


Mindfulness, Positive Affection and Cognitive Flexibility as Antecedents of Trait Resilience

Zeynep Aydın Sünbül 

Kocaeli Üniversitesi Eğitim Fakültesi, Kabaoğlu Mahallesi, 41000 İzmit/Kocaeli, Turkey

The current study proposes a mindfulness model of trait resilience through the mediating roles of positive affection and cognitive flexibility. The study's participants comprised 204 adults (111 females, 93 males). The Mindful Attention Awareness Scale (Brown & Ryan, 2003), Positive Affect sub-test of Positive and Negative Affect Schedule (Watson, Clerk, & Tellegen, 1988), Cognitive Flexibility Scale (Martin & Rubin, 1995) and Brief Resilience Scale (Smith et al., 2008) were used as data collection instruments. The results of the path analysis showed that mindfulness has significantly positive relationships with positive affection and cognitive flexibility, while both positive affection and cognitive flexibility have significantly positive relationships with resilience. The proposed model formed was found to account for 17% of the variance in trait resilience scores of participants.

Key words: trait resilience, mindfulness, positive affection, cognitive flexibility

Introduction

Efforts to understand the theoretical and practical structure of resilience are not new and started decades ago. Resilience as a psychological construct was initiated in two areas of study: "developmental psychology" investigated resilience in child and youth populations, while "psychological traumatology" focused on examining resilience in adults

(Graber, Pichon, & Carabine, 2015). The resilience studies in developmental psychology sought to examine the personal characteristics (e.g., self-confidence) that distinguished between children with positive adaptation to traumatic events or difficult living conditions and those who demonstrated poorer adaptation to stressful life events and conditions (Graber, Pichon, & Carabine, 2015; Luthar, Cicchetti, & Becker, 2000). On the other side, early psychological traumatology research on

Correspondence concerning this article should be addressed to Zeynep Aydın Sünbül, Kocaeli Üniversitesi Eğitim Fakültesi, Kabaoğlu Mahallesi, 41000 İzmit/Kocaeli, Turkey. E-mail: zeynepadn@yahoo.com

Received September 23, 2019



resilience searched for factors that helped adults to escape from traumatic stress (Grabber, Pichon, & Carabine, 2015).

The various definitions of resilience generally evolved into three perspectives: resilience as an outcome, resilience as a process and resilience as a trait (Hu, Zhang, & Whang, 2015). Researchers who accept resilience as an outcome argue that resilience is a behavioral end or an occasion that assists individuals in recovering from difficulties (Masten, 2001). The idea of resilience as a process emphasizes that resilience is a dynamic mechanism in which individuals hold an active role in getting used to and healing quickly from extreme difficulties (Luthar, Cicchetti, & Becker, 2000). Resilience as a trait perspective proposes that resilience is an enduring individual attribute, which assists people in dealing with the difficulties and harsh times. According to this perspective, trait resilience protects individuals from the effects of adverse or traumatic circumstances (Connor & Davidson, 2003; Ong, Bergeman, Bisconti, & Wallace, 2006). The present study adopts the resilience as a trait perspective and investigates the relation between mindfulness and trait resilience as well as the mediating role of positive affection and cognitive flexibility.

Resilience as a Trait

The construct of resilience as a trait is broadly defined as a self-reported and stable personal characteristic that encompasses the ability to flexibly adapt to the emotional situations and events (Genet & Siemer, 2011). Some researchers treated trait resilience as a single construct (Brief Resilience Scale, Smith et al., 2008), however, several researchers have studied trait resilience through identifying personality factors and features as antecedents or indicators of resilience (Connor & Davidson, 2003; Oshio et al., 2003; Wagnild &

Young, 1993). For instance, Connor and Davidson (2003) underlined trait resilience as the “personal qualities that render one to recover from the difficulties” (p. 76). Following their studies with a community sample, primary care outpatients, general psychiatric outpatients, a clinical trial of generalized anxiety disorder, and two clinical trials of PTSD, these researchers came up with five components of resilience: hardiness, positive emotions, extroversion, self-efficacy, spirituality and positive affect (Connor & Davidson, 2003).

Wagnild and Young (1993) conceptualized trait resilience as a positive individual characteristic which facilitates adjustment. These researchers explored the common characteristics of resilient community-dwelling older adults, ultimately theorizing five components of trait resilience; equanimity (a balanced perspective to life experiences), self-reliance (the ability to trust one’s own competence and strength), perseverance (voluntarily proceeding in the life despite adversity), existential aloneness (accepting the uniqueness of each individual, who sometimes shares some experiences with others but also deals with some experiences alone), and meaningfulness (the awareness that each life holds a goal and acknowledging that there are things to live for).

There are several other studies that describe various lower-order factors related to trait resilience. Wilson et al. (2016) found a significant relationship between resilience, hardiness and self-efficacy in young black gay and bisexual men. Ong, Bergeman, Bisconti, and Wallace (2006) also showed significant relationships between positive emotions and resilience in later adults and recently bereaved widows. At another study, Campbell-Sills, Cohan, and Stein (2006) indicated extroversion, conscientiousness and neuroticism as antecedents of trait resilience in young adults. Similarly, Balgiu (2017) indicated that trait resilience is correlated to self-

teem, extroversion and neuroticism in emerging adults. Tugade, Fredrickson, and Barrett (2004), pointed out significant correlations between trait resilience and positive affect in undergraduate students. Trait resilience was also found to have relations with emotional stability, social competence, extroversion, agreeableness, social skills and conscientiousness in military college students (Friborg et al., 2005).

Mindfulness and Trait Resilience

Mindfulness is defined as retaining consciousness of present moment experiences (Hanh, 1991, p. 11). According to Kabat-Zinn (1994) mindfulness is an intentional attention directing process that points to the present reality purposefully and nonjudgmentally (p. 4). Similarly, Germer (2005) conceptualized mindfulness as comprising a deliberate and acceptive form of awareness towards here and now experiences. Mindful awareness includes having an intentional and focused awareness of the present, self and the environment free from judgement, as well as an ability to explore and describe one's subjective experiences (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Similar to these perspectives, according to Brown and Ryan (2003), mindfulness is a frank and entire observation of the present internal and external experiences rather than a particular cognitive stance to such experiences. Although, awareness and attention may be seen as constant characteristics of the normal functioning, mindfulness can be regarded as an increased and receptive appearance of such awareness and attention for up to date experiences or the present reality. As well, such specific form of awareness and attention that all individuals have varying capacities to attend to were shown to be related to increasing well-being and related psychological factors.

Thompson, Arnkoff, and Glass (2011) propose that adopting an accepting and mindful stance in relation to traumatic experiences prohibits rumination and depressive ways of thinking, which in turn facilitates psychological resilience. According to Shapiro, Brown, and Biegel (2007), resilience is likely to be pronounced in mindful people owing to a tendency towards solution-oriented perspectives and lower levels of engagement in ruminative thinking and constant worrying. Mindfulness facilitates resilience because mindful individuals can better react to the harsh experiences without showing automatic and maladaptive responses in these situations (Bajaj & Pande, 2016). Additionally, mindful people hold an acceptive stance on new perceptual experiences, are able to be more creative and also can better deal with adverse cognitions and emotions, as opposed to collapsing during testing times (Wallace & Shapiro, 2006).

There are a limited number of studies pointing to the direct relation of mindfulness to trait resilience. Pidgeon and Keye (2014) and Zubair, Kamal, and Artemeva (2018) found that mindfulness has a significantly positive relationship with resilience, while both mindfulness and resilience are significant predictors of well-being in university students. In another study, Keye and Pidgeon (2013) found that both mindfulness and academic self-efficacy significantly predict resilience in university students. Conversely, Rice et al. (2013) indicated no direct significant relationship between overall mindfulness and resilience in active duty service members and military veterans. In addition, similar to the theoretical standing of the current study, there are also studies showing that the relation between mindfulness and trait resilience is only mediated by certain psychological constructs such as emotion regulation and self-compassion in socio-economically disadvantaged adolescents (Sünbül-Aydın & Güneri, 2019) and me-

diated by self-esteem in university students (Bajaj, 2017).

The Mediating Role of Positive Affect

Mindfulness allows individuals to give increased awareness and attention towards naturally occurring positive emotional states, while the absence of this specific form of awareness corresponds to missing this experience as well as the healing results of holding positive emotions. Thus, by the means of mindfulness, individuals experience positive emotions more deeply (Erisman & Roemer, 2010). In related studies, both trait and state mindfulness were found to have significant relations to higher positive affect and lower negative affect (Brown & Ryan, 2003). Following this, there were also mindfulness-based interventions that were found to increase positive affect in different groups (Grossman, Tiefenthaler-Gilmer, Raysz, & Kesper, 2007; Shapiro, Brown, & Biegel, 2007). Based on the relationships manifested between these two constructs, trait mindfulness is expected to be associated with positive affect. Therefore, the following hypothesis was formed:

Hypothesis 1: Mindfulness will be directly related to positive affect.

Positive emotions have always been assumed to be good for one's physical and psychological health. Research demonstrates that positive emotions have buffering capacities and ensure a functional antidote to obstacles stemming from negative feelings and illnesses (Fredrickson, 2000). According to Tugade and Fredrickson (2004), these assumptions are also applicable to resilient individuals, who have positive emotions even in the midst of stressful experiences. This perspective emphasizes that people with a trait resilience have the capacity to perceive the advantages of maintaining positive emotions and also utilize this knowledge during difficult

situations. Research also shows that positive affect is a precursor of resilience in women with chronic pain (Zautra, Johnson, & Davis, 2005), in adolescent populations (Sagone & Indiana, 2017) and also university students (Xing & Sun, 2013). In essence, this study also assumes that positive affect will have direct connections to trait resilience. Additionally, mindfulness has been proposed to have indirect relations to resilience through positive affect, an idea formed through the study of the relationships between mindfulness, positive affect and trait resilience. Based on these, the following hypotheses were formulated:

Hypothesis 2: Positive affect will be directly related to trait resilience.

Hypothesis 3: Mindfulness will have indirect relations to trait resilience through positive affect.

The Mediating Role of Cognitive Flexibility

Wallace and Shapiro (2006) outline that in order to reach a balanced way of living four components should be improved and stabilized: conation, attention, cognition, and affect/emotion. Bishop et al. (2004) claim that mindfulness closely relates to the attention and cognition elements of the well-being model. Mindfulness is hypothesized to result in cognitive flexibility and non-habitual responses because mindful awareness and attention are deeply devoted to re-investing attention moment by moment (Moore & Malinowski, 2009). Texts focusing on mindfulness often emphasize mindful attention as compassionately and flexibly accepting any emotions or cognitions that might come to one's mind. Retaining this flexibility as the core nature of mindfulness allows individuals to be non-judgmental toward their cognitions, emotions and experiences, therefore reaching flourishing (Kabat-Zinn, 2005). In this study, it is expected that mindfulness will have

direct relations to cognitive flexibility. Thus, the following hypothesis was formulated:

Hypothesis 4: Mindfulness will be directly related to cognitive flexibility.

Cognitive flexibility is generally characterized as the adaptability of cognitive strategies to novel situations and correspondingly related to re-investing attentional processes (Cañas et al., 2003). Genet and Siemer (2011) pointed out that one component of trait resilience is the flexibility to adjust to changes in individuals' lives. These researchers demonstrated a connection between resilience and flexibility in cognition by demonstrating that cognitive abilities, such as cognitive flexibility or affective flexibility, have significant roles in understanding trait resilience. In one study, cognitive flexibility was also found to mediate the relationship between coping styles and resilience in university students' management of depression (Soltani, Shareh, Bahrainian, & Farmani, 2013). Based on the studies that foresaw a connection between cognitive flexibility and trait resilience, it is assumed that cognitive flexibility will be related to trait resilience in the current study. Mindfulness is also hypothesized to have indirect connections to resilience through cognitive flexibility as seen in the proposed relations between mindfulness, cognitive flexibility and trait resilience in the literature. Thus, the following hypotheses were proposed:

Hypothesis 5: Cognitive flexibility will have direct relations to trait resilience.

Hypothesis 6: Mindfulness will have indirect relations to trait resilience through cognitive flexibility.

Methodology

Participants

The participants of the study were 204 adults who received a number of online questionnaire packages. The frequencies and percentages regarding the gender and age of the participants are presented in Table 1.

Table 1 shows that there are 111 females (54.4%) and 93 males (45.6%) who participated to this study. The ages of the participants fell between 26-61, with a mean age of 32.79 ($SD = 6.31$). The distribution of the age groups showed that majority of the participants are between 30.1-40 ($N = 99$, 48.5%) followed by the age groups of 20-30 ($N = 84$, 41.2%), 40.1-50 ($N = 17$, 8.3%), 50.1-60 ($N = 2$, 1%) and 60.1 and above ($N = 2$, 1%), respectively.

Data Collection Instruments

Brief Resilience Scale

The Brief Resilience scale was developed by Smith et al. (2008) in order to measure resil-

Table 1 *The distribution of the sample with respect to gender and age*

Variable	Groups	<i>N</i>	%
Gender	Females	111	54.4
	Males	93	45.6
Age	20-30	84	41.2
	30.1-40	99	48.5
	40.1-50	17	8.3
	50.1-60	2	1.0
	60.1+	2	1.0

ience tendencies. The single factor scale contains 6 items in that item 1, item 3, and item 5 are worded positively and item 2, item 4, and item 6 are worded negatively. Some of the sample items are; "1. I tend to bounce back quickly after hard times", "4. It is hard for me to snap back when something bad happens", and "5. I usually come through difficult times with little trouble". In order to calculate an individual score, negatively stated items (2, 4, 6) are reverse coded and the mean score for the six items is found. Higher scores on the scale indicate higher resilience tendencies. Smith et al. (2008) tested the validity and reliability studies of the scale in four different studies with two student samples and samples with cardiac and chronic pain patients drawn from a medium sized metropolitan district. All of these studies confirmed the uni-factor structure of the scale. In addition, the internal consistency levels of the scale ranged between .80 – .91 and test-retest reliability fell between .62 – .69 in these studies. The Turkish adaptation study conducted with 295 university students also confirmed the single factor pattern of the scale. Furthermore, the adaptation study yielded that the internal consistency indicator of the adapted version of the scale is .83 (Doğan, 2015). In addition, Cronbach alpha, the internal consistency marker, was found to be .81 for the current study, indicating that the reliability of the scale is satisfactory.

Mindful Attention Awareness Scale

The Mindful Attention Awareness Scale was developed by Brown and Ryan (2003) in order to measure mindfulness levels among adults. There are 15 negatively worded items in the scale, measuring mindful awareness as a single factor construct. The scale is a 6-point Likert type, ranging from 1 (almost always) to 6 (almost never) for each item. Some items

from the scale include; "2. I break or spill things because of carelessness, not paying attention, or thinking of something else.", "6. I forget a person's name almost as soon as I've been told it for the first time.", "10. I do jobs or tasks automatically, without being aware of what I'm doing.", and "15. I snack without being aware that I'm eating." There are not any reversely coded items in the scale and higher scores show higher levels of mindfulness. The confirmatory factor analysis supported the single factor structure of the scale (GFI = .92, CFI = .91, RMSEA = .06). The Cronbach alpha value of the scale was found to be .82, with the test-retest value of .81. The adaptation of MAAS to Turkish also yielded a Cronbach alpha indicator of .80, with a test-retest value of .86 (Özyeşil, Arslan, Kesici, & Deniz, 2011). The Cronbach alpha value of MAAS was also found to be .86 in the current study.

Positive and Negative Affect Schedule

The Positive and Negative Affect Schedule consists of 20 items, 10 of which measure positive emotions (e.g., 1 - interested, 5 - strong, 14 - inspired, 19 - active) while the remaining 10 items (e.g., 2 - distressed, 8 - hostile, 15 - nervous, 20 - afraid) measure negative emotions (Watson, Clerk, & Tellegen, 1988). The scale is composed of a 5-point Likert type ranging from 1 (very slightly or not at all) to 5 (extremely) for each item. The scores for each sub-scale can range from 10 to 50, with higher scores representing higher levels of positive/negative affect. The internal consistency levels of the original scale were found to be .88 for positive affect, .85 for negative affect and a test-retest value of .47. The Turkish adaptation study of PANAS yielded Cronbach alpha levels of .83 for positive affect and .86 for negative affect, with a test-retest value of .54 for positive affect and .40 for negative affect sub-scales (Gençöz, 2000). In this study, the Posi-

tive Affect Schedule was solely used to gather information about positive affection levels among participants. The examination of the internal consistency evidence showed that the Cronbach alpha value of the Positive Affect Schedule sub-scale was .85 in this study.

Cognitive Flexibility Scale

The Cognitive Flexibility Scale has 12 items that measure cognitive flexibility levels (Martin & Rubin, 1995). The scale uses a 6-point Likert type scale extending from 1 (strongly disagree) to 6 (strongly agree) for each item. Examples of items from the scale are; "1. I can communicate an idea in different ways.", "3. I feel like I never get to make decisions.", "8. My behavior is a result of conscious decisions that I make.", and "12. I have the self-confidence necessary to try different ways of behaving." There are four reverse items (2, 3, 5, and 10) in the scale and a total score is calculated after reverse coding these items. In this single factor scale, higher scores indicate higher levels of cognitive flexibility. Tests regarding the psychometric properties of the scale yielded that the Cronbach alpha values ranged between .72-.87 in two college samples, with a test-retest value of .83 (Martin & Rubin, 1995). The Turkish adaptation of the measurement tool disclosed a Cronbach alpha value of .81, with a test-retest value of .73 in university student samples (Altunkol, 2011). As well, the Cronbach alpha value of the scale was found to be .80 showing a satisfactory value for the internal consistency of the Cognitive Flexibility Scale.

Table 2 *Inter-correlations between variables*

Variable	1	2	3	4
1. Mindfulness	-			
2. Positive affect	.27***	-		
3. Cognitive flexibility	.42***	.22**	-	
4. Resilience	.13	.34***	.33***	-

Note. $N = 204$, *** $p < .001$, ** $p < .01$ (2-tailed).

Data Analysis

After collection, the data obtained was organized in terms of missing values, outlier cases and normality via SPSS 20 statistical package program. Then, AMOS 18 software was used in order to examine the goodness of fit indexes and standardized coefficients for the model proposed in the study.

Results

Descriptive Statistics

Table 2 presents the results of the Pearson product-moment correlation analysis used to examine the inter-correlation values between the variables of the study.

Table 2 shows positively significant relationships between endogenous, mediator and exogenous variables. The endogenous variable *resilience* has positively significant relationships with the mediators of positive affect ($r = .34$, $p < .001$) and cognitive flexibility ($r = .33$, $p < .001$). Likewise, the exogenous variable, *mindfulness* was found to have positively significant relationships with the mediators of positive affect ($r = .27$, $p < .001$) and cognitive flexibility ($r = .42$, $p < .001$).

Path Analysis

The proposed model, with the exogenous variable of mindfulness, the endogenous variable of resilience and mediators of positive affect

and cognitive flexibility, was tested through a path analysis. A Maximum Likelihood Estimation was run in order to elaborate on the proposed model. The first step of the analysis examined a number of goodness of fit indexes: the chi-square value (χ^2), normed chi-square index (χ^2/df), comparative fit index (CFI), Tucker-Lewis index (TLI) and root-mean-square error of approximation (RMSEA). Table 3 includes the goodness of fit values for these indexes, as well as the acceptable ranges for the values.

Table 3 shows that a non-significant chi-square value emerged for the model ($\chi^2 (2) =$

2.14, $p = .12$), indicating a sufficient goodness of fit criterion (Schumacker & Lomax, 2004). Accordingly, the RMSEA value of .08 remains below the acceptable value of .08 (Browne & Cudeck, 1993). Both the comparative fit index CFI (.98) and Tucker Lewis Index (.93) for the proposed model exceed the criterion value of .90 (Bentler, 1990).

Given sufficient evidence for the goodness of fit of the proposed model, the next step of the analysis involves examining the standardized path coefficient values, as presented in Figure 1.

Table 3 Model fit indices for the proposed model and acceptable ranges

Goodness of Fit Indexes	Model Fit Indices of the Proposed Model	Criterion Ranges
χ^2, df	4.28; 2	Non-significant
χ^2/df	2.14	$\chi^2/df < 3$
CFI	.98	CFI \geq .90
TLI	.93	TLI \geq .90
RMSEA	.08	RMSEA $<$.08

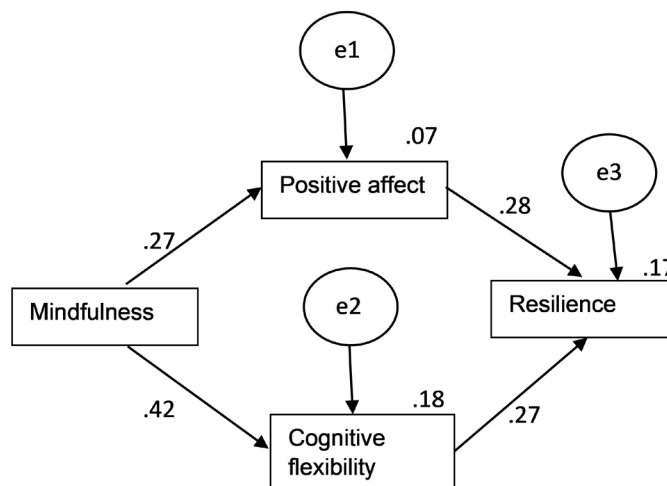


Figure 1 Standardized coefficients of the proposed model.

Based on the standardized path coefficient values from Figure 1, mindfulness can be considered to have a medium direct relationship with positive affect ($\beta = .27, p < .001$) and cognitive flexibility ($\beta = .42, p < .001$). In a similar vein, both positive affect ($\beta = .28, p < .001$) and cognitive flexibility ($\beta = .27, p < .001$) have direct medium relationships with adult resilience. The indirect relations of mindfulness and resilience through positive affect ($\beta = .07, p < .001$) and cognitive flexibility ($\beta = .12, p < .001$) were also found to be statistically significant. Given the squared multiple correlation coefficient (R^2), the proposed model explains 17% of the variance in resilience scores of adults.

Discussion

The findings of this study point to new evidence that higher levels of mindfulness result in greater trait resilience through flexibility in cognition and holding positive emotions in adults. Basically, I hypothesized that mindfulness will have direct connections to cognitive flexibility and positive affect and this interactive relationship will predict a certain variance in trait resilience of adult population. As hypothesized, results show that mindfulness has positively direct relations to positive affect and cognitive flexibility and both flexibility in thinking and positive affect have positively direct relationships with trait resilience. Additionally, indirect connections between mindfulness and resilience via positive affect and cognitive flexibility are both statistically significant.

The study's findings showed that mindfulness is positively related to the positive affection of participants. This finding confirms the conceptual perspectives that mindfulness is a process that shows encouraging effects on one's ability to regulate emotions and other characteristics of the self through emotional

awareness and positive feelings (Baer, 2003; Davidson et al., 2003). In addition, the current study also shows that maintaining positive emotions could be related to trait resilience in adults. In other words, this study shows that having positive emotions has a positive connection to trait resilience, which is consistent with the previous findings (Fredrickson & Joiner, 2002; Tugade, Fredrickson, & Barrett, 2004). According to Fredrickson and Joiner (2002), positive emotions facilitate and elevate emotional well-being. Similarly, Tugade, Fredrickson, and Barrett (2004) point out that resilient individuals use positive emotions to bring a positive meaning into the negative events they experience, enhancing their ability to regulate emotions and allowing them to bounce back from stressful times.

Cohn et al. (2009) pointed out that positive emotions are the resources for life satisfaction and coping. They conducted a study on the relationship of positive emotions and building resilient traits, connected to their influence on life satisfaction. They found that positive emotions lead to increases in trait resilience and life satisfaction, while negative emotions have no/small effects or do not interfere with the advantages of positive emotions. The authors concluded that individuals with positive emotions develop more resources to aid in living a life they are happy with. Fredrickson, Tugade, Waugh, and Larkin's (2003) study on the role of positive emotions in predicting trait resilience in U.S. college students following the September 11th terrorist attacks adds weight to these claims. The results of the mediation analyses supported the hypothesis that positive emotions like gratitude, interest, love and others, had a full mediation effect between pre-crisis resilience and later development of depressive symptoms. This effect was also found between pre-crisis resilience and post-crisis growth of psychological resources. The authors indicated that positive

emotions protect resilient individuals against depression and support psychological growth. The current study also showed that positive affect would be a facilitator for building a general tendency of having flexibility to adapt to the stressful and emotional experiences in normative adults.

Another finding of the current study indicates a significantly positive relationship between mindfulness and cognitive flexibility levels of the adults. It is accepted that mindful awareness brings equanimity and calmness into the private experiences of individuals. Such specific relations toward one's cognitions, emotions and senses facilitate a more adaptable and regulatory cognitive and affective state (Kabat-Zinn, 2005; Teper, Segal, & Inzlicht, 2013). The non-judgmental and accepting stance toward cognitions and emotions can lead to a more flexible and balanced cognitive and affective status. In turn, upholding such flexible attentional processes has the potential to develop alternative manners of thinking, allowing individuals to create various channels of cognition during particularly negative experiences (Kabat-Zinn, 2005). The findings of this study carried these debates into a practical space by showing that being mindful provides individuals with a flexibility in their thinking and this interaction promotes one's general ability to recover from adversities.

The results of this study clearly indicated that cognitive flexibility is an important characteristic of resilient adults. This finding is supportive of the limited number of studies, which indicate that a flexible thinking style foresees the ability to bounce back from adversities (Genet & Siemer, 2011; Southwick & Charney, 2012). According to Southwick and Charney (2012), resilient individuals characteristically maintain flexibility in how they think of their adversities as well as in their emotional reactions to stress. Supportively,

Genet and Siemer (2011) found that some cognitive mechanisms predict individual differences in trait resilience. Similar to this study, the results of their study also showed that cognitive flexibility is a significant contributor of trait resilience. In addition, this study indicated that cognitive flexibility and flexibility in affect processing are not predictors of other measurable traits such as extroversion and neuroticism, assuming that flexibility in cognition and affect processing are unique characteristics of trait resilience.

In conclusion, this study was conducted by examining theoretically conceived relationships between specific intrapersonal mechanisms as facilitators of trait resilience. Mindfulness and related psychological factors of positive affect and cognitive flexibility were studied as they were found to have certain relations to trait resilience but were not examined interactively to explain this trait in especially adult groups. The findings confirmed that mindful individuals possess more cognitive flexibility skills and can form positive affect better. In addition, individuals who have manageable thinking styles and are easier generators of positive feelings have greater resilience trait. In other words, mindfulness, cognitive flexibility and positive affect explain a certain variance in individuals' tendencies to deal with and bounce back from their adversities.

There are many studies indicating that having a resilience trait provides well-being and forms a protective cover especially in adult population (Hu, Zhang, & Wang, 2015). Researchers accept that trait resilience protects individuals from the adverse influences of stressful events and harsh experiences (Connor & Davidson, 2003; Ong, Bergeman, Bisconti, & Wallace, 2006). Thus, this study further elaborates that mindfulness, cognitive flexibility and positive affect could also be regarded as possible protective features

as they have significant predictive power in terms of trait resilience of adults. Supportively, strength and skill based professionals working on empowering well-being in adults may conduct mindfulness based programs in order to enhance mindfulness, cognitive flexibility, positive affect and hence resilience tendencies in these groups. In addition, regarding the current situation of the globe, which is trying to cope with the damaging influences of the Covid-19 virus, to be resilient can illuminate our way to a certain extent. Based on the protective role of mindfulness, cognitive flexibility and positive affect as emerged in this study, exercising mindfulness, trying to be flexible in our thinking and trying to generate positive feelings may empower us to cope with the burdens and stressful experiences of this global pandemic.

Author's ORCID

Zeynep Aydın Sünbül
<https://orcid.org/0000-0001-8084-2344>

References

- Altunkol, F. (2011). Üniversite öğrencilerinin bilişsel esneklikleri ile algılanan stres düzeyleri arasındaki ilişkinin incelenmesi. (*Masters' Thesis*). Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, 10, 125–143. <https://doi.org/10.1093/clipsy.bpg015>
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27–45. <https://doi.org/10.1177/1073191105283504>
- Bajaj, B. (2017). Mediating role of self-esteem in the relationship of mindfulness to resilience and stress. *International Journal of Emergency Mental Health and Human Resilience*, 19(4), 1–6. <https://doi.org/10.4172/1522-4821.1000372>
- Bajaj, B., & Pande, N. (2016). Mediating role of resilience in the impact of mindfulness on life satisfaction and affect as indices of subjective well-being. *Personality and Individual Differences*, 93, 63–67. <https://doi.org/10.1016/j.paid.2015.09.005>
- Balgiu, A. B. (2017). Self-esteem, personality and resilience. Study of a student's emerging adults' group. *Journal of Educational Sciences and Psychology*, 7(1), 93–99.
- Bentler, M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, 107, 238–246. <https://doi.org/10.1037/0033-2909.107.2.238>
- Bishop, S. R., Lau, M. A., Shapiro, S. L., Carlson, L. E., Anderson, N. D., Carmody, J., et al. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, 11(3), 230–242. <https://doi.org/10.1093/clipsy.bph077>
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp.136–162). Newbury Park, CA: Sage.
- Campbell-Sills, L., Cohan, S. L., & Stein, M. B. (2006). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behavior Research and Therapy*, 44(4), 585–599. <https://doi.org/10.1016/j.brat.2005.05.001>
- Cañas, J. J., Quesada, J. F., Antolí, A., & Fajardo, I. (2003). Cognitive flexibility and adaptability to environmental changes in dynamic complex problem-solving tasks. *Ergonomics*, 46, 482–501. <https://doi.org/10.1080/0014013031000061640>
- Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion*, 9(3), 361–368. <https://doi.org/doi/10.1037/a0015952>
- Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, 18(2), 76–82. <https://doi.org/10.1002/da.10113>

- Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., et al. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, 65, 564–570. <https://doi.org/10.1097/00006842-200401000-00023>
- Doğan, T. (2015). Kısa Psikolojik Sağlıklik Ölçeği'nin Türkçe uyarlaması: Geçerlik ve güvenilirlik çalışması. *The Journal of Happiness & Well-Being*, 3(1), 93–102.
- Erisman, S. M., & Roemer, L. (2010). A preliminary investigation of the effects of experimentally induced mindfulness on emotional responding to film clips. *Emotion*, 10, 72–82. <https://doi.org/10.1037/a0017162>
- Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment*, 3(1), Article 0001a. <https://doi.org/10.1037/1522-3736.3.1.31a>
- Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, 13, 172–175. <https://doi.org/10.1111/1467-9280.00431>
- Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crisis? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology*, 84(2), 365–376. <https://doi.org/10.1037/0022-3514.84.2.365>
- Friborg, O., Barlaug, D., Martinussen, M., Rosenvinge, J. H., & Hjermadal, O. (2005). Resilience in relation to personality and intelligence. *International Journal of Methods in Psychiatric Research*, 14(1), 29–42. <https://doi.org/10.1002/mpr.15>
- Galante, J., Dufour, G., Vainre, M., Wagner, P. A., Stochl, J., Benton, A., Lathia, N., Howarth, E., & Jones, P. B. (2017). A mindfulness-based intervention to increase resilience to stress in university students (the Mindful Student Study): A pragmatic randomized controlled trial. *Lancet Public Health*, 3, 72–81. [https://doi.org/10.1016/S2468-2667\(17\)30231-1](https://doi.org/10.1016/S2468-2667(17)30231-1)
- Gençöz, T. (2000). Pozitif ve Negatif Duygu Ölçeği: Geçerlik ve güvenilirlik çalışması. *Türk Psikoloji Dergisi*, 15(46), 19–26.
- Genet, J. J., & Siemer, M. (2011). Flexible control in processing affective and non-affective material predicts individual differences in trait resilience. *Cognition and Emotion*, 25(2), 380–388. <https://doi.org/10.1080/02699931.2010.491647>
- Germer, G. (2005). What is mindfulness? In G. Germer, R. Siegel, & P. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 1–27). New York: Guilford. <https://doi.org/10.1080/00377317.2014.861286>
- Graber, R., Pichon, F., & Carabine, E. (2015). *Psychological resilience: State of knowledge and future research agendas*. London: Overseas Development Institute.
- Grossman, P., Tiefenthaler-Gilmer, U., Raysz, A., & Kesper, U. (2007) Mindfulness training as an intervention for fibromyalgia: Evidence of postintervention and 3-year follow-up benefits in well-being. *Psychotherapy and Psychosomatics*, 76, 226–233. <http://dx.doi.org/10.1159/000101501>
- Hanh, T. N. (1991). *The miracle of mindfulness*. London: Rider.
- Hu, T., Zhang, D., & Wang, J. (2015). A meta-analysis of the trait resilience and mental health. *Personality and Individual Differences*, 76, 18–27. <https://doi.org/10.1016/j.paid.2014.11.039>
- Huang, C. C., Chen, Y., Greene, L., Cheung, S., & Wei, Y. (2019). Resilience and emotional and behavioral problems of adolescents in China: Effects of a short-term and intensive mindfulness and life skills training. *Children and Youth Services Review*, 100, 291–297. <https://doi.org/10.1016/j.childyouth.2019.03.015>
- Kabat-Zinn, J. (1994). *Mindfulness meditation for everyday life*. London: Piatkus Books.
- Kabat-Zinn, J. (2005). *Coming to our senses: Healing ourselves and the world through mindfulness*. New York, NY: Hyperion.
- Keye, M., & Pidgeon, A. (2013) Investigation of the relationship between resilience, mindfulness, and academic self-efficacy. *Open Journal of Social Sciences*, 1, 1–4. <https://doi.org/10.4236/jss.2013.16001>
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. <https://doi.org/10.1111/1467-8624.00164>
- Martin, M. M., & Rubin, R. B. (1995). A new measure of cognitive flexibility. *Psychological Reports*, 76, 623–626. <https://doi.org/10.2466/pr0.1995.76.2.623>

- Masten, S. A. (2001). Ordinary magic: Resilience process in development. *American Psychologist*, 56(3), 227–238. <https://doi.org/10.1037/0003-066X.56.3.227>
- Moore, A., & Malinowski, P. (2009). Meditation, mindfulness and cognitive flexibility. *Consciousness and Cognition*, 18, 176–186. <https://doi.org/10.1016/j.concog.2008.12.008>
- Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K. A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology*, 91(4), 730–749. <https://doi.org/10.1037/0022-3514.91.4.730>
- Oshio, A., Kaneko, H., Nagamine, S., & Nakaya, M. (2003). Construct validity of the Adolescent Resilience Scale. *Psychological Reports*, 93, 1217–1222. <http://dx.doi.org/10.2466/pr0.2003.93.3f.1217>
- Özyeşil, Z., Arslan, C., Kesici, Ş., & Deniz, E. M. (2011). Bilinçli Farkındalık Ölçeği' ni Türkçeye uyarlama çalışması. *Eğitim ve Bilim*, 36(160), 224–235.
- Pidgeon, M. A., & Keye, M. (2014). Relationship between resilience, mindfulness and psychological well-being in university students. *International Journal of Liberal Arts and Social Science*, 2(5), 27–32.
- Ramasubramanian, S. (2017). Mindfulness, stress coping and everyday resilience among emerging youth in a university setting: A mixed methods approach. *International Journal of Adolescence and Youth*, 22(3), 308–321. <https://doi.org/10.1080/02673843.2016.1175361>
- Rice, V., Boykin, G., Jeter, A., Villarreal, J., Overby, C., & Alfred, P. (2013). The relationship between mindfulness and resiliency among active duty service members and military veterans. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 57(1), 1387–1391. <https://doi.org/10.1177/1541931213571307>
- Sagone, E., & Indiana, M. L. (2017). The relationship of positive affect with resilience and self-efficacy in life skills in Italian adolescents. *Psychology*, 8, 2226–2239. <https://doi.org/10.4236/psych.2017.813142>
- Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling*. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers. <https://doi.org/10.4324/9781410610904>
- Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology*, 1(2), 105–115. <https://doi.org/10.1037/1931-3918.1.2.105>
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15(3), 194–200. <https://doi.org/10.1080/10705500802222972>
- Soltani, E., Shareh, H., Bahrainian, A. S., & Farmani, A. (2013). The mediating role of cognitive flexibility in correlation of coping styles and resilience with depression. *Pajoohande*, 18(2), 88–96.
- Southwick, S. M., & Charney, D. S. (2012). *Resilience: The science of mastering life's greatest challenges*. New York, NY, US: Cambridge University Press. <https://doi.org/10.1017/CBO9781139013857>
- Sünbül-Aydın, Z., & Güneri, O. Y. (2019). The relationship between mindfulness and resilience: The mediating role of self-compassion and emotion regulation in a sample of underprivileged Turkish adolescents. *Personality and Individual Differences*, 139, 337–342. <https://doi.org/10.1016/j.paid.2018.12.0>
- Teper, R., Segal, V. Z., & Inzlicht, M. (2013). Inside the mindful mind: How mindfulness enhances emotion regulation through improvements in executive control. *Current Directions in Psychological Science*, 22(6) 449–454. <https://doi.org/10.1177/0963721413495869>
- Thompson, R. W., Arnkoff, D. B., & Glass, C. R. (2011). Conceptualizing mindfulness and acceptance as components of psychological resilience to trauma. *Trauma, Violence & Abuse*, 12(4), 220–235. <https://doi.org/10.1177/1524838011416375>
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, 86, 320–333. <https://doi.org/10.1037/0022-3514.86.2.320>
- Tugade, M. M., Fredrickson, B. L., & Barrett, L. F. (2004). Psychological resilience and positive emotional granularity: Examining the benefits of positive emotions on coping and health. *Journal of Personality*, 72(6), 1161–1190. <https://doi.org/10.1111/j.1467-6494.2004.00294.x>

- Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement, 1*, 165–178.
- Wallace, B. A., & Shapiro, S. L. (2006). Mental balance and well-being: Building bridges between Buddhism and western psychology. *American Psychologist, 61*(7), 690–701. <https://doi.org/10.1037/0003-066X.61.7.690>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54*, 1063–1070. <https://doi.org/10.1037//0022-3514.54.6.1063>
- Wilson, P. A., Meyer, I. H., Antebi-Gruszka, N., Boone, M. R., Cook, S. H., & Cherenack, E. M. (2016). Profiles of resilience and psychosocial outcomes among young black gay and bisexual men. *American Journal of Community Psychology, 57*(1-2), 144–157. <https://doi.org/10.1002/ajcp.12018>
- Xing, C., & Sun, J. M. (2013). The role of psychological resilience and positive affect in risky decision-making. *International Journal of Psychology, 48*(5), 935–943. <https://doi.org/10.1080/00207594.2012.729840>
- Zautra, A. J., Johnson, L. M., & Davis, M. C. (2005). Positive affect as a source of resilience for women in chronic pain. *Journal of Consulting and Clinical Psychology, 73*(2), 212–220. <https://doi.org/10.1037/0022-006X.73.2.212>
- Zubair, A., Kamal, A., & Artemeva, V. A. (2018). Mindfulness and resilience as predictors of subjective well-being among university students: A cross cultural perspective. *Journal of Behavioural Sciences, 28*(2), 1–19.