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Sense of coherence and subjective well-being: The mediating role of Hope for college students in Turkey

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Abstract
This study aims to examine the mediating role of hope in the relationship between university students' sense of coherence and subjective well-being (life satisfaction, negative affect, positive affect). The study sample consisted of 556 university students, 358 females and 198 males in Turkey. Data were collected through the "Sense of Coherence Scale", "Life Satisfaction Scale", "Positive and Negative Affect Scale" and "Special Living Areas Hope Scale". The bootstrapping regression method was conducted to determine the mediating role of hope in the relationship between university students' sense of coherence and subjective well-being. As a result of the correlation analysis, a positive relationship was detected between sense of coherence and hope, subjective well-being, life satisfaction, and positive affect, and a negative and significant relationship was found with negative affect. The results of the bootstrapping that was performed to analyze the mediating role of hope showed that hope had a partial role in the relationship between sense of coherence and subjective well-being and its sub-scales (life satisfaction, positive affect, and negative affect). The findings were discussed in light of previous studies, and recommendations were made for future studies.

Keywords Sense of coherence · Hope · Subjective well-being · Life satisfaction · Positive affect · Negative affect

Introduction

The University period, which includes preparation for adulthood life, namely the ages between 18 and 25, is defined as emerging adulthood (Arnett, 2004). This period, which includes pulling away from the adolescence period dependence and preparing for the responsibilities and roles of adulthood, is a transition period between adolescence and adulthood (Arnett, 2004). Identity development, emotional development, marriage and family, social relationships, work life, and career development are of great importance in the emerging adulthood period (Kırdök, 2019). In this period, individuals both receive education about the professions they will perform in the future and get prepared for their contribution to society and the status they will have in society. All of these mean that university students have to deal with many problems, which causes them to be more anxious than other individuals (Hammad, 2016). This condition becomes a little more complicated and difficult specific to Turkey.

In their cultural analysis, Hofstede et al., 2010) categorized Turkey among countries with high "collectivist" "uncertainty avoidance" and "power distance" (individualism index: 37 low, rank: 24 low; uncertainty avoidance index: 85 high, rank:34-35 high; power distance index:66 high, rank:34-35 high). This cultural structure leads young people in Turkey to prefer the known instead of the different and make cautious choices (Şişman, 2002). University education is the primary way of having a "specific" profession and earning money, particularly for young people coming from families with low and medium socio-economic level (Çevik & Yiğit, 2009; Gölpek & Yıldız, 2019; Sevüktekin et al., 2012; Türkoğlu et al., 2017; Tunç, 2011). This notion generates the perception in society that young individuals who become university students "save their life" (Gündoğar et al., 2007). In other words, a university is a promising place for young people to get rid of economic problems and be able to establish their own life. However, the reality is different in Turkey. According to the report prepared by the Organisation for Economic Co-operation and Development

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(OECD, 2021) the unemployment rate for individuals with university degrees in Turkey is 10.7%. The report provided by the Turkish Statistical Institute (TSI , 2019) indicates that the number of unemployed university graduates has been increasing day by day in Turkey. The difference between the expectations and the realities of the country causes young individuals to experience problems such as concerns for their professional future (Bilgin, 2001), suicidal thoughts (Öksüz & Bilge, 2014; Eskin, 2017; Gürkan & Dirik, 2009; Uncu, 2020), depression (Alparslan et al., 2008), trait anxiety (Deveci et al., 2012), and hopelessness (Yazıcı, 2003).

In this regard, it can be said that university students in Turkey have many risk factors. It is therefore highly important to increase protective factors in order to decrease the effect of these risk factors. Subjective well-being is the primary factor among the factors protecting psychological health. Subjective well-being is an individual's evaluating his/her emotional and cognitive health and being satisfied with this evaluation (Diener & Diener, 1996; Diener et al., 2002). While the cognitive dimension of subjective well-being includes life satisfaction, the emotional dimension includes positive and negative emotions (Diener, 1984). In the literature subjective well-being is reported to be positively associated with variables such as health and longevity (Diener & Chan, 2011), learned powerfulness (Cenkseven & Akbaş, 2007), friendship and social activity (Harlow & Cantor, 1996), social support and self-respect (Saygın & Arslan, 2009), empathy and self-compassion (Wei et al., 2011), extraversion (Cenkseven & Akbaş, 2007), self-efficacy (Quan et al., 2016; Telef & Ergün, 2013), self-management (Bast, 2008; Nima et al., 2012), resilience (Kirmani et al., 2015), hope (Budhiraja & Midha, 2015; Hutz et al., 2014; Kato & Snyder, 2005; Werner, 2012), and sense of coherence (Krok, 2015).

Studies conducted with university students in Turkey demonstrate that meaningfulness and hope had important contributions to subjective well-being (Demirli et al., 2015; Şahin et al., 2012; Yalçın & Malkoç, 2015). Lack of meaningfulness and hopelessness are reported to predict university students' suicide probability (Uncu, 2020). Meaningfulness is the most important component of sense of coherence (Antonovsky, 1988), and studies show that sense of coherence contributed to well-being (Hart et al., 2006; Zielinska-Wieczkowska et al., 2010; Krok, 2015; Togari et al., 2008). The literature includes a limited number of studies that investigated the relationship between sense of coherence and subjective well-being. These studies were found to investigate life satisfaction (Çeçen, 2008) and positive-negative emotions (Öztekin & Tezer, 2009). No studies in Turkey were found to have investigated subjective well-being and its sub-scales (life satisfaction and positive-negative emotions). This study included university students in Turkey, who have risk factors such as high unemployment problems and concerns for the future. The study investigated the mediating role of hope, their motivation to enter university, in the relationship between university students' sense of coherence and subjective well-being levels and its sub-scales (positive emotion, negative emotion, and life satisfaction).

Relationship between Sense of Coherence and Subjective Well-Being

The salutogenic approach focuses on exploring the sources of health rather than causes of unhealthiness (Antonovsky, 1988). Sense of coherence is the most important concept of this approach. Thanks to sense of coherence, the individual sees the stressful life events as conditions that enable strength rather than negative things and preserves his/her well-being (Antonovsky, 1988). Sense of coherence has three main components that are called comprehensibility, manageability, and meaningfulness. Comprehensibility involves the cognitive components of the sense of coherence and means that an individual perceives the internal and external stimulus to be encountered in the future orderly and predictable. Manageability is behavioral and instrumental sources that the individual uses or thinks that s/he could use to cope with stressful stimuli. Individuals with a high sense of manageability know that there could be undesirable things in their life, but they are aware that they can cope with them, and grief is not endless (Antonovsky, 1988). The third component of the sense of coherence, meaningfulness, indicates that an individual perceives life as emotional, invests energy at least for the problems and requirements in life, gives importance to commitment and faithfulness, and tolerates difficulties rather than seeing them as a burden. Although all these three components are important for sense of coherence, meaningfulness has critical importance. Without meaningfulness, comprehensibility and manageability are temporary (Antonovsky, 1988).

Antonovsky (1988) stated that individuals from different cultural and socioeconomic levels could reach a similar sense of coherence level. Various studies on sense of coherence were conducted in many different countries like Japan (Mato & Tsukasaki, 2019; Mikami et al., 2013; Togari et al., 2008; Yano et al., 2019), China (Chu et al., 2016), India (Rajesh et al., 2016), Finland (Mattila et al., 2011) Spain (Fernandez-Martinez et al., 2019), and Brasil (Pantuza et al., 2020) to find out whether this theory is supported or not. Thus, in all cultures, sense of coherence seems to be negatively associated with risk factors such as depression, anxiety, and stress and positively associated with protective factors such as self-efficacy, life satisfaction, and subjective well-being. On the other hand, there is a need for more information on this issue (Yamazaki, 1999 in Togari et al., 2008).

This study investigated the relationship between sense of coherence and subjective well-being levels of university

students in Turkey. As it is known, subjective well-being, which refers to an individual's cognitive and affective evaluation of his/her life, includes one's satisfaction and happiness about emotional reactions and events as well as cognitive judgments (Diener & Diener, 1996; Diener et al., 2002). Although the effect of sense of coherence is known in this evaluation, whether the same condition is relevant for university students in Turkey is an issue of concern. A limited number of studies on sense of coherence in Turkey investigated its relationship with concepts such as life satisfaction (Çeçen, 2008), positive-negative emotions (Öztekin & Tezer, 2009), irrational beliefs (Öztürk, 2020), self-differentiation and alexithymia (Yıldız, 2020).

Relationship between Hope and Subjective Well-Being

Hope is one's capacity in developing applicable goals, findings ways to realize these goals, and being able to be motivated to use these ways (Snyder, 2002). In other words, hopeful thinking is possible through the use of "pathways thinking" and "agency thinking" in tandem. "Pathways thinking" of ways is one's perceived capacity in being able to find ways to reach the goals. "Agency thinking" is an individual's perceived capacity in being able to use these ways (Snyder et al., 2002). "Agency thinking" provides the motivation required for being channelized to alternative ways when barriers are encountered (Snyder, 2000). Individuals with high hope levels have the perception that they can find alternative ways when they encounter barriers (Snyder, 2000) and demonstrate realistic and positive behaviors during crisis periods (Scheier & Carver, 1992 as cited in Lipschitz-Elhawi, 2009). This process requires the individual to be active. This process of being active enables individuals to increase their subjective well-being levels by having more successful experiences in reaching their goals (Snyder, 2000). As it is known, subjective well-being is a comprehensive concept, and while its cognitive aspect involves life satisfaction, its emotional aspect involves positive-negative emotion. Studies worldwide have determined the predictor, mediator, and regulatory role of hope in the studies that investigated university students' subjective well-being, life satisfaction, and positive-negative emotions (Asgari & Sharaf, 2009; Bozorgi & Homaei, 2018; Dursun, 2012; Nell & Rothman, 2018; Werner, 2012). Similarly, studies conducted with university students in Turkey also revealed that hope had a predictor (Demirli et al., 2015; Dursun, 2012; Şahin et al., 2012) and mediator (Muyan & Demir, 2015; Satici, 2016; Yalçın & Malkoç, 2015) role. Demirli et al. (2015) reported that hope predicted subjective well-being and its sub-scales (positive emotion, negative emotion and life satisfaction). The full mediating role of hope was reported in the relationship between meaningfulness and subjective well-being in the study conducted by Yalçın and Malkoç (2015) and in the relationship between vulnerability and psychological resilience by Satici (2016).

Mediating Model in the Relationship between Sense of Coherence and Subjective Well-Being

Theoretical relationship of the effect of sense of coherence on individuals' well-being is known. The results of the studies conducted with university students in different cultures also support this relationship (Hart et al., 2006; Krok, 2015; Togari et al., 2008). A study conducted in Turkey found that meaningfulness, the most important component of sense of coherence, predicted university students' subjective well-being levels (Şahin et al., 2012). The literature includes studies that revealed the full mediating role of hope on the variables similar to the sense of coherence such as the meaning of life (Yalçın & Malkoç, 2015) and psychological resilience (Satici, 2016). Krok (2015) reported the partial mediating role of optimism in the relationship between sense of coherence and subjective and psychological well-being. The literature includes no studies that investigated the sense of coherence, hope, and subjective well-being of university students. The only study that investigated these three variables included mothers of children with special needs. The longitudinal study reported that mothers who participated in the early intervention study had a full mediating role of hope in the relationship between sense of coherence and subjective well-being, and this effect was found to maintain in the measurements performed 5-12 years later (Einav & Margalit, 2019). An analysis of the results of this study makes one think that hope could have a mediating role in the relationship between university students' sense of coherence and subjective well-being levels.

Current Study

The concept of sense of coherence was developed in a western and individualist culture. Given the differences in the self-conception in the western and eastern cultures, the place of sense of coherence in different cultures is a topic that requires investigation (Yamazaki, 1999 in. Togari et al., 2008). In addition, although the literature includes some studies conducted with similar variables, no studies were found to have investigated the mediating role of hope in the relationship between sense of coherence and subjective well-being. This study is considered to contribute to the literature since it was conducted in Turkey, which is an eastern country that has a communitarian culture. The purpose of this study is to identify the mediating role of hope in the relationship between Turkish university students' sense of coherence and subjective well-being. In line with this purpose, the study investigated the following hypotheses: a) Sense

of coherence significantly explains subjective well-being and its sub-scales. b) Hope significantly explains subjective well-being and its sub-scales. c) Hope has a mediating role between sense of coherence and subjective well-being (life satisfaction, positive affect, and negative affect).

Method

Research Design

This descriptive study adopted a relational model to identify the relationship between university students' subjective well-being, sense of coherence, and hope levels and determine whether hope had a mediating role in the relationship between their sense of coherence and subjective well-being levels.

Study Group

The sample of the study was university students who were enrolled in the 1st, 2nd, 3rd, and 4th year in different departments of the Faculty of Education at Çukurova University. The classes to be included in the study were selected using non-proportional random sampling. The sample was composed of 556 students, 358 females (64.3%) and 198 males (35.7%). The students in the sample were aged between 18 and 36, and the average age was 21.44 with a standard deviation of 2.14. Table 1 demonstrates the participating students' distribution by gender and class level.

Data Collection Tools

The Sense of Coherence Scale-Short Form It is a 13-item and 7-point Likert scale developed by Antonovsky (1988) (in Antonovsky, 1988). The scale includes questions such as "Do you sometimes have the feeling that you do not care about what goes around you?" "Have you ever been surprised by the behaviors of people that you thought you knew well?". The scale was adapted to Turkish by Scherler and Lajunen (1997). In their intercultural study, Scherler and Lajunen (1997) included 152 Turkish students and as a result of the confirmatory factor analysis, they reported that the scale had a three-factor structure (comprehensibility, manageability, and meaningfulness). In the reliability analyses, internal consistency coefficients of the comprehensibility, manageability, and meaningfulness were found .57, .54, and .62 respectively. The internal consistency coefficient was found .69 for the whole scale. In addition to the scores obtained from the sub-scales, one also obtains a sense of coherence total score. Increased scores obtained from the scale indicate a high sense of coherence. Cronbach's alpha reliability coefficient of the scale was found .59 for all the items.

Special Living Areas Hope Scale (SLAHS) The Special Living Areas Hope Scale was developed by Sympson (1999) (in Özbay et al., 2011). The scale has 48 items rated on an 8-point Likert scale. The Special Living Areas Hope Scale was formed to assess individuals' levels of hope in different domains (social/friends, academic, family, romantic, work/occupation, and leisure/hobbies). The hope scores in different life domains are collected to obtain a total hope score (minimum 48 and maximum 384). The scale includes items such as "I think there are many different ways of becoming successful in the academic field", "I think there are many ways of making friends." Turkish adaptation of the scale was performed by Özbay et al. (2011). The researchers performed exploratory and confirmatory factor analysis for the construct validity of the scale and found that the six subscales of the original form were valid for Turkish culture as well. The internal consistency coefficient of the scale ranges between 0.80 and 0.93. The correlation coefficient performed in the test-retest method performed within two-week intervals was found to range from 0.63 to 0.77. In this study, Cronbach's alpha internal consistency coefficients of the scale were found .76 for the social/friends sub-scale, .87 for the academic sub-scale, .88 for the romantic sub-scale, .92 for the family sub-scale, .84 for the work/occupation sub-scale, and .89 for the leisure/hobbies sub-scale.

Subjective Well-Being Subjective well-being is a variable that is composed of three components including subjective well-being, life satisfaction, positive emotion and negative emotion.

Table 1 Distribution of the Students by Gender and Class Level

	Female		Male		Total	
Class Level	f	%	f	%	f	%
1st year	64	11.51	22	4	86	15.51
2nd year	94	16.91	78	14.03	172	30.94
3rd year	114	20.50	49	8.81	163	29.31
4th year	86	14.47	49	8.81	135	24.28
Total	358	64.39	198	35.61	556	100

Life Satisfaction Scale The Life Satisfaction Scale, developed by Diener, Emmons and Griffin (1985) is composed of 5 items rated on a 7-point Likert scale (in Köker, 1991). The scale has items such as "With many aspects, my life is close to my ideals", "My living conditions are very good". The test-retest correlation of the Turkish form was found .85. The correlation between the total score and the items was found to be between .71 and .80. Cronbach's alpha internal consistency reliability coefficient of the scale was found .86 in this study.

Positive and Negative Affect Scale The Positive and Negative Affect Scale was developed by Watson, Clark and Tellegen (1988) (in Gençöz, 2000). The scale is a 5-point Likert scale that is composed of 20 emotions including 10 positive and 10 negative emotions. The scale includes emotions such as "interested", "distressed", and the participants are asked to rank the extent to which they experience these emotions between 1 and 5. The scale was adapted to Turkish by Gençöz (2000). The factor analysis results showed that the scale items were collected under the positive and negative affect factors like in the original form. The internal consistency coefficients of the scale were found .83 for positive affect and .86 for negative affect. Test-retest consistency was .40 for positive affect and .54 for negative affect. In this study, Cronbach's alpha internal consistency reliability coefficient of the scale was found .75 for positive affect and .83 for negative affect.

Data Collection

After the study was planned, ethics committee approval was obtained from the Institute of Social Sciences at Çukurova University. Special attention was paid to make the distributions according to the class levels in the data collection process. Therefore, the participants accessed included students from each class level of each department. Once the classes were selected, the students were verbally informed by researchers about the study to be conducted in the classroom environment. Meanwhile, the students who agreed to participate in the study were asked to respond to the questions in the measurement tool.

Data Analysis

This study investigated the mediating role of hope in the relationship between sense of coherence and subjective well-being among university students. Subjective well-being is a variable that is composed of three components including subjective well-being, life satisfaction, positive emotion and negative emotion. The SWB variable was calculated according to the formula: SWB = SWLS+POSAFF-NEGAFF (Vittersø, 2001). The indicator variables were transformed into z-scores before the SWB variable was calculated.

After all the descriptive statistics related to all the variables in the study were calculated, the relationships between the variables were determined using the Pearson Moments Multiplication Correlation analysis. Then mediation analyses were performed in line with the suggestions by Preacher and Hayes (2008). Preacher and Hayes's (2008) bootstrapping procedures were utilized to investigate the significance of the indirect effects. This study determined the bootstrap coefficient and confidence intervals by performing bootstrap 10,000 times. The analyses were performed using IBM SPSS Statistics 22.00. We set the level of significance at $p < 0.05$.

Findings

Descriptive Statistics and Correlations

Pearson Moments Multiplication Correlation analysis was performed to analyze the relationships between subjective well-being, sense of coherence, and hope. Besides, descriptive statistics of the variables were also calculated. The analysis results are demonstrated in Table 2.

As it is seen in Table 1, a positive relationship was found between the sense of coherence and subjective well-being, positive affect and life satisfaction (r = .58, r = .44 and r = .29 respectively, $p < .001$) and a negative, significant relationship

Table 2 Relationships between Subjective well-being, Sense of Coherence, and Hope and Descriptive Statistics

	Correlations						Descriptive Statistics		
	1	2	3	4	5	6	Ort. (Sd)	Skewness	Kurtosis
1. Subjective well-being	–						.00 (2.18)	−.57	.69
2. Life satisfaction	.80**	–					23.15 (5.94)	−.63	.09
3.Positive Affect	.68**	.35**	–				33.96 (5.55)	−.19	.13
4. Negative Affect	−.70**	−.40**	−.12*	–			22.61 (6.79)	.53	.13
5.Sense of Coherence	.58**	.44**	.29**	−.52**	–		53.97 (8.50)	.03	.48
6. Hope	.54**	.42**	.44**	−.31**	.38**	–	292.18 (39.98)	−.79	.92

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

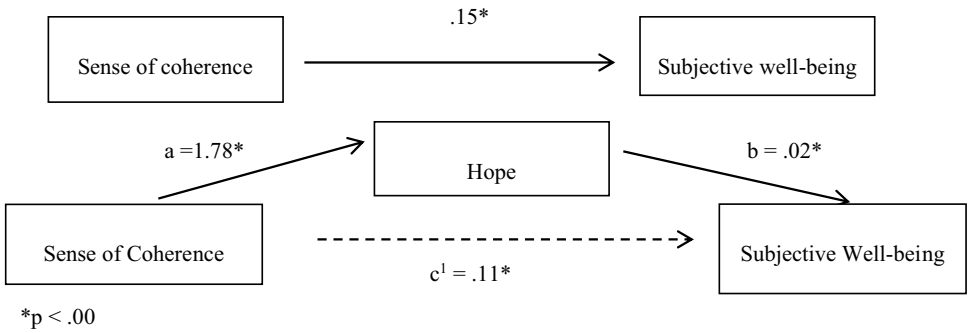


Fig. 1 The Mediating Role of Hope in the Relationship between Sense of Coherence and Subjective Well-being

was found between negative affect and sense of coherence (r = −.52, $p < .001$).

In a similar vein, a positive, significant relationship was found between hope and subjective well-being, positive affect and life satisfaction (r = .54, r = .42 and r = .44 respectively, $p < .001$), and a negative and significant relationship was found between hope and negative affect (r = −.31, $p < .001$). In addition, a positive and significant relationship was found between sense of coherence and hope (r = .38, $p < .001$).

Mediation Analyses

The relationships between sense of coherence and subjective well-being and its sub-scales (life satisfaction, positive affect, and negative affect) and hope as the mediating variable were analyzed using regression analysis. The bootstrapping test was utilized to analyze the indirect effects.

The Mediating Role of Hope in the Relationship between Sense of Coherence and Subjective Well-Being

As it was expected, sense of coherence predicted hope significantly ($B_{Sh} = 1.78_{.19,}$ t = −9.60, $p < .001$). Hope predicted subjective well-being positively and significantly ($B_{Sh} = .02_{.00,}$ t = 10.79, $p < .001$). The direct effect of sense of coherence on subjective well-being was determined as $B_{Sh} = .11_{.01,}$ t = 12.66, $p < .001$. The indirect effect of sense of coherence was ab = .04. After the mediating variable was included in the equation, the effect of sense of coherence on subjective well-being was found to decrease (from .15 to .11). According to Baron and Kenny (1986), this finding indicates partial mediation. According to the bootstrapping results, hope had a mediating role between sense of coherence and subjective well-being (Bootstrap coefficient = .04, Sh = .01, %95 GA = .03, .05). Hayes (2017) reports that the lower and upper limits of the confidence interval should not include zero so that it could be possible to decide whether the indirect effect is significant (Fig. 1).

The Mediating Role of Hope in the Relationship between Sense of Coherence and Life Satisfaction

Initially, sense of coherence predicted the significance of hope positively and significantly ($B_{Sh} = 1.78_{.19,}$ t = −9.60, $p < .001$). Hope predicted life satisfaction significantly and positively ($B_{Sh} = .04_{.01,}$ t = 7.42, $p < .001$). The direct effect of sense of coherence on life satisfaction was identified as $B_{Sh} = .23_{.03,}$ t = 8.24, $p < .001$.

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The indirect effect of sense of coherence was ab = .07. After the mediating variable was included in the equation, the effect of sense of coherence on life satisfaction was found to decrease (from .30 to .23). The Bootstrapping results (Bootstrap coefficient = .07, Sh = .02, %95 GA = .05, .11)

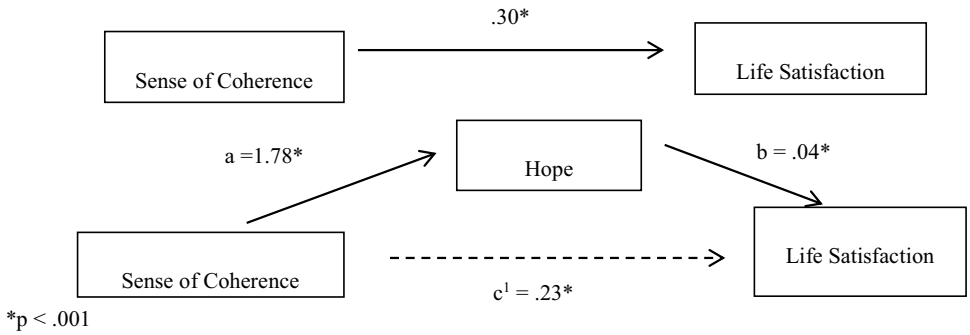


Fig. 2 The Mediating Role of Hope in the Relationship between Sense of Coherence and Life Satisfaction

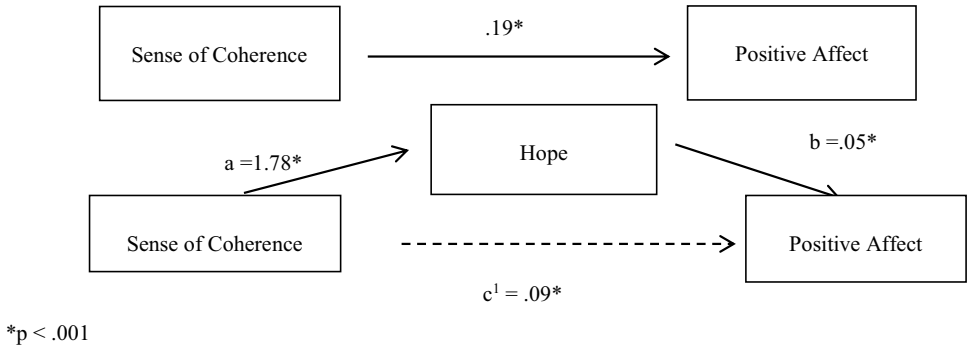


Fig. 3 The Mediating role of Hope in the Relationship between Sense of Coherence and Positive Affect

showed that hope had a mediating role between sense of coherence and life satisfaction (Fig. 2).

The Mediating Role of Hope in the Relationship between Sense of Coherence and Positive Affect

While sense of coherence predicted hope ($B_{Sh} = 1.78_{.19,}$ $t = -9.60$, $p < .001$) positively and significantly, hope predicted positive affect positively and significantly ($B_{Sh} = .05_{.01,}$ $t = 9.46$, $p < .001$). The direct effect of sense of coherence on positive affect was found as $B_{Sh} = .09_{.03,}$ $t = 3.53$, $p < .001$. The indirect effect of sense of coherence was found ab = .10. After the mediating variable was included in the equation, the effect of sense of coherence on positive affect was found to decrease (from .19 to .09). According to the bootstrapping results (Bootstrap coefficient = .10, Sh = .02, %95 GA = .07, .13), hope had a mediating role in the relationship between sense of coherence and positive affect (Fig. 3).

The Mediating Role of Hope in the Relationship between Sense of Coherence and Negative Affect

While sense of coherence predicted hope significantly and positively ($B_{Sh} = 1.78_{.19,}$ $t = -9.60$, $p < .001$), hope predicted negative affect significantly and negatively ($B_{Sh} = -.02_{.01,}$ $t = -3.28$, $p < .01$). The direct effect of sense of coherence on negative affect was found as ($B_{Sh} = -.38_{.03,}$ $t = -12.28$, $p < .001$). The indirect effect of sense of coherence was ab = −.04. After the mediating variable was included in the equitation, the effect of sense of coherence on negative affect was found to decrease (from −.42 to −.38). According to the bootstrapping results (Bootstrap coefficient = −.04, Sh = .01, %95 GA = −.07, −.01), hope had a mediating role between sense of coherence and negative affect (Fig. 4).

Discussion and Conclusion

This study investigated the mediating role of hope in the relationship between sense of coherence and subjective well-being (life satisfaction, positive affect, and negative affect). The results of the study showed that hope had a partial mediating role in the relationship between sense of coherence and subjective well-being and its sub-scales (life satisfaction, positive affect, and negative affect).

The study initially investigated the relationships between the variables. As it was expected, the correlational findings of the study showed that sense of coherence had positive and significant relationships with subjective well-being, life satisfaction, positive affect, and hope and negative and significant relationship with negative affect. These results are parallel with the studies on the relationships between sense of coherence and subjective well-being (Krok, 2015; Togari et al., 2008), sense of coherence and life satisfaction (Çeçen, 2008), sense of coherence and positive and negative affect (Öztekin & Tezer, 2009), hope and subjective well-being (Asgari & Sharaf, 2009; Bozorgi & Homaei, 2018; Demirli

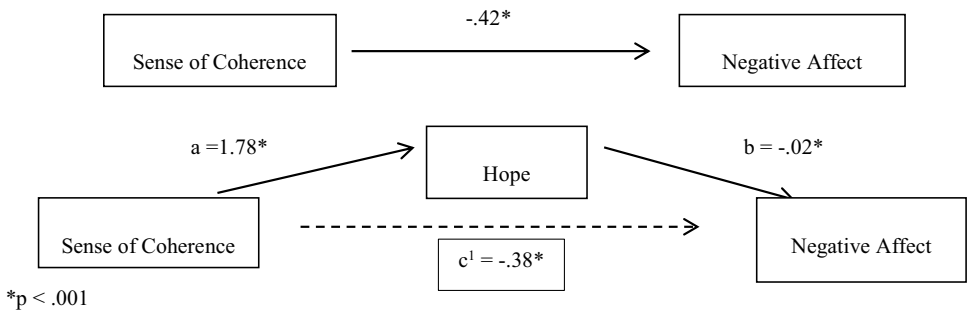


Fig. 4 The Mediating Role of Hope in the Relationship between Sense of Coherence and Negative Affect

et al., 2015; Şahin et al., 2012; Kato & Snyder, 2005; Margeletta & Oliver, 1999; Kirmani et al., 2015; Yalçın & Malkoç, 2015), hope and life satisfaction (Bailey et al., 2007; Hamid, 2011), hope and positive and negative affect.

Analyses showed that the negative emotion sub-scale of subjective well-being had the strongest connection with sense of coherence. This was followed by life satisfaction and positive emotion. Öztekin and Tezer (2009) also reported a similar result in their study conducted with university students in Turkey. This result indicates that young individuals with high sense of coherence who see the challenges they experience as opportunities to improve themselves initially decrease their negative emotions (Antonovsky, 1988). The most important finding obtained from the study is the partial mediating role of hope in the relationship between sense of coherence and subjective well-being and its sub-scales (life satisfaction, positive emotion, negative emotion). This finding indicates that sense of coherence had direct and indirect effects on subjective well-being levels and sub-scales of university students in Turkey and supports Antonovsky's theory (Antonovsky, 1988). Studies conducted with university students in different countries also report that sense of coherence had effects on subjective well-being and its sub-scales (life satisfaction, positive emotion, negative emotion) (Çeçen, 2008; Krok, 2015; Nishiyama et al., 2016; Öztekin & Tezer, 2009; Togari et al., 2008). This effect is also seen in the studies that investigated the relationship between sense of coherence and well-being in different samples (Mc Gee et al., 2018; Krampe et al., 2020; Krok & Kleszczewska-Albańska, 2019; Nahlen & Saboonchi, 2010; Pallant & Lae, 2002; Gana, 2001; Nilsson et al., 2010). This condition indicates that finding life meaningful, understandable, and manageable is important in increasing well-being not only in certain cultures or samples but also in all people.

The findings show the partial mediating role of hope in the relationship between sense of coherence and subjective well-being. The mediating role of hope in this relationship means that individuals who find life meaningful, understandable, and manageable take the steps appropriate to their values thanks to hope. It can be said that an individual who demonstrates proactive behaviors thanks to hope feels more positive emotions and less negative emotions and is satisfied with his/her life (Greenglass & Fiksenbaum, 2009). The partial mediating role of hope in this relationship supports the self-concordance model. In this model, an individual's having a meaningful purpose and struggling for that purpose contributes to his/her well-being (Werner et al., 2016). This view is supported by other study results indicating strong relationships between hope and sense of coherence and meaningfulness (Davidson et al., 2012; Hedayati & Khazaei, 2014; Lin et al., 2021; Yalçın & Malkoç, 2015). It was found that university students in Turkey need hope about being able to live in line with their values in order to increase their subjective well-being. The reason for this finding is the depth of problems such as economic concerns, problems about finding a job, and concerns for the future. It could be said that thanks to hope, they can find new ways apart from the existing ones and be satisfied with life by struggling for forming a meaningful life for themselves.

The partial rather than full mediating role of hope in this relationship is considered to be associated with meaningfulness, the fundamental component of sense of coherence. Meaningfulness consists of two components including seeking meaning and presence of meaning. Studies show that hope and positive emotion are negatively associated with seeking meaning and positively associated with the presence of meaning (Şahin et al., 2012; Dursun, 2012; King et al., 2006; Park et al., 2010). In this regard, young individuals' seeking meaning in life might have limited the effect of hope in the relationship between sense of coherence and subjective well-being. The collectivist nature of the culture in Turkey might have also affected this result because in collectivist cultures, happiness is known to be associated with social characteristics rather than individual characteristics (Dursun, 2012). In this regard, the concepts of hope and sense of coherence investigated in this study, which are individual characteristics, might have limited its effects on subjective well-being and sub-scales. However, there is a need for studies that investigate this issue with its both individual and social characteristics.

This study has a number of limitations. Initially, it was conducted with university students who were enrolled in the Faculty of Education at Cukurova University. Therefore, the results can only be generalized to the groups with similar characteristics. Besides, this study that was conducted with only university students could also be repeated with adults and high school students. In addition, conducting the study in other faculties apart from education faculties as well is considered to contribute to the literature. This study is cross-sectional in nature and does not provide information on the changes in sense of coherence levels of university students in Turkey over time. Therefore, there is a need for longitudinal studies that reveal the changes in sense of coherence, subjective well-being, and hope levels of university students in Turkey by years. Besides, studies on similar topics that make intercultural comparisons are also needed. This study investigated the mediating role of an individual characteristic like hope in the relationship between sense of coherence and subjective well-being. Future studies could investigate the effects of other individual characteristics (self-efficacy, locus of control, psychological resilience) as well as family (family sense of coherence, family functionality) and socio-demographic characteristics (age, gender, etc.) in this relationship. The results of this study showed that increasing university students' sense of coherence through hope would

increase their subjective well-being level. In this regard, covering topics such as generating one's own meaning of life and purposes, improving hopeful thoughts, not giving up trying new ways are considered to be of importance in personal and group psychological counseling practices for university students conducted in the psychological counseling units of the universities. These topics could be delivered through psycho-education in the psychological counseling units, and it could be beneficial if they are included in the courses designed for enhancing adaptation to university. In addition to these recommendations, there seems to be a need for developing employment policies that could nurture university students' life purposes and hopes.

Author Contributions All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Sümbül Yalnızca-Yıldırım, and Fulya Cenkseven-Önder. The first draft of the manuscript was written by Sümbül Yalnızca-Yıldırım, and Fulya Cenkseven-Önder and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Declarations

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Research Involving Human Participants Ethical approval to conduct the study has been obtained in accordance with national standards and guidelines on ethics in research with human participants.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Ethics committee approval was obtained from the scientific research and publication ethics committee of Cukurova University in the field of social sciences and humanities on 20.05.2020.

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