. Focus on opportunities	4.37	1.13	-								
2. Focus on limitations	3.98	1.35	-.47***	-							
3. Social network size	22.84	13.12	.13*	-.10	-						
4. Satis. from family	3.46	1.04	.14*	-.17*	.12	-					
5. Satis.from social partner	3.63	.88	.17*	-.10	.15*	.22**	-				
6. Positive affect	30.40	8.22	.48***	-.25***	.15*	.11	.22**	-			
7. Negative affect	21.89	7.17	-.37***	.24***	-.18**	-.17*	-.32***	-.42***	-		
8. Chronological age	20.07	1.76	-.01	.01	.00	-.04	.07	.03	-.06	-	
9. Gender[a]	-	-	-.09	.10	-.06	.05	-.12	.10	.09	-.06	-
10. Marital status[b]	-	-	.14*	-.17*	.07	.07	.18**	.01	-.07	.11	-.04

Satis.=Satisfaction. [a]0 = Female and 1 = Male. [b]0 = Single or without partner and 1 = Married or with a partner.

*p < .05. **p < .01. ***p < .001

Structural Equation Modeling (SEM)

The measurement model contains three latent constructs, FTP, social satisfaction, and PANAS. CFA was conducted to check the variable's measurement model, and all fit indices were satisfactory $\chi2 (6) = 9.427$, $p = .15$, CFI = .982, TLI = .956, SRMR = .033 and RMSEA = .051 (90% CI [.000 - .110]). Factor loadings of the observed variables and correlations among the latent variables were significant ($p < .01$).
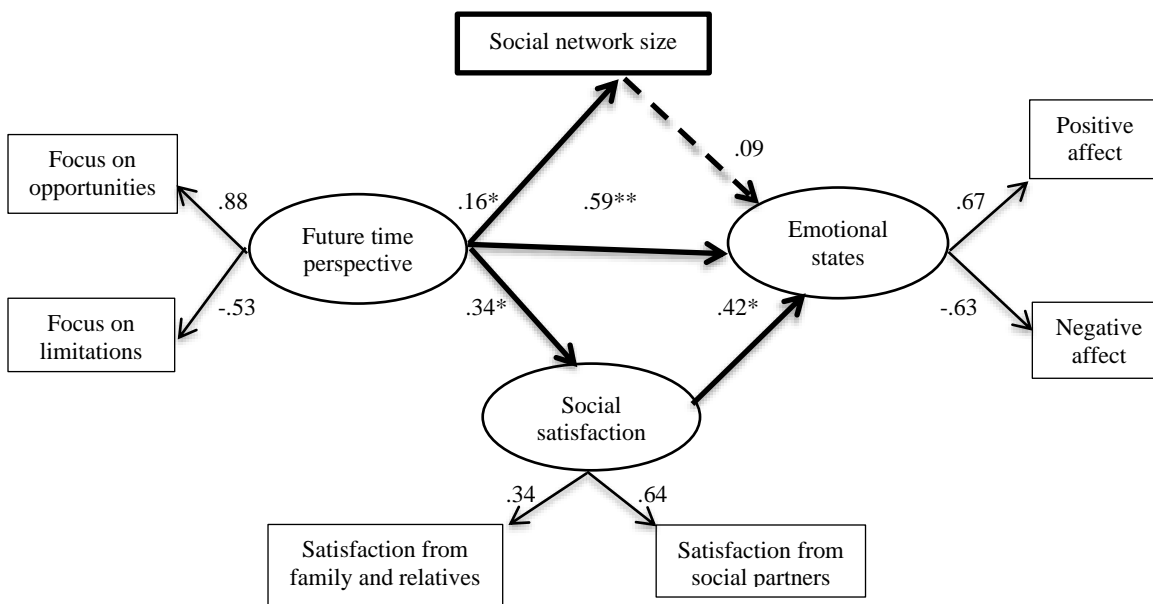
Note. Statistics Are Standardized Regression Coefficients. Dotted Lines Represent Non-Significant Relations; Bold Lines Represent Significant Direct Paths.
**p < .01. ***p < .001.

Figure 1. *Results of SEM Analysis*

We applied the structural model using maximum likelihood estimation to examine the study's hypotheses. This model has an acceptable fit; with χ2 (10) = 14.542, *p* = .15, CFI = .977, TLI = .953, SRMR = .040 and RMSEA = .046 (90% CI [.000 - .093]), all the loading estimators are significant at the *p* < .01 level. The model explains approximately 71% of PANAS variance. As expected, FTP was positively correlated with social network size (H1; β = .16, *p* = .04), social satisfaction (H2; β = .34, *p* = .03), and PANAS (H3; β = .59, *p* < .01). Confirming hypothesis 4, social satisfaction was positively correlated with PANAS (H4; β = .42, *p* = .04). As expected, social network size did not correlated with PANAS (H5; β = .09, *p* = .21). The results of the direct and indirect effects estimated via the bootstrapping procedure are summarized in Table 2 and Figure 1. Analyses of the indirect effects indicated that FTP was positively correlated with PANAS through social satisfaction β = .142, *SE* = .135 (%95 CI [.007 - .457]) (H6). However, the mediation effect of the social network size between FTP and PANAS could not be tested because the statistical assumptions were unmet.

Table 2
Summary of Directs, Indirect and Total Effects

	Unstandardized		Standardized		95% CI	
	Estimate	SE	Estimate	SE	LL	UL
FTP ➡ PANAS (Direct effect)	3.227	1.106	.585	.170	.214	.846
FTP ➡ SS ➡ PANAS	.785	.766	.142	.135	.007	.457
FTP ➡ SNS ➡ PANAS	.084	.074	.015	.013	- .013	.041
FTP ➡ PANAS (Total effect)	4.096	.860	.743	.101	.528	.925

Note. FTP = Future Time Perspective; PANAS = Positive and Negative Affect Scale; SNS = Social Network Size; SS = Social Satisfaction; CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit.

Discussion

In the present study, from the perspective of SST, we aimed to simultaneously examine the potential mediating roles of social satisfaction and network size between FTP and emotional state among a sample of young adults. The SEM analysis results indicated that social satisfaction was a possible mechanism that linked FTP to emotional state. In other words, we found that the view of time as expansive or open-ended contributes to higher positive affect via greater social satisfaction.

The main assertion of SST is that when individuals perceive their future as more limited, they are more driven to be more selective in their social partner, and they continuously decrease the number of social partners, especially more peripheral, less close relationships (Carstensen et al., 1999). Research conducted in different countries has provided considerable support for the hypothesis. For instance, Lang and Carstensen (2002) indicated that open-ended FTP positively predicted the size of the social networks among German participants with ages ranging from 20 to 90 years. Among undergraduate's students, Holman and Zimbardo (2009) suggest that past-positive time perspective was linked to a wider social network, particularly with family, from which respondents received a lot of support. Per these findings and theoretically expected directions in hypothesis 1, our results indicated that focus on opportunities was directly and positively linked to social network size and individuals who perceive the future time as open-ended have overall more social partners. Based on the SST, this finding explains that when people perceive future time as expansive, they prioritize knowledge-related goals and prefer to interact with more social partners to learn something new

from them (Carstensen, 2006). In addition, the positive relationship between open-ended FTP and social network size in this study also indicates that the findings can be generalized across cultures.

Although the SST suggests that a limited FTP contributes positively to well-being (Carstensen, 2006), some studies focused on the direct effects of the FTP on well-being, and emotional state has indicated that there is a negative correlation between a limited FTP and well-being (Hicks et al., 2012). In line with some previous studies (Hoppmann et al., 2017), our findings showed that the open-ended FTP directly enhances the positive affect. Similar findings were reported for US residents aged 17 and older, indicating that a limited FTP predicts more maladaptive emotional profiles including more severe depressive symptoms and negative affect, lower self-reported health, life-satisfaction, and positive affect (Grühn et al., 2016). The results are also in line with Coudin and Lima (2011), which found that individual with an open-ended FTP is less depressed and have higher well-being than those with a limited time FTP in a sample of adults from 23 countries. This may be those who perceive a great deal of time left in their lives would probably have long-term goals for health and well-being. Davis and Hicks (2013) found that individuals who perceived time as limited reported lower levels of hope relative to those who perceived time as open-ended.

It has been stated that the quality of social relationships contributes to positive emotions and well-being for individuals of all age groups (Umberson & Montez, 2010). For example, in longitudinal research with a sample from 18 to 94 years, English and Carstensen (2014) found that individuals whose networks were associated with higher negative tone experienced more negative emotional experiences in daily life. Similarly, Huxhold et al. (2013) used longitudinal data and revealed that a decline in emotional support was associated with an increase in negative affect among German adults aged 40 and older. More recently, Bruin et al. (2020) measured well-being in terms of feeling calm and peaceful, having a lot of energy, and feeling happy, and indicated that social satisfaction was a stronger predictor of happiness than the number of close friends. Researchers interpreted from this finding that for well-being, the perception of the quality of a relationship is more important than the quantity of relationships. In parallel with Bruin et al.'s (2020) study finding, we found that social satisfaction, not social network size, was positively correlated with a higher positive affect. It is possible that perceived social satisfaction can help offer material knowledge that can improve people's sense of joy and belonging and, their self-esteem and self-confidence when confronted with stressful life situations (Yeh & Lo, 2004). Thus, the high satisfaction obtained from social relationships may have increased positive emotions regardless of the type of cultures.

Supporting the direct associations from FTP to social satisfaction and social satisfaction to emotional state, the bootstrapped indirect effects provide the support that social satisfaction is a possible mechanism. In other words, as we hypothesized, the indirect effects indicate that open-ended FTP is linked to positive affect via social satisfaction. This finding was consistent with previous studies showing that emotional support is a significant determinant of well-being and emotional state (Huxhold et al., 2013). It should be noted that the current study found mediation, which indicates that social satisfaction explains the association between FTP and emotional state. Future researchers should elaborate on different ways how FTP relates to emotional state.

Although, our research fills various gaps in the literature, the present study has several limitations. First, causal inferences based on the results may have been impossible because of the study's cross-sectional design. Future studies should use longitudinal methods to clarify the causal links among the variables in the present study. Moreover, to acquire a better understanding of the underlying emotional states, longitudinal studies are need with multiple assessments over an extended time period. Second, as the data were collected from undergraduate students, the findings may have been limited in their generalizability due to using convenience sampling rather than a representative sample. Third, the sample mainly comprised females

(73.6% female). A balanced sample should be used in future studies. Fourthly, previous studies have suggested that many factors such as mood disorder (Gilbert et al., 2013) and number of social activities (Huxhold et al., 2013) are correlated with emotional states, however, we considered only a limited number of variables associated with emotional states in the present study. Therefore, future studies should consider additional variables can be related to emotional states. Moreover, future studies may also look into whether the relationships found with this sample of younger adults are the same across the life span. On a final note, it would be crucial to incorporate a different evaluation of the participant's network size, social satisfaction and emotional states. Therefore, future studies with different data sets including different assessment of the variables should also be done to replicate our findings.

References

Baldensperger, L., Wiedemann, A. U., Wessel, L., Keilholz, U., ve Knoll, N. (2018). Social network, autonomy, and adherence correlates of future time perspective in patients with head and neck cancer. *Psycho-Oncology*, *27*(6), 1545-1552. https://doi.org/10.1002/pon.4690

Bruin, B. W., Parker, A. M., & Strough, J. (2020). Age differences in reported social networks and well-being. *Psychology and Aging, 35*(2), 159-168. https://doi.org/10.1037/pag0000415

Carstensen, L. L. (2006). The influence of a sense of time on human development. *Science, 312(5782),* 1913-1915. https://doi.org/10.1126/science.1127488

Carstensen, L. L. (2021). Socioemotional selectivity theory: The role of perceived endings in human motivation. *The Gerontologist*, *61*(8), 1188-1196. https://doi.org/10.1093/geront/gnab116

Carstensen, L. L., Fung, H. H., & Charles, S. T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion*, *27*(2), 103-123. https://doi.org/10.1023/A:1024569803230

Carstensen, L. L., & Lang, F. R. (1996). *Future Time Perspective Scale* [Unpublished Manuscript]. Stanford University.

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, *54*(3), 165-181. https://doi.org/10.1037/0003-066X.54.3.165

Coudin, G., & Lima, M. L. (2011). Being well as time goes by: Future time perspective and well-being. *International Journal of Psychology and Psychological Therapy*, *11*(2), 219-232.

Davis, W. E., & Hicks, J. A. (2013). Maintaining hope at the 11th hour: Authenticity buffers the effect of limited time perspective on hope. *Personality and Social Psychology Bulletin*, *39*(12), 1634-1646. https://doi.org/10.1177/0146167213500150

Dumitrache, C. G., Rubio, L., & Cordón-Pozo, E. (2019). Successful aging in Spanish older adults: The role of psychosocial resources. *International Psychogeriatrics*, *31*(2), 181-191. https://doi.org/10.1017/S1041610218000388

English T., & Carstensen L. (2016) Socioemotional Selectivity Theory. In: Pachana N. (eds) *Encyclopedia of Geropsychology.* Springer. https://doi.org/10.1007/978-981-287-080-3_110-1

English, T., & Carstensen, L. L. (2014). Selective narrowing of social networks across adulthood is associated with improved emotional experience in daily life. *International Journal of Behavioral Development*, *38*(2), 195-202. https://doi.org/10.1177/0165025413515404

Fisher, C. L., & Nussbaum, J. F. (2015). Maximizing wellness in successful aging and cancer coping: The importance of family communication from a socioemotional selectivity theoretical perspective. *Journal of Family Communication*, *15*(1), 3-19. https://doi.org/10.1080/15267431.2014.946512

Fung, H. H., Stoeber, F. S., Yeung, D. Y. L., & Lang, F. R. (2008). Cultural specificity of socioemotional selectivity: age differences in social network composition among Germans and Hong Kong Chinese. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *63*(3), 156-164. https://doi.org/10.1093/geronb/63.3.P156

Gençöz, T. (2000). Positive and negative affect schedule: A study of validity and reliability. *Turkish Journal of Psychology*, *15*(46), 27-28.

Gilbert, K. E., Nolen-Hoeksema, S., & Gruber, J. (2013). Positive emotion dysregulation across mood disorders: How amplifying versus dampening predicts emotional reactivity and illness course. *Behaviour Research and Therapy*, *51*(11), 736-741. https://doi.org/10.1016/j.brat.2013.08.004

Grühn, D., Sharifian, N., & Chu, Q. (2016). The limits of a limited future time perspective in explaining age differences in emotional functioning. *Psychology and Aging, 31*(6), 583–593. https://doi.org/10.1037/pag0000060

Hayes, A. F., & Preacher, K. J. (2010). Quantifying and testing indirect effects in simple mediation models when the constituent paths are nonlinear. *Multivariate Behavioral Research, 45*, 627–660. https://doi.org/10.1080/00273171.2010.498290

Hess, T. M., O'Brien, E. L., Voss, P., Kornadt, A. E., Rothermund, K., Fung, H. H., & Popham, L. E. (2017). Context influences on the relationship between views of aging and subjective age: The moderating role of culture and domain of functioning. *Psychology and Aging, 32*(5), 419–431. https://doi.org/10.1037/pag0000181

Hicks, J. A., Trent, J., Davis, W. E., & King, L. A. (2012). Positive affect, meaning in life, and future time perspective: An application of socioemotional selectivity theory. *Psychology and Aging*, *27*(1), 181-189. https://doi.org/10.1037/a0023965

Holman, E. A., & Zimbardo, P. G. (2009). The social language of time: The time perspective–social network connection. *Basic and Applied Social Psychology, 31*(2), 136–147. https://doi.org/10.1080/01973530902880415

Hoppmann, C. A., Infurna, F. J., Ram, N., & Gersorf, D. (2017). Associations among individuals' perceptions of future time, individual resources, and subjective well-being in old age. *Journals of Gerontology: Psychological Sciences, 72,* 388–399. https://doi.org/10.1093/geronb/gbv063

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Huang, X., Western, M., Bian, Y., Li, Y., Côté, R., & Huang, Y. (2019). Social networks and subjective wellbeing in Australia: New evidence from a national survey. *Sociology, 53*(2), 401-421. https://doi.org/10.1177/0038038518760211

Huxhold, O., Fiori, K. L., & Windsor, T. D. (2013). The dynamic interplay of social network characteristics, subjective well-being, and health: The costs and benefits of socio-emotional selectivity. *Psychology and Aging*, *28*(1), 3-16. https://doi.org/10.1037/a0030170

Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles and social support. In P. B. Baltes ve O. Brim (Eds.), *Life-span development and behavior* (pp. 254–283). Academic Pres.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* [4th. Ed.]. Guilford publications.

Lang, F. R., & Carstensen, L. L. (1994). Close emotional relationships in late life: Further support for proactive aging in the social domain. *Psychology and Aging, 9*(2), 315-324. https://doi.org/10.1037/0882-7974.9.2.315

Lang, F. R., & Carstensen, L. L. (2002). Time counts: Future time perspective, goals, and social relationships. *Psychology and Aging 17,* 125–139. https://doi.org/10.1037/0882-7974.17.1.125

Lang, F. R., Staudinger, U. M., & Carstensen, L. L. (1998). Perspectives on socioemotional selectivity in late life: How personality and social context do (and do not) make a difference. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 53*(1), 21-30. https://doi.org/10.1093/geronb/53B.1.P21

Liao, H.-W., & Carstensen, L. L. (2018). Future time perspective: Time horizons and beyond. *GeroPsych: The Journal of Gerontopsychology and Geriatric Psychiatry, 31*(3), 163-167. http://dx.doi.org/10.1024/1662-9647/a000194

Muthén, L.K. & Muthén, B.O. (1998-2017). *Mplus User's Guide* (8th ed.). Muthén & Muthén.

Perkins, J. M., Subramanian, S. V., & Christakis, N. A. (2015). Social networks and health: A systematic review of sociocentric network studies in low-and middle-income countries. *Social Science & Medicine, 125,* 60-78. https://doi.org/10.1016/j.socscimed.2014.08.019

Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective wellbeing in later life: A meta-analysis. *Psychology and Aging 15,* 187–224. https://doi.org/10.1037/0882-7974.15.2.187

R Core Team (2021). *R: A language and environment for statistical computing.* R Foundation for Statistical Computing, Vienna, Austria.

Rafnsson, S. B., Shankar, A., & Steptoe, A. (2015). Longitudinal influences of social network characteristics on subjective well-being of older adults: Findings from the ELSA study. *Journal of Aging and Health 27,* 919–934. https://doi.org/10.1177/0898264315572111

Schwartz, E., & Litwin, H. (2019). The reciprocal relationship between social connectedness and mental health among older European adults: A share-based analysis. *The Journals of Gerontology: Series B, Psychological sciences and social sciences,* 74, 694–702. https://doi.org/10.1093/geronb/gbx131

Soylu, C., & Ozekes, B. C. (2020). Psychometric properties of the future time perspective scale for the Turkish population: Age differences in predictors of time perspective. *The International Journal of Aging and Human Development*, *91*(1), 85–106. https://doi.org/10.1177/0091415019836108

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Pearson Education.

Umberson, D., & Montez, K.J. (2010). Social relationships and health: A flashpoint for health policy. *Journal of Health and Social Behavior*, *51*, 54-66.

Yeh, S.-C. J., & Lo, S. K. (2004). Living alone, social support, and feeling lonely among the elderly. *Social Behavior and Personality: An International Journal, 32*(2), 129–138. https://doi.org/10.2224/sbp.2004.32.2.129

Zhang, Z., Zhang, J., Zhao, N., & Yang, Y. (2019). Social network size and subjective well-being: The mediating role of future time perspective among community-dwelling retirees. *Frontiers in Psychology, 10,* 2590. https://doi.org/10.3389/fpsyg.2019.02590

Wang, X. M. (2016). Subjective well-being associated with size of social network and social support of elderly. *Journal of Health Psychology, 21,* 1037–1042. https://doi.org/10.1177/1359105314544136

Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *The Journal of Personality and Social Psychology, 54,* 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063

Windsor, T. D., Fiori, K. L., & Crisp, D. A. (2011). Personal and neighborhood resources, future time perspective, and social relations in middle and older adulthood. *Journals of Gerontology: Series B, 67*(4), 423-431. https://doi.org/10.1093/geronb/gbr117