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The Mediating Role of Coping Strategies in the Relationship between Cognitive Flexibility and Well-being*

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***Abstract*:** The purpose of this study is to explore the effects of cognitive flexibility on the five EPOCH well-being components: engagement, perseverance, optimism, connectedness and happiness. The study also investigates the mediating roles of coping strategies (i.e., active coping strategy, avoidant coping strategy, and negative coping strategy) in this relationship. The participants consisted of 488 high school students. The data were collected through Cognitive Flexibility Scale, KIDCOPE, and EPOCH. The results showed that cognitive flexibility was a significant predictor of active coping strategy, negative coping strategy and five EPOCH well-being variables. Cognitive flexibility positively predicted active coping strategy and five components of EPOCH well-being (engagement, perseverance, optimism, connectedness and happiness) while it predicted negative coping strategy negatively. The findings showed that both active and negative coping strategies played mediating roles between cognitive flexibility and EPOCH five-dimensional well-being variables. The practical implications for teachers, limitations and further research for the researchers are presented in the study.
Keywords: Cognitive flexibility, Well-being, Coping strategies, Path analysis, Adolescents.

Bilişsel Esneklik ile İyi Oluş Arasındaki İlişkide Başa Çıkma Stratejilerinin Aracı Rolü

***Öz*:** Bu çalışmanın amacı; bilişsel esnekliğin ergenlerin EPOCH beş boyutlu iyi oluşu (bağlılık, kararlılık, iyimserlik, ilişkililik ve mutluluk) üzerindeki etkisini araştırmaktır. Çalışmada ayrıca bilişsel esneklik ile EPOCH beş boyutlu iyi oluş arasındaki ilişkide başa çıkma stratejilerinin (aktif başa çıkma, kaçınan başa çıkma ve olumsuz başa çıkma) aracı rolleri de incelenmektedir. Araştırmanın katılımcılarını 488 lise öğrencisi oluşturmuştur. Araştırmanın verileri Bilişsel Esneklik Ölçeği, KIDCOPE Başa Çıkma Ölçeği ve EPOCH Beş Boyutlu İyi Oluş Ölçeği aracılığıyla toplanmıştır. Araştırmanın bulgularına göre; bilişsel esneklik aktif başa çıkma, negatif başa çıkma ve iyi oluşun beş öğesinin anlamlı bir yordayıcısıdır. Bilişsel esneklik aktif başa çıkma ile iyi oluşun beş öğesini (bağlılık, kararlılık, iyimserlik, ilişkililik ve mutluluk) pozitif yönde yordarken; negatif başa çıkmayı negatif yönde yordamaktadır. Hem aktif hem de negatif başa çıkma stratejileri bilişsel esneklik ile EPOCH beş boyutlu iyi oluş arasındaki ilişkide aracı rol oynamaktadır. Elde edilen bulgulara dayalı olarak, öğretmen, okul psikolojik danışmanları ve gelecek araştırmacılar için öneriler sunulmuştur.
Anahtar Kelimeler: Bilişsel esneklik, İyi oluş, Başa çıkma stratejileri, Yol analizi, Ergenler.

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Introduction

Well-being has become a popular concept with the emergence of positive psychology, which focuses on positive characteristics and strengths instead of psychological symptoms. In general, well-being means feeling good and functioning effectively, although its definition is still a controversial issue (Kern, Zeng, Hou, & Peng, 2019). Well-being arose from two approaches: *hedonic* (subjective well-being) and *eudaimonic* (psychological well-being). There have been numerous models of well-being based on these two approaches (Ryan & Deci, 2001). For example, Diener (1984) focused on hedonic approach and indicated that subjective well-being consisted of three components as the presence of positive emotions, the absence of negative emotions, and being satisfied with life. Ryff (1989), who embraced the eudaimonic approach, suggested a six-dimensional psychological well-being model. These six dimensions are self-acceptance, positive relationships with others, autonomy, environmental mastery, purpose in life, and personal growth. Seligman (2011) introduced a multidimensional well-being model focusing on both hedonic and eudaimonic approaches. In Seligman's model, well-being was accepted as a construct comprising of five components as positive emotion, engagement, relationships, meaning, and accomplishment. None of these components defines well-being; however, each of them contributes to the definition of well-being. So, well-being is a combination of these five components. The model was called PERMA, which is an acronym for these five components.

Kern, Benson, Steinberg and Steinberg (2016) pointed out that previous well-being theories focused on adults; and they developed a well-being model arising from PERMA and contributing the understanding of positive youth development for adolescents. They suggested that well-being has five positive psychological characteristics as engagement, perseverance, optimism, connectedness, and happiness; and these positive characteristics will promote various positive outcomes such as physical health and PERMA in adulthood. The model of Kern et al. (2016) is known as EPOCH, which is an acronym standing for each positive characteristic in the model. *Engagement* is related to the flow experience. It refers to individual's being interested in and engaged in life activities and tasks and focusing totally on what he/she is doing. *Perseverance* is associated with a sense of responsibility. It describes the ability to pursue goals and work hard, despite meeting with the obstacles. *Optimism* refers to being hopeful and feeling secure about the future; seeing events in a positive way; and evaluating negative events temporarily, externally, and situation-specific. *Connectedness* refers to a person's being in relationships with others that provides satisfaction; believing that there are people interested in, love, care for, respect them, and provide friendship and support. *Happiness* is a status of continuous positive mood and satisfaction with life. Well-being is a combination of each component of EPOCH.

The specific EPOCH domains are predictors of positive outcomes both in adolescence and adulthood. For example, adolescents' higher engagement predicted higher life satisfaction (Salmela-Aro & Upadyaya, 2014), academic achievement (Lei, Cui, & Zhou, 2018), and lesser likelihood of dropping out of school (Wang & Fredricks, 2014). Civic engagement in adolescence was associated with higher life satisfaction, civic participation, and educational achievement. Also, the individuals with civic engagement in adolescence had lower rates of arrest in emerging adulthood (Chan, Ou, & Reynolds, 2014). The adolescents with higher passion and perseverance for long-term goals performed better on academic performance (Cosgrove, Chen, & Castelli, 2018) and had lower levels of depression (Datu, King, Valdez, & Eala, 2019). Optimism was protective against depression, anxiety, antisocial behavior, and heavy substance use (Patton et al., 2011); and positively related to self-esteem and academic achievement in adolescents (Tetzner & Becker, 2018). In addition, a study conducted with women revealed that optimism at age 13 was an important factor predicting global life satisfaction, positive and negative affect at age 43 (Daukantaite & Bergman, 2005). Higher

connectedness predicted higher well-being (Jose & Ryan, & Pryor, 2012) and lower anxiety and depression (Malaquias, Crespo, & Francisco, 2015). Moreover, family and school connectedness during adolescence had long-lasting protective effects for adult health regarding mental health, violence, sexual behavior, and substance use (Steiner et al., 2019). During adolescence, higher happiness was related to higher life satisfaction, higher hopefulness, and lower perceived stress (Heizomi, Allahverdipour, Jafarabadi, & Safaian, 2015). Finally, positive affect during adolescence predicted adult life satisfaction (Coffey, Warren, & Gottfried, 2015).

Thus, each component of well-being is important for adolescents because they provide multiple benefits for both their present and future life. However, there are only a few studies on five-dimensional EPOCH well-being model in Turkish adolescents (e.g., Ekşi, Demirci, & Tanyeri, 2020; Ümmet & Demirci, 2017). Therefore, this study investigated five-dimensional EPOCH well-being model in adolescents and considered adolescents' well-being as a combination of each component of EPOCH.

Although well-being is important for the youth, the transition from childhood to adolescence can cause negative changes in well-being of some adolescents (Gutman, Brown, Akerman, Obolenskaya, 2010). Adolescence is a period of significant biological, cognitive, and social changes and maturation (Steinberg, 2013). When the adolescents cannot adapt to the rapid changes they experienced, various negative psychological, emotional, and behavioral consequences may occur. Stressful experiences in this period might lead to negative or depressive emotions (Moeini et al., 2019). On the other hand, adolescence can also be a period of opportunities in addition to challenges (Bálint, 2014). Some adolescents can experience growth and adjustment (Gutman et al., 2010). Hence, it is a matter of curiosity what strengths of adolescents increase well-being by encouraging them to overcome the challenges (Demirtaş, 2020a).

One of the strengths of adolescents increasing well-being is cognitive flexibility (Fu & Chow, 2017). Cognitive flexibility is the capacity of adapting to specific situations, changing from one idea to another, or using multifaceted strategies for different problems (Stevens, 2009). Cognitive flexibility consists of willingness to be flexible and to adapt to the situation, self-efficacy in being flexible, and awareness that there are available alternatives and options in any situation (Martin & Rubin, 1995; Martin & Anderson, 1998). Cognitive flexibility, which expresses individuals' ability to change their cognitions according to changing environmental conditions, includes three basic domains: (a) the tendency to perceive difficult situations as controllable, (b) the ability to perceive that there are possible alternatives of the situations and human behaviors in life, and (c) the ability to produce multiple solutions to solve difficult situations (Dennis & Vander Wal, 2010).

Cognitive flexibility was found to be positively related to higher academic, social, emotional, and general self- efficacy (Akçay Özcan & Kıran Esen, 2016; Demirtaş, 2020a), higher resilience (Güleç, 2020), better mental well-being (Demirtaş, 2020a), a greater competence with peers in social relations (Ciairano, Bonino, & Miceli, 2006), less educational stress (Kuyumcu & Kirazcı, 2020), and lower learned helplessness (Taş & Deniz, 2018) in adolescents. In addition, cognitive flexibility was positively associated with happiness (Asıcı & İkiz, 2015; Demirtaş, 2020b), life satisfaction (Yelpaze & Yakar, 2019; 2020), subjective well-being (Satan, 2014), and psychological well-being (Malkoç & Kesen Mutlu, 2019) in university students.

Fu and Chow (2017) indicated that when the adolescents with high cognitive flexibility get hurt during an earthquake, they may experience more psychological well-being than the adolescents with low cognitive flexibility; because they may better tolerate uncertainty, think in a constructive way, and deal with challenges in an effective way. Accordingly, one of the main

indicators of cognitive flexibility can be the ways that the adolescents develop to solve the problems (Tutuş, 2019). These ways which are developed to solve the problems refer to coping strategies.

Coping means the cognitive and emotional reactions that people use to overcome daily problems or stress (Freydenberg & Lewis, 2009). People use many different types of coping strategies such as problem solving, information seeking, cognitive restructuring, emotional release, physical activities, distraction, distancing, avoidance, self-criticism, blaming others, wishful thinking, humor, suppression, social withdrawal, denial, alcohol or drug use, seeking social support, or use of religion (Compas, et al., 2001). These strategies can be divided into three groups as active, avoidant and negative coping (Spirito, Stark, & Tyc, 1994). *The Active Coping* refers to the voluntary and conscious effort of the individual in order to remove the stressor and its effects (Carothers, Arizaga, Carter, Taylor, & Grant, 2016; Carver, Scheier, & Weintraub 1989; Spirito, et al., 1994). In active coping, the person uses her/his energy to change stressful event; seeks social support, spiritual pillars or professional help; and makes a great effort to resolve the problems, and to promote good relationships (Gao et al., 2019). The active coping includes the problem solving, emotional regulation, cognitive restructuring, and social support strategies. *The Avoidant Coping* refers to the individuals' blocking information about stress or choosing different behaviors in order to avoid stress. Distraction, social withdrawal, wishful thinking, and resignation are some of the examples for avoidant coping strategies. As for *The Negative Coping*, it involves the self-criticism and blaming others (Spirito et al., 1994).

Coping strategies affect well-being in multiple ways. For example, active coping is considered as the most effective and favorable coping style because it is associated with positive outcomes (Carothers et al., 2016) such as optimism (Puskar et al., 1999), positive affect (Coyle & Vera, 2013), reduced risk for internalizing and externalizing problems (Liu, Tein, & Zhao, 2004), high well-being (Freydenberg & Lewis, 2009), resilience (Bedel & Güler, 2019), and life satisfaction (Antaramian, Kamble, & Huebner, 2016). On the contrary, avoidant and negative coping were found to be associated with undesirable outcomes such as lower levels of well-being (Cicognani, 2011; Freydenberg & Lewis, 2009; Miller Smedema, Catalano, & Ebener, 2010). Avoidant coping approaches were positively related to pessimism (Puskar et al., 1999) and higher risk for internalizing and externalizing problems (Liu et al., 2004). Externalizing behaviors, as examples of avoidance behaviors, were associated with lower life satisfaction (Antaramian et al., 2016). Also, the negative coping strategies were related to the decrease in resilience (Bedel & Güler, 2019) and the increase in depression, anxiety, anger, hostility, and aggression (Sun, Sun, Jiang, Jia, & Li, 2019). To sum up, assisting adolescents in developing coping styles that discourage avoiding problems, self-criticizing or blaming others, but that encourage problem-solving, emotional regulation, cognitive restructuring and seeking social support can improve well-being.

Coping process includes cognitive actions in addition to behavioral actions. In this process, the person uses a range of complex cognitive abilities and skills (Bedel & Ulubey, 2015). According to Compas et al. (2001), during adolescence, with increasing metacognitive skills of adolescents, greater diversity and flexibility develop in terms of coping strategies. Also, the previous studies showed that cognitive flexibility had positive direct effects on active coping strategies (Bedel & Ulubey, 2015; Demirtaş, 2019; Muyan-Yılık & Demir, 2020) and negative direct effects on avoidant (Muyan-Yılık & Demir, 2020), and negative coping strategies (Bedel & Ulubey, 2015). Koesten, Schrodth, and Ford (2009) pointed out that individuals who are cognitively flexible are more qualified in managing their personal problems and stress; hence they feel more physical and mental well-being. Individuals with cognitive flexibility are more likely to cope effectively with difficult situations because they tend to try different solutions. These features can make them more successful, happy, and satisfied (Asıcı & İkiz, 2015). To sum up, increasing cognitive flexibility may contribute to development of effective coping

skills, and in this way, it may affect adolescents' well-being. In other words, the effect of cognitive flexibility on adolescents' well-being can be indirect through coping strategies. Coping strategies may have mediating roles in the relationship between cognitive flexibility and well-being. In this sense, this study aimed to examine the mediating roles of coping strategies in the effect of cognitive flexibility on adolescents' five-dimensional EPOCH well-being.

Methodology

Participants and Data Collection

After obtaining the permission from provincial directorate of national education, five hundred and sixty-six high school students from six different high schools, which were located in a major city in the west of Turkey, voluntarily participated in this study. After excluding the cases with too many missing responses (e.g., more than half of the survey items), the analyses ended up with 488 students. The data were collected during the spring semester of 2018, and data collection process was completed in four weeks. The form consisted of 43 survey items in total and four demographic questions. There were 270 (55.3%) female and 217 (44.6%) male students in the sample; and one student (.1%) did not answer this demographic question. The average age of the participants was 16.28 years (SD=1.11), and their age ranged from 14 to 20 years. Although all participants were high school students, the maximum age increased to 20 years. The reason for this might be that some students started school late. There were 131 9th grade (26.85%), 130 10th grade (26.64%), 142 11th grade (29.10%), and 85 12th grade (17.41%) high school students in the sample.

Measures

Cognitive flexibility scale (CFS).

The original English version of the survey was developed by Martin and Rubin (1995). The scale aims to measure students' cognitive flexibility. The survey consists of 12 items, and a single factor (i.e., all items measure the same dimension). All survey items had six response options from 1 = Strongly Disagree to 6 = Strongly Agree. The survey was adapted into Turkish and validated by Çelikkaleli (2014). In the adaptation study, it was determined that the Turkish survey had a single factor construct consisting of 11 items ($\chi 2$= 83.8, df= 43, p= 0.00; $\chi 2$/sd=1, 93; RMSEA=.059, NFI=.85, CFI=.92, IFI=.92, GFI=.95, and AGFI=.92.). The Cronbach's alpha value in the adaptation study was. 74. In our study, the Cronbach's alpha value as the internal consistency was .73.

Brief coping checklist survey (KIDCOPE).

The English version of this survey was developed by Spirito, Stark and Williams (1988). The survey aims to measure students' coping styles. The survey is comprised of three subscales as active coping with four items, negative coping with three items and avoidant coping with four items, for a total of 11 items. All survey items had four response options from 0= Not at all to 3= Almost all the time. The scale was adopted into Turkish and validated by Bedel, Isik and Hamarta (2014). In the adaptation study, the original construct was confirmed ($\chi 2$ /df = 2.1, GFI = .97, AGFI = .95, CFI = .92, RMSEA = .047) and the Cronbach's alpha values were calculated as .72, .65, and .70 for the active coping, negative coping and avoidant coping subscales, respectively. In our study, they were .60, .61 and .31 for the three scales, respectively.

The EPOCH measure of adolescent well-being.

The English version of this survey was developed by Kern et al. (2016). The survey is comprised of five subscales as connectedness, engagement, happiness, optimism, and perseverance, with four items in each subscale, for a total of 20 items. All items in the survey had five response options from 1= Never to 5= Always. The survey was adopted into Turkish and validated by Demirci and Eksi (2015). In the adaptation study, the five-factor construct of the original survey was confirmed ($\chi 2$= 381,29, df = 16, RMSEA = .07, NFI = .96, NNFI = .98, CFI = .98, IFI = .98, RFI = .96 and SRMR = .05) and the Cronbach's alpha values were calculated as .88, .83, .88, .84 and .72 for subscales of connectedness, engagement, happiness, optimism and perseverance, respectively. In our study, they were .78, .67, .78, .72 and .63 for the five subscales, respectively.

Data Analysis

First, the theoretical path analysis model given in Figure 1 was developed based on the current literature. This model was called initial hypothesized model. As shown in Figure 1, it was hypothesized that there should be direct effects from cognitive flexibility (e.g., endogenous variable) to five sub-variables of EPOCH (e.g., exogenous variables). It was also hypothesized that there should be indirect effects from cognitive flexibility to five variables of EPOCH through three subscales of coping variables: active coping, negative coping, and avoidant coping. This means that these three coping variables play mediating roles between cognitive flexibility and five sub-variables of EPOCH. However, we found that the Cronbach's alpha value for the subscale of avoidant coping was very low (.31), and it had non-significant relations with the endogenous variable, cognitive flexibility, and all of the exogenous variables, with the exception of connectedness (Please see Table 1). Therefore, we decided not to use avoidant coping in the analysis of initial hypothesized model. The model excluding avoidant coping was called final hypothesized model, and was given in Figure 2.

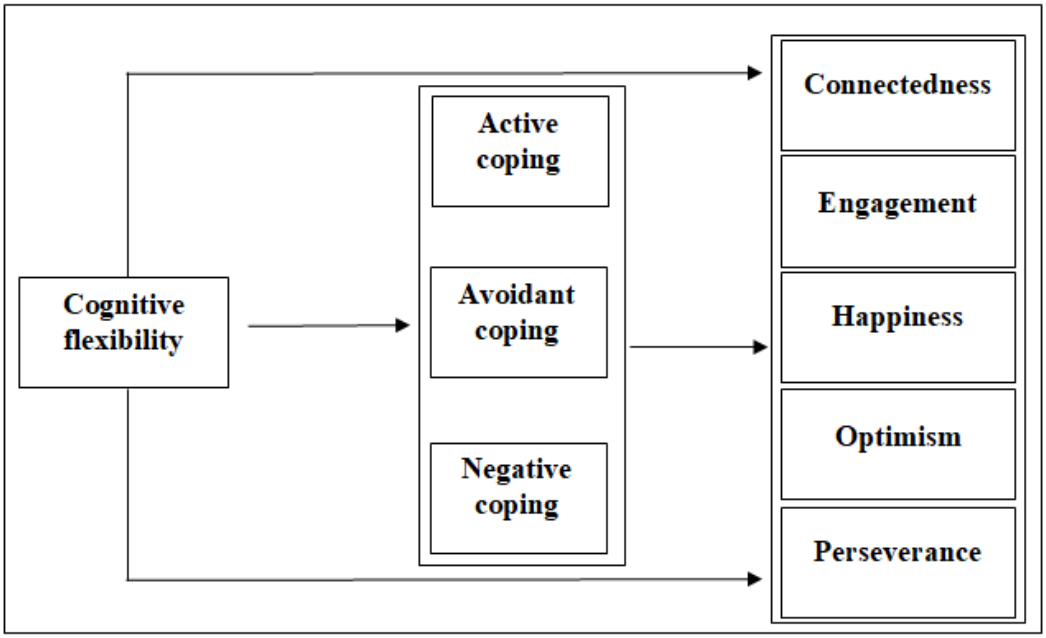

Figure 1. Initial hypothesized path model.

Due to encountering model fit problems in the final hypothesized path model (Figure 2), we modified the final hypothesized model by removing insignificant paths and adding a new path from negative coping to active coping. We called it selected model (see Figure 3). The bivariate correlations between all the variables are given in Table 1. Both final hypothesized and selected models were run in Mplus software version 7 (Muthen&Muthen, 1998-2012), and the bootstrap with 10,000 iterations was used to obtain 90% confidence intervals for the effects. There was a very small proportion of missing data in the analyses (e.g., less than %3); therefore, we did not impute missing responses. The fit indices were evaluated according to the following criteria: $\chi 2/df \leq 3.00$ (Kline, 2011), Root Mean Square Error of Approximation (RMSEA) $\leq .05$ (Browne & Cudeck, 1993), Comparative Fit Index (CFI) $\geq .95$ (Marsh, Hau, Artelt, Baumert, & Peschar, 2006), Tucker-Lewis index (TLI) $\geq .95$ (Marsh et al., 2006) and Standardized Root Mean Square Residual (SRMR) $\leq .05$ (Browne & Cudeck, 1993).

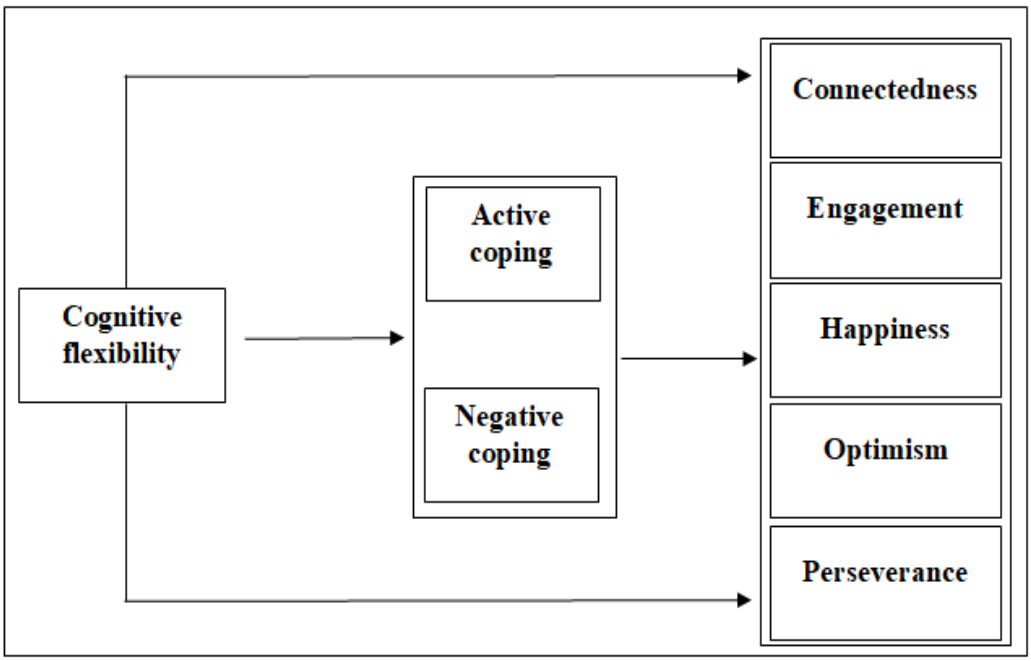

Figure 2. Final hypothesized path model.

Table 1
Bivariate Correlations, Means and Standard Deviations amongst the Observed Variables.

Variable	Cognitive Flexibility	Active Coping	Avoidant Coping	Negative Coping	Connectedness	Engagement	Happiness	Optimism	Perseverance
Cognitive Flexibility	--								
Active Coping	.26*	--							
Avoidant Coping	-.00	.20*	--						
Negative Coping	-.16*	-.20*	.15*	--					
Connectedness	.34*	.37*	.13*	-.18*	--				
Engagement	.19*	.29*	.06	-.02	.29*	--			
Happiness	.33*	.33*	.00	-.14*	.40*	.37*	--		
Optimism	.34*	.39*	-.03	-.19*	.42*	.43*	.55*	--	
Perseverance	.28*	.35*	.00	-.18*	.30*	.43*	.32*	.48*	--
Means	53.03	6.52	6.03	2.86	15.79	13.04	13.41	13.20	12.33
SD	9.09	2.68	2.05	1.74	3.81	4.07	4.63	3.87	3.48

*****p<.05

Results

Results of Model Fit

The fit indices of the final hypothesized model were $\chi 2(1) = 10.82$ and $p<.01$, CFI=.99, TLI=.67, RMSEA =.14 and SRMR =.03. Some of the model fit indices of the final hypothesized model were not acceptable. The fit indices of the selected path model were $\chi 2(4) = 7.04$ and $p>.05$, CFI =.99, TLI =.98, RMSEA =.04 with a 90% CI of [.00, .08] and SRMR =.02. These findings showed a very good model fit. The amount of explained variances for the endogenous observed variables (the variables determined by the other variables) of connectedness, engagement, happiness, optimism and perseverance were .20, .10, .17, .22 and .16, respectively. The amount of explained variances for the mediating variables of active coping and negative coping were .09 and .03, respectively. Although the proportions of explained variances were small, all of them were statistically significant. The coefficients and 90% confidence intervals of total, direct and indirect effects of variables in the selected path model were given in Table 2.

Table 2.
The Sizes and 90% Confidence Intervals of Total, Direct and Indirect Effects of Variables in the Selected Path Model

	Endogenous Variables		
Exogenous Variables	Cognitive Flexibility	Active Coping	Negative Coping
Connectedness	.11* [.08, .14] *.03** [.02, .04] **.14*** [.11, .18]	.39* [.28, .51] -- **.39*** [.28, .51]	-- *-.09** [-.15, -.04] **-.09*** [-.15, -.04]
Engagement	.06* [.01, .09] *.03** [.02, .05] **.09*** [.05, .12]	.40* [.28, .55] -- **.40*** [.28, .55]	-- *-.09** [-.15, -.04] **-.09*** [-.15, -.04]
Happiness	.13* [.07, .13] *.04** [.02, .05] **.17*** [.13, .20]	.47* [.34, .62] -- **.47*** [.34, .62]	-- *-.10** [-.17, -.05] **-.10*** [-.17, -.05]
Optimism	.11* [.08, .14] *.04** [.02, .05] **.15*** [.11, .17]	.48* [.36, .60] -- **.48*** [.36, .60]	-- *-.11** [-.18, -.05] **-.11*** [-.18, -.05]
Perseverance	.08* [.05, .10] *.03** [.01, .04] **.11*** [.08, .14]	.33* [.23, .44] -- **.33* [.23, .44]**	-.17* [-.31, -.04] *-.08** [-.12, -.04] **-.25*** [-.38, -.11]
Active Coping	.07* [.05, .10] *.01** [.00, .02] **.08*** [.06, .10]	-- -- --	-.23* [-.38, -.11] -- **-.23*** [-.38, -.11]
Negative Coping	-.03* [-.05,-.02] -- **-.03*** [-.05, -.02]	-- -- --	-- -- --

Total, Direct and Indirect Effects from Cognitive Flexibility to Well-being

Cognitive flexibility had significant total effects on connectedness, engagement, happiness, optimism, and perseverance, with total effects of .14, .09, .17, .15 and .11, respectively (see Table 2). Thus, the effect of cognitive flexibility on those five observed endogenous variables is roughly similar in size. All the effects from cognitive flexibility to those five well-being variables were partially direct and partially indirect. As specified in the model (i.e., in Figure 2), indirect effects were through cognitive flexibility (a) to negative

coping to active coping to five well-being variables, (b) to active coping to five well-being variables or (c) to negative coping to one component of the five well-being variables. All of the specific indirect effects were significant.

The total effect of .14 on connectedness was partially direct (.11) and partially indirect (.03). Both direct and specific indirect effects were significant. The first specific indirect effect was from cognitive flexibility to active coping to connectedness with an indirect path component of .03 ($p<.05$). The second specific indirect effect was from cognitive flexibility to negative coping to active coping to connectedness with an indirect path component of .00 ($p<.05$).

The total effect of .09 on engagement was partially direct (.06) and partially indirect (.03). Both direct and specific indirect effects were significant. The first specific indirect effect was from cognitive flexibility to active coping to engagement with an indirect path component of .03 ($p<.05$). The second specific indirect effect was from cognitive flexibility to negative coping to active coping to engagement with an indirect path component of .00 ($p<.05$).

The total effect of .17 on happiness was the largest total effect in size, and it was partially direct (.13) and partially indirect (.04). Both direct and specific indirect effects were significant. The first specific indirect effect was from cognitive flexibility to active coping to happiness with an indirect path component of .03 ($p<.05$). The second specific indirect effect was from cognitive flexibility to negative coping to active coping to happiness with an indirect path component of .00 ($p<.05$).

The total effect of .15 on optimism was partially direct (.11) and partially indirect (.04). Both direct and specific indirect effects were significant. The first specific indirect effect was from cognitive flexibility to active coping to optimism with an indirect path component of .04 ($p<.05$). The second specific indirect effect was from cognitive flexibility to negative coping to active coping to optimism with an indirect path component of .00 ($p<.05$).

The total effect of .11 on perseverance was partially direct (.08) and partially indirect (.03). Both direct and specific indirect effects were significant. The first specific indirect effect was from cognitive flexibility to active coping to perseverance with an indirect path component of .02 ($p<.05$). The second specific indirect effect was from cognitive flexibility to negative coping to active coping to perseverance with an indirect path component of .00 ($p<.05$). The third specific indirect effect was from cognitive flexibility to negative coping to perseverance with an indirect path component of .00 ($p<.05$).

Furthermore, the model specified that negative coping had indirect effects on all of the well-being variables, and both direct and indirect effects on well-being variable of perseverance. According to the model specification, the indirect effects of negative coping on connectedness (-.09), engagement (-.09), happiness (-.10), optimism (-.11) and perseverance (-.08) were mediated by active coping. The size of the direct effect from negative coping to perseverance was -.17 ($p<.05$).

The total effects of cognitive flexibility on active coping and negative coping were .08 and -.03, respectively; and both total effects were significant. This means that the increase in cognitive flexibility affected the ability of active coping positively but the ability of negative coping negatively. The total effect of .08 on active coping was partially direct (.07, $p<.05$) and partially indirect (.01, $p<.05$).

Summary of the Results

The model specified that all of the five EPOCH variables were directly and indirectly affected by cognitive flexibility. The results showed that the increase in cognitive flexibility increased the amount of all well-being components. The effect of cognitive flexibility was mediated by its effects on active coping and negative coping. The total effects were primarily due to the direct effect of cognitive flexibility, and secondarily due to the mediating effects of active coping. In other words, negative coping played a minor mediating role but the influence of active coping as a mediator was major. Last, avoidant coping played neither direct nor indirect meaningful mediating roles.

The results showed that the direct effects from cognitive flexibility to the well-being variables were greater than indirect effects. The strongest direct effect of cognitive flexibility was on both connectedness and happiness. Even though specific indirect effects were small in size, all of them were significant. The specific indirect effects through active coping were stronger than those through both negative coping and active coping.

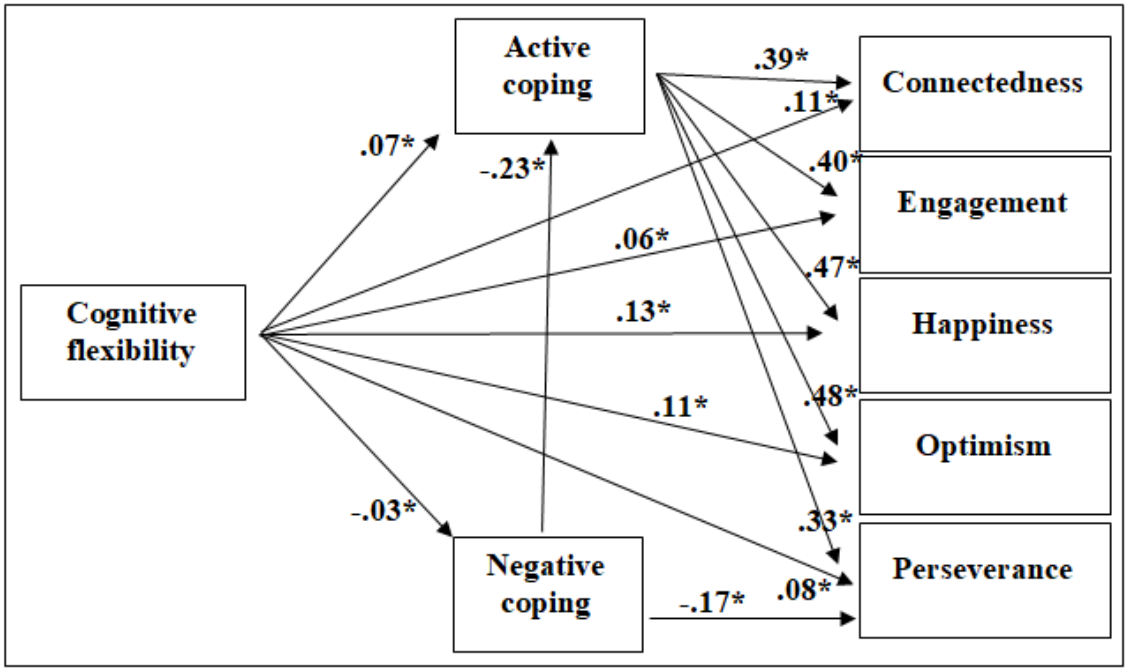

Figure 3. Unstandardized coefficients of the paths in selected path model. * p <.05.

Conclusion and Discussion

The findings of the present study showed that cognitive flexibility positively affected the adolescents' EPOCH five-dimensional well-being (engagement, perseverance, optimism, connectedness and happiness) both directly and indirectly. The results revealed that cognitive flexibility and active coping strategies are protective psychological variables for adolescents' well-being. Accordingly, a higher cognitive flexibility can be a facilitator for improving active coping skills and also assisting adolescents in developing coping strategies that encourage problem-solving, emotional regulation, cognitive restructuring, and seeking social support as examples of active coping behaviors; and that can improve well-being more than cognitive flexibility itself.

The first finding showed that the increase in cognitive flexibility increased the EPOCH five-dimensional well-being. Accordingly, the level of well-being is higher for the adolescents who succeed in changing their cognition according to environmental conditions, recognizing available options, and dealing with problems in a multifaceted manner (Dennis & Vander Wal, 2010; Martin & Rubin, 1995; Martin & Anderson, 1998; Stevens, 2009). Increased cognitive flexibility may produce well-being in adolescents by enabling them to be more interested in and committed to life activities and tasks, to be more successful in focusing attention, to work tirelessly to achieve the goals, to look at the future with hope, to see the positive aspects of events, to have satisfying relationships with others, to feel more positive emotions, and to be satisfied with life. This result is consistent with the literature showing that cognitive flexibility is positively associated with higher happiness (Asıcı & İkiz, 2015; Demirtaş, 2020b), life satisfaction (Yelpaze & Yakar, 2019; 2020); subjective (Satan, 2014), psychological (Malkoç & Kesen Mutlu, 2019), and mental (Demirtaş, 2020a) well-being.

The second finding of the study presented that the increase in cognitive flexibility was related to adolescents' tendency to use active coping more and to use negative coping less. In other words, the adolescents with higher cognitive flexibility can seek information in order to overcome the stressful situations they face (Spirito et al., 1994), to eliminate stressor and to correct the negative consequences of stress (Carver et al, 1989) more than the adolescents with lower cognitive flexibility. The adolescents who are cognitively flexible are more open and willing to try different solutions (Asıcı & İkiz, 2015). This characteristic can provide them with power for actively dealing with problems. Thus, they make a greater effort to change stressful events and to resolve the problems (Gao et al., 2019). Moreover, they can avoid the behaviors of self-criticizing and blaming others (Spirito et al., 1994). These results supported the findings of the previous studies (Bedel &Ulubey, 2015; Demirtaş, 2019; Muyan-Yılık & Demir, 2020).
In contrast to the findings of Muyan-Yılık and Demir (2020), no significant relationship was found between cognitive flexibility and avoidant coping. This is probably due to the fact that the internal consistency of the avoidant coping dimension was quite low. However, there are similar findings in the literature showing that cognitive flexibility is not related to avoidant coping (Bedel & Ulubey, 2015; Demirtaş, 2019).

The third finding of the study showed that active coping positively affected the EPOCH five-dimensional well-being of adolescents. Accordingly, making a great effort to resolve the problems (Gao et al., 2019) is an important determinant of adolescents' five-dimensional well-being. This result confirmed that active coping produced positive outcomes in adolescents (Antaramian et al., 2016; Bedel & Güler, 2019; Coyle & Vera, 2013; Freydenberg & Lewis, 2009; Liu et al. 2004; Puskar et al., 1999). Adolescents' seeking information to cope with difficulties (Spirito et al., 1994) and wanting to eliminate the stressor and to correct the negative consequences of stress (Carver et al., 1989) may prevent the emergence of negative mood and may provide them with higher well-being. The adolescents who use active coping strategies can successfully overcome adverse conditions and can easily adapt to life difficulties, because they are more resilient (Bedel & Güler, 2019). The adolescents who use problem solving, emotional regulation, cognitive restructuring, and social support strategies as examples of active coping, can manage developmental, academic, or relational difficulties more successfully. Thus, they can have more optimistic thoughts and better relations; maintain a more passionate and determined life, be interest; and feel more contented. In other words, they can experience more well-being.

In this study, interestingly, negative coping had no direct effect on EPOCH five-dimensional well-being with the exception of perseverance. Moreover, negative coping had an indirect effect on EPOCH five-dimensional well-being together with the mediating effect of active coping. Accordingly, negative strategies may obstruct the development of the ability to pursue goals and to work hard despite meeting with the obstacles. If self-critical adolescents fail

to achieve a desired goal, they may tend to give up. When the tendency to use negative strategies such as self-criticism or blaming others in a stressful situation increases, adolescents avoid consciously and willingly eliminating the stressor and its negative effects. This may prevent the emergence of well-being. The previous studies showed that negative coping caused higher depression, anxiety, anger, hostility, and aggression (Sun et al., 2019) in adolescents. Accordingly, the effect of negative coping on adolescents' well-being may change depending on indicators or components of well-being. Although using less negative coping helps to reduce psychological symptoms, it may not be sufficient by itself for the emergence of positive characteristic.

The negative relationship between negative coping and active coping is consistent with previous findings (Bedel et al., 2014). Self-critical behaviors as an example of negative coping can hamper adolescents' sense of self-efficacy after a perceived difficult experience, and for this reason, self-critical adolescents can use fewer problem-oriented strategies to deal with life difficulties (Kannan & Levitt, 2013). In addition, blaming others as an example of negative coping may prevent the adolescents from actively coping with stress, because they do not feel responsible for stressful events. The adolescents may believe that the solution must be produced by others, if they think they are not wrong. Hence, they may not want to take action to eliminate the problem or stressful event.

Finally, the findings of the research showed that active coping was an important mediator between cognitive flexibility and EPOCH five-dimensional well-being. Accordingly, being cognitively flexible contributes to well-being by affecting how adolescents cope with the challenges they face. Adolescents who are cognitively flexible are better qualified to manage their personal problems and stressful experiences; and their coping skills increase well-being (Koesten et al., 2009). Adolescents with high cognitive flexibility are better able to cope with difficult situations and make a greater effort to meet their needs, due to their tendency to try different solutions. Thus, adolescents can be more successful, happy, and satisfied with life (Asıcı & İkiz, 2015).

Consequently, cognitive flexibility is a valuable variable for assisting adolescents in developing coping strategies that discourage self-criticizing or blaming others, but that encourage problem-solving, emotional regulation, cognitive restructuring and seeking social support. Improving cognitive flexibility in adolescents helps to develop a higher sense of well-being as it encourages use of more active coping strategies. In addition, the results confirmed that active coping is the most effective and favorable coping style in order to produce positive outcomes (Carothers et al., 2016).

Implications

The results of the research can shed light on the practices aiming to protect and improve the mental health of adolescents in the school environment. Being cognitively flexible and actively dealing with stress are learnable and improvable skills. School counselors can provide information and individual studies to teach students cognitive flexibility and active coping skills. Psycho-educational (e.g., Cheng, Kogan, & Chio, 2012; Puskar, Sereika, & Kathleen, 2003) group studies may be useful in order to improve cognitive flexibility and coping skills in schools. Training programs can be developed for improving the skills of being flexible, problem solving, emotional regulation, cognitive restructuring of the students whose well-being decreased because of various reasons such as divorced parents, peer victimization, traumatic experiences, and academic, social or emotional problems. Through cognitive therapy practices (e.g., Brockmeyer et al., 2014) in schools, the cultivation of flexibility can be supported in adolescents with strict opinions and rules.

The specific EPOCH domains have positive effects on adolescent's academic life (Cosgrove et al., 2018; Lei et al., 2018; Tetzner & Becker, 2018; Wang & Fredricks, 2014). Adolescents who are cognitively flexible and use active coping skills can maintain their well-being because they can more easily overcome the problems they face in their academic lives. Therefore, school counselors can support adolescents who have poor well-being due to the difficulties in their academic life by helping them improve their cognitive flexibility and active coping skills.

The teaching methods and techniques used by teachers in their teaching process can contribute to development of cognitive flexibility. For example, it has been proved that brainstorming is effective in developing creative problem-solving skills (Al Mutairi, 2015). The brainstorming technique can be effective in understanding that students may always have different options for solving a problem.

Finally, in a school environment dominated by positive institution understanding (Furlong et al., 2014), it would be easier for students to develop positive personal characteristics. In this context, school administrators, school counselors and teachers should cooperate. In-school activities can be organized to contribute to improvement of positive personal characteristics and to increase of positive subjective lives of teachers and other staff working in the school.

Limitations

This study has some limitations. Firstly, sample of the study was the high school students in a city located in the west of Turkey. Examining the effects of coping strategies on adolescents' well-being with participants from different cultures and regions may produce different results. Secondly, in this study, only the active, avoidant and negative coping strategies were studied; and avoidant coping had to be removed because of low Cronbach's alpha value. Other coping strategies mentioned in the literature may be considered in further studies. Thirdly, in this study, well-being is generally discussed within the framework of EPOCH model. However, well-being may vary according to the different areas of life. It can be examined in further studies, how cognitive flexibility and coping affect students' well-being in school. In addition, school experiences, perceptions, beliefs and attitudes about the school and the lectures can affect the well-being of the students. In the future studies, while the effect of cognitive flexibility and coping on well-being is examined, the school-related variables like school climate, academic motivation, student burnout and learned helplessness may also be studied. Furthermore, this study was a cross-sectional study, and there likely are reciprocal relationships between the studied variables. A cross-sectional design limits the contribution of the study, and the study should be replicated with a longitudinal research. Finally, the direct and indirect relationships between cognitive flexibility, coping strategies and well-being were determined through path analysis. If the further studies are designed as a qualitative research, more comprehensive information can be obtained on how cognitive flexibility and coping produce well-being in adolescents.

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