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COULD PSYCHOLOGICAL FLEXIBILITY PLAY A BUFFERING ROLE AGAINST THE NEGATIVE EFFECTS OF DEPRESSION, STRESS, AND ANXIETY IN GENERAL POPULATION: A CANONICAL CORRELATION ANALYSIS

GENEL POPÜLASYONDA DEPRESYON, STRES VE KAYGININ OLUMSUZ ETKİLERİNE KARŞI PSİKOLOJİK ESNEKLİK KORUYUCU BİR ROL OYNAYABİLİR Mİ: BİR KANONİK KORELASYON ANALİZİ

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Abstract

The main purpose of this study was to explore possible unique links between overall psychological flexibility (PF), its six processes (acceptance, defusion, present moment awareness, self as context, values and committed action) and psychological distress (depression, anxiety and stress). The data were collected from 331 participants from various universities in Türkiye and canonical correlation analysis was used to test interrelationships between the variable sets. According to the findings, psychological flexibility and psychological distress variable sets share a moderate variance of 40% and 15% of variance PF variate was explained by psychological distress variables, while 30% of variance in psychological distress variate was explained by PF variables. Findings also showed the negative relationship with defusion, present moment awareness, and values, and committed action and total PF with all psychological distress variables. But, although at the bivariate level acceptance and self-as-context were inversely related with anxiety and stress, not with depression, these links were not observed in canonical correlation analysis. As a result our findings collectively reaffirms the importance and protective role of overall PF and its processes for understanding the onset and maintenance of depression, anxiety, and stress.

Keywords: Psychological flexibility, psychological distress, Canonical correlation analysis.

Öz

Bu çalışmanın temel amacı, toplam psikolojik esneklik (PE) ve alt süreçleri (kabul, bilişsel ayrışma, an ile esnek temas, bağlamsal benlik, değerler ve değer odaklı eylemlerde kararlılık) ile psikolojik sıkıntılar (depresyon, kaygı ve stres) değişken kümeleri arasındaki olası özgün ilişkileri ortaya çıkarmaktır. Bu ilişkileri ortaya çıkarmak için Türkiye'deki çeşitli üniversitelerden 331 katılımcıdan toplanan veriler ile kanonik korelasyon analizi yapılmıştır. Elde edilen bulgulara göre, psikolojik esneklik ve psikolojik sıkıntı değişken kümelerinin %40'lık orta düzeyde bir varyansı paylaştığı ve psikolojik esneklik değişken kümesindeki varyansın %15'inin psikolojik sıkıntılar değişken kümesi tarafından açıklandığı, psikolojik sıkıntılar değişken kümesindeki varyansın %30'unun da psikolojik esneklik değişken kümesi tarafından açıklandığı görülmüştür. Bulgular ayrıca bilişsel ayrışma, an ile esnek temas, değerler, değer odaklı eylemlerde kararlılık ve toplam psikolojik esnekliğin tüm psikolojik sıkıntılar değişken kümesi ile negatif yönde ilişkili olduğunu göstermektedir. Her ne kadar ikili ilişkilerde kabul ve bağlamsal benlik değişkenlerinin kaygı ve stres değişkenleri ile negatif ilişkili oldukları, depresyon değişkeni ile anlamlı ilişkilerinin bulunmadığı tespit edilmiş olsa da bu bulguların kanonik korelasyon analizi ile doğrulanmadığı görülmektedir. Sonuç olarak bulgularımız, depresyon, anksiyete ve stresin başlangıcını ve devamını anlamada toplam psikolojik esneklik ve süreçlerinin önemini ve koruyucu rolünü toplu olarak doğrulamaktadır.

Anahtar Kelimeler: Psikolojik esneklik, Psikolojik sıkıntılar, kanonik korelasyon analizi.

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1. INTRODUCTION

Depression, anxiety disorders (Steel et al., 2014), and stress are common mental health problems all around the world. Based on global data, The World Health Organization (WHO) has concluded that more than 300 million people suffer from depression and anxiety disorders (WHO, 2017). Depression can be characterized by symptoms such as lack of motivation, feelings of sadness and helplessness, cognitive deficits, and loss of pleasure (anhedonia) (Pizzagali & Roberts, 2022). While stress is defined as the feeling of emotional and physical tension arising from any life-threatening event (Selye, 1956), the body's natural response to stress in case of uncertainty can be expressed as anxiety (Holland, 2018).

Studies showed that psychological flexibility (PF) closely related to these psychopathological indicators (Gloster et al., 2011; Kashdan & Rottenberg, 2010). Psychological flexibility is based on Acceptance and Commitment Therapy (ACT), one of the third generation Cognitive Behavioral Psychotherapies, which is a transdiagnostic approach (Hayes et al., 2001), developed by Steven Hayes et al. (2013). In Cognitive Behavioral Psychotherapies disturbing cognitions forms the focus of therapy. But in ACT the main aim is not alleviate clients' symptoms and alter presented or perceived content. Instead, changing how clients deal with their problems and how they think constitute the basic focus (Harris, 2006).

ACT aims to lead a meaningful life in line with one's values and to accept and allow painful experiences (Hayes et al., 2012), and instead of trying to eliminate the symptoms in the individual, it tries to change it by focusing on the individual's relationship with his/her feelings and thoughts. Ultimately, the goal is to transform these painful life experiences into a new form, a more meaningful life (Hayes & Strosahl, 2010). In addition, relieving symptoms are seen as subsequent gains of therapy and enhancing PF is a cornerstone of ACT (Wang et al., 2023). In short, individuals learn to carry unpleasant thoughts and feelings in a healthy way, instead of trying to find a solution or getting rid of everything (Vangölü, 2022).

ACT emphasizes psychological well-being with the "PF model" (Nalbant & Yavuz, 2019). PF is characterized by individual's willingness to experience all feelings, thoughts, and mental images without judging and accepting them as they are, and to behave in ways that are consistent with one's chosen life values (Ernst & Mellon, 2016). PF consists of six interrelated basic processes (Hayes et al., 2004). These processes; acceptance, developing cognitive defusion skills, separating the contextual self from the self as a content, providing flexible contact with the moment and developing self-consciousness skills, establishing contact with values and displaying decisive behaviors in line with values (Gregoire et al., 2018). ACT aims to reduce human suffering and increase well-being through these six basic processes of the PF model (Hayes et al., 2012).

Depression, anxiety and stress are three common psychological distress variables and significant signs of mental health (Lovibond & Lovibond, 1995). First of all, depression, anxiety and stress can be interrelated and triggering factors in many emotions, thoughts and behaviors. These negative emotional indicators, which have many common and discrete features, consist of many different combinations of relationships with each other (Fredrickson & Joiner, 2002; Sarıçam, 2018).These three negative signs of the psychological distress can lead to important and irreversible problems such as dysfunctional family relationships, suicide, low achievement and illegal drug use (Falah-Hassani, 2017) and inefficiency at work, alienation from social life, sleep difficulties, fatigue, muscle tension and irritability (Rapaport et al., 2005; WHO, 2017) if not treated (Al-Naggar & Al-Naggar, 2012; WHO, 2017).

When the inevitability of their negative effect on mental health is considered, PF stands as the most important factor for sustaining (Hayes et al., 2022) and fundamental aspect of mental health (Kashdan, 2010). In accordance, people with high PF experience low obvious

depression, anxiety, and stress. Bai et al. (2021) conducted a systematic review and meta-analysis study to determine the relationship between ACT and depression. They included 18 studies with 1,088 participants and their findings showed that high psychological flexibility is inversely related to depression. Moreover, based on zero-order correlation, all five processes of PF were found to be negatively associated with depression, stress, and anxiety except for acceptance (Baker & Berghoff, 2020).

Current Study

Although single links between depression, anxiety and stress and psychological flexibility were determined, their unique associations with psychiatric symptomatology and relevant variables remain limited (Christodoulou et al., 2019). Thus, the current study aimed to explore possible unique associations of overall PF and its six processes with depression, anxiety and stress by using comprehensive multivariate analysis, canonical correlation. For this aim we create two variable sets one for overall PF and its processes (total psychological flexibility, acceptance, defusion, present moment awareness, self as context, and values and committed action) and second for psychological distress (depression, anxiety, and stress) based on their interrelatedness. PF processes are; acceptance: active awareness or willingness to embrace inner experiences and unwanted thoughts, emotions, and physical sensations without changing their frequency or form; defusion: maintaining a psychological distance from mental experiences (e.g., thoughts) rather than fully concentrating on them or interpenetrating or suppressing them; present moment awareness: ongoing non-judgmental and sensitive awareness of the present moment; self as context: taking a flexible perspective that allows for increased awareness of the flow of one's own idioms - without becoming attached to them and allowing them to unduly influence one's behavior; values: freely chosen, verbally constructed, and personally meaningful aspects of life; committed action: effective actions guided by values (Moens et al., 2022).

We hypothesized that the canonical correlation would reveal significant canonical function/s. In addition, we hypothesized the existence of stronger links within and between variable sets. We also expected that PF and its process would be inversely associated with all psychological distress, although not determined for acceptance in Baker and Berghoff's study (2020). All in all, exploring possible unique associations and interrelations within and between canonical variables with related outcomes may further communicate and validate the need for development and delivery of PF-based interventions in Turkish samples.

2. METHOD

Overall Design of the Study

To make predictions about a given outcome variable and discover possible relationships between two or more variables correlational research can be used (Fraenkel et al., 2012). As, current study aimed to explore and examine links among psychological flexibility variables and depression, anxiety, and stress variables correlational study design was used.

Sampling Procedure and Participants

The convenient sampling procedure was used to collect data of current study. Ethical approval was obtained from the Bitlis Eren University's Ethical Review Board. The population of the study was Siirt and Bitlis Eren Universities' students continuing their education in 2023 spring semester. The data was collected via Google form and total of 331 participants were reached. The sample of the current study includes 227 (68.6%) female and 104 (31.4%) male. 119 (36%) participants was aged between 18 to 24, 203 (61.3%) of them aged between 25-44

and 9 (2.7%) of them aged between 25-60. 228 (68.9%) of participants were single, while 103(31.1%) of them were married. Although most participants were colleague students (274, 82.8%), all participants were educated from high school to doing their masters. In similar vein although most participants identified their perceived economic level as middle (207, 62.5%), their economic level ranged from very low to very high.

Data Collection Instruments

Psychological Flexibility Scale

The scale was developed by Francis et al. (2016) and its adaptation to Turkish context was done by Karakuş and Akbay (2020). The scale consists of five subscales with 28 items. Defusion dimension consists of 3 items, present moment awareness consists of 7 items, values and committed action consists of 10 items, acceptance consists of 5 items and self as context consists 3 items. The scale is a 7 Point-Likert scale rated on 1(Strongly disagree) to 7 (Strongly agree). Each dimension can be evaluated separately by collecting its own items, and total score of scale can be obtained from summing all items. The lowest score that can be obtained from the scale is 28, and the highest score is 196. In the adaptation study Cronbach's alpha coefficients were found .84 for values and committed action, .60 for present moment awareness, .72 for acceptance, .73 for self as context, and .59 for defusion respectively. The Cronbach's alpha coefficient for total psychological flexibility scale was calculated as .79. In the present study Cronbach's alpha coefficients were also calculated and found as .88 for values and committed action, .83 for present moment awareness, .65 for acceptance, .65 for self as context, .48 for defusion and .83 for total scale respectively. The item examples are "I find it difficult to stay focused on what's happening in the present" and "I try to stay busy to keep thoughts or feelings from coming."

Depression Anxiety Stress Scale (DASS-21)

The DASS-21 consists of 21 items with three subscales aimed to measure depression, anxiety, and stress levels of participants. The scale designed to determine severity of depression, anxiety, and stress symptoms from 0 (never) to 3 (always). The scale developed by Lovibond & Lovibond (1995a; 1995b) and its adaptation to Turkish context was done by Sarıcam (2018). Each depression, anxiety, and stress subscales consist of 7 items. In Sarıcam's study Cronbach's alpha values were found .87 for depression, .85 for anxiety, and .81 for stress subscales. In the current study Cronbach's alpha values were also calculated and found as .88 for depression, .86 for anxiety, and .85 for stress respectively.

Data Analysis

Descriptive statistics, Pearson correlation, and canonical correlation analysis were used to analyze the data. In order to examine how well psychological flexibility variables (total psychological flexibility, acceptance, defusion, present moment awareness, self as context, and values and committed action) relate with depression, anxiety, and stress variables set a canonical correlation analysis (CCA) was run. As CCA is an appropriate statistical method to determine associations between and within each data sets. One of general advantage of CCA is a multivariate method that can be used to examine reality of human behavior and allows discovering associations between multiple variables (between different variables sets, as in our study) simultaneously (Sherry & Henson, 2005; Thompson, 1991). Considering the variables of the current study, with six PF variables as predictors and three psychological distress variables as dependent, CCA makes it possible to examine all links both within and between variables sets and with shared variances.

Before conducting the analysis all related assumptions of the CCA (independent observation, absence of outliers, absence of multicollinearity, in each sets & across sets, univariate, bivariate and multivariate normality, Linearity within and between the sets, homoscedasticity between all pairs within and between the sets, VIF<.4, Tolerance>.20, r<.90) were checked. To test the assumption of linearity within and between data sets, scatter diagram matrices were examined and a linear distribution was observed. By examining scatter plots homoscedasticity between all pairs within and between the sets were ensured. To determine multiple normal distribution, descriptive analysis was performed and skewness and kurtosis coefficients were taken as basis. As a result of the analysis, it was seen that the skewness coefficients were between -.28 and .92, and the kurtosis coefficients were between -.73 and .77. As skewness and kurtosis coefficients of a data set are within the critical value range of ±1 indicates that the data set has a normal distribution (Büyüköztürk, 2017). An order to check multicollinearity problem in the data sets, correlation coefficient values, tolerance values and variance inflation (VIF) values (Field, 2005) were checked. In this context, it is assumed that there is a multicollinearity problem if the correlation coefficient values between data sets are greater than r = .90, tolerance values are less than .20, and VIF values are higher than 10 (Büyüköztürk, 2017; Çokluk et al., 2012). It was seen that the highest relationship in the data set is between the present moment awareness variable and the depression variable (r = -.57; p < .01), tolerance values are between .82 and .67, and VIF values are between 1.50 and 1.21. In line with these results, canonical correlation analysis can be used to analyze the data as all assumptions were met.

3. RESULTS

Descriptive Statistics

In the current study, firstly, the relationships between the variables mean and standard deviation values of the variables were examined and presented at Table 1 below. As presented at the table preliminary findings showed that all PF processes positively correlated to the total PF (correlation values range from .35 to .70). In addition, total PF was negatively associated with depression (r = -.56, p<.01), anxiety (r=-.48, p<.01), and stress(r=-.43, p<.01). All PF processes also showed negative connectivity with depression and stress (correlation values range from -.13 to -.57). Though, four PF processes showed negative connectivity with anxiety (correlation values range from -.28 to -.43) but, defusion and self as a context did not show any significant relationship with anxiety.

According to the findings, depression mean score of the participants is 6.3, the anxiety mean score of the participants is 5.35, and stress mean score of the participants 7.13. Based on the psychometric properties of the DAS-21 scale, it can be concluded that depression, anxiety, and stress mean scores of the participants are similar to the non-clinical population scores (Sarıcam, 2018).

Table 1. The Correlations among PF and Its Processes and Psychological Distress Variables

Variable	1	2	3	4	5	6	7	8	9
1. PF	1								
2. Acceptance	.35**	1							
3. Defusion	.35**	-.16**	1						
4.Present awareness	.70**	.25**	.07	1					
5. Self as context	.39**	.18**	.30**	-.00	1				
6.Values and committed action	.70**	-.05	.38**	.41**	.26**	1			
7. Depression	-.56**	-.16**	-.21**	.57**	-.13*	.43**	1		
8. Anxiety	-.43**	-.18**	-.08	.47**	-.02	.28**	.73**	1	
9.Stress	-.48**	-.16**	-.20**	.49**	-.13**	.37**	.78**	.74**	1
M	131.00	18.17	11.98	33.24	12.62	55.85	6.30	5.34	7.12
SD	18.64	5.76	3.53	8.77	3.95	8.95	4.73	4.28	4.42

n = 331; **p < .01, *p < .05

Main Findings

In order to examine how well psychological flexibility variables (total psychological flexibility, acceptance, defusion, present moment awareness, self as context, and values and committed action) relate with depression, anxiety, and stress variables set a canonical correlation analysis was run. Before conducting the analysis all related assumptions of the canonical correlation were checked and ensured. Findings of canonical correlation are presented at table 2 below.

Analysis of canonical correlation indicated only a significant canonical function revealed values of $F(18)$=11.08, wilk's λ=.57, p=.00, since criteria of .30 (Hair et al., 2010) considered. The remaining two canonical correlation were not significant. According to findings, the first canonical correlation was meaningful with rc_1=.63 (rc_1^2=.40), representing 40% of overlapping variance for the two sets of variables. For the first and only significant canonical variate, based on the criteria .30 as seen from the table 2, for the set 1, results showed that the relationship between defusion (r=.34), present moment awareness (r=.91), and values, and committed action (r=.69) subscales of PF and total PF variables were meaningful referring that 12%, 83%, and 48% of variance in overall PF variate overlap with these subscale respectively. But, the relationship between acceptance and self as context and total PF were not meaningful. For the set 2, both depression (r=-.99), anxiety (r=-.76), and stress (r=-.86) are all significantly contribute to the depression, anxiety, and stress data set. These variables accounted for 98%, 58%, and 74% shared variance.

According to findings 39% of variance in PF variate explained by its own canonical variables. In addition 77% of variance in depression, anxiety, and stress variate explained by its own canonical variables. Redundancy values were also considered and results showed that 15% of variance PF variate was explained by depression, anxiety, and stress, while 30% of variance depression, anxiety, and stress, variate was explained by PF variables. All in all, based on canonical function results, it can be concluded that when defusion, present moment awareness, and values, and committed action and total PF increase both depression, anxiety, and stress decrease. Also results revealed that acceptance and self as context variables did not related with depression, anxiety, and stress. We hypothesized inverse associations between PF and its process with all three psychological distress variables. Based on obtained findings almost all of our hypotheses confirmed expect for that we did not determine significant association of acceptance and self as context variables with any of psychological distress variables.

Table 2. Correlations and Standardized Canonical Coefficients Between Psychological Flexibility and Depression, Anxiety, and Stress Variables and Their Canonical Variates

	Variate		
	Correlation	Canonical Coefficient	% r_s^2
Psychological Flexibility (PF) Variables			
Total PF	.89	.16	.79
Acceptance	.27	.08	.07
Defusion	.34	.15	.12
Present moment awareness	.91	.67	.83
Self as context	.21	.03	.04
Values, and committed action	.69	.25	.48
Percent of variance	.39		
Redundancy	.15		
Depression, Anxiety, and Stress Variables			
Depression	-.99	-.82	.98
Anxiety	-.76	-.00	.58
Stress	-.86	-.21	.74
Percent of variance	.77		
Redundancy	.30		
Canonical correlation	.63		

Note. Correlation = canonical loadings, canonical coefficients = standardized canonical correlation coefficients, % r_s^2 = squared canonical loadings or explained variance

4. DISCUSSION, CONCLUSION, AND SUGGESTIONS

Today the most common experiencing mental health disorders are depression, anxiety, and stress. In 2019, 301 million people have anxiety disorder and 280 million people have depression. In addition, 970 million people around the world, in other words, 1 in every 8 people have a mental disorder (Institute of Health Metrics and Evaluation, 2023). In life stages any person could experience depression, anxiety and stress. Because no one has any place to escape from them, nor has immunity against them. By being the most common mental health problems (Lovibond & Lovibond, 1995; Steel et al., 2014) and leading to many other important problems (Falah-Hassani, 2017; Rapaport et al., 2005) in the lives of many people (WHO, 2017), depression, anxiety and stress need to be studied with related variables that could buffer their negative effect, such as PF. In this respect the main purpose of the current study was to explore possible unique links between overall PF and its six processes (acceptance, defusion, present moment awareness, self as context, values and committed action) and psychological distress (depression, anxiety and stress).

According to findings psychological flexibility and psychological distress variable sets share a moderate variance of 40%. As findings showed 39% of variance in PF variate was explained by total PF and its processes and 77% of variance in psychological distress variate explained by depression, anxiety, and stress variables. In addition, 15% of variance PF variate was explained by depression, anxiety, and stress, while 30% of variance depression, anxiety, and stress, variate was explained by PF variables. Our findings also indicated that total PF, defusion, present moment awareness, values and committed action were negatively associated with depression, anxiety and stress. But, acceptance and self as context variables did not relate with depression, anxiety, and stress. In the development study of PF scale Francis et al. (2016) determined three factor structures with six processes. In the Turkish adaptation of the scale Karakuş and Akbay (2020) found that the PF with its six processes were supported in the Turkish context. But, in their study they determined five dimensions for PF. Because in the study values and committed action items loaded on one factor and it was named as values and committed action. Thus, in the current study values and committed action were evaluated together as one factor.

As findings of the current study showed overall PF can play a buffering role against negative effects of depression, anxiety, and stress on individuals. This finding is also concurrent with the findings of other studies. Previous studies revealed the relationship between psychological flexibility and many forms of psychopathology (Fledderus et al., 2013) including post-traumatic stress (Thompson et al., 2013), depression (Almarzooq et. al., 2017; Davis et. al., 2020; Leahy et al., 2012; Masuda & Tully, 2012; Østergaard et al., 2020; Trindade et al., 2020; Fonseca et al., 2020) anxiety (Masuda & Tully, 2012; Wang et al., 2023), depressive symptoms, anxiety and stress in individuals living with spinal cord injuries (Han et al., 2022), substance abuse (Stotts et al., 2012), and stress (Kent et al., 2019; Arslan & Allen, 2022; Wersebe et al., 2018). In a recent study the inverse associations of PF with depression, anxiety, and stress together were also determined (Wang et al., 2023) and PF with depression and stress (Puolakanaho et al., 2023).

Theoretically PF and its processes are inversely associated with psychological inflexibility (PI) and its processes (experiential avoidance, cognitive fusion, lack of awareness, self as content, lack of values, and inaction; Hayes et al., 2012). As asserted by Baker and Berghoff (2022) opposing processes of PF and PI may represent a continuum of behavior. Thus, in relation to our findings PI and its processes were also considered. For example; PI, the opposite of psychological flexibility, is also related both to general psychological distress and its subdivisions, depression, anxiety and stress (Bond et al., 2011). Kato's (2016) study also showed that higher psychological inflexibility was associated with greater depressive symptoms. These results show that the change in the level of psychological flexibility/inflexibility has a significant effect on psychological distress (depression, anxiety and stress). PF is also closely associated with resilience (Kashdan & Rottenberg, 2010). As confirmed by our findings and stressed on by Kashdan and Rottenberg (2010), PF is a transdiagnostic concept that is connected to a range of inter- and intra-individual abilities and is viewed as the central component of the mental health.

Present study is different from related studies in examining possible links between PF processes and depression, anxiety, and stress by using canonical correlation analyses in the Turkish sample. According to our findings defusion, present moment awareness, and values and committed action are inversely related with depression, anxiety, and stress. Some of these findings affirm and are compatible with the findings of related studies. For example, defusion, values, committed action, and total PF scores showed inverse associations with depression in the chronic pain sample (Sundström, 2023). Similar to our study recently Baker and Berghoff (2020) found significant negative associations between present moment awareness, values and

committed actions and depression; between only cognitive defusion and anxiety, and between cognitive defusion, committed action and stress. They also found significant positive associations between cognitive fusion, lack of awareness, self-as-content, lack of values, and inaction and depression; between self-as-content, and inaction and anxiety; and between cognitive fusion, inaction and stress. In addition, cognitive fusion displayed a significant positive link with depression, anxiety, and posttraumatic stress (Bardeen & Fergus, 2016). The cognitive fusion also predicted depression, generalized anxiety, social anxiety, and distress (Krafft et al., 2019).

Although at the bivariate level acceptance and self-as-context were inversely related with anxiety and stress, not with depression, these links were not observed in canonical correlation analysis. It can be speculated that, versus clinical, self-as-context may be less related in non-clinical population and possible interrelatedness and mediative roles of other PF processes (Baker & Berghoff, 2020). Experiential avoidance, the opposite of acceptance, was found to be positively related with depression, anxiety, and posttraumatic stress (Bardeen & Fergus, 2016). But in our study, the absence of connectivity of acceptance and psychological distress variables warrants attention. Because it was most broadly found to be related to psychological distress variables (Baker & Berghoff, 2020). The selected study group and conducting study with a non-clinical population in Turkey may have led to susceptible findings. Until future replication studies with different non-clinical and clinical populations reaffirm or disproof our findings, they should be interpreted with caution. In this respect we acknowledge that our findings have some limitations. First of all, the data of study was cross-sectional and our analyses were correlational in nature. Thus, results cannot be interpreted in the context of causality. The data were also collected via self-report and in a non-clinical population. Thus, our findings should be reexamined with larger diverse non-clinical and clinical populations both in Turkey and globally by conducting experiential and longitudinal studies with different analyses which pay the way for directionality and causality.

As a conclusion, the findings of the present study have important contributions for the field. For instance, although findings are novel and require replication studies it also collectively reaffirms the importance and protective role of overall PF and its processes for understanding the onset and maintenance of depression, anxiety, and stress. In addition, most of the studies have been conducted with clinical samples and PF has not been tested in the general and non-clinical population too much (Gloster et al., 2017). By exploring associations between PF and its processes with psychological distress variables in non-clinical populations, it informs the necessity of further evidence-based studies involving interventions aiming to improve PF, which may subsequently play a buffering role against negative effects of depression, anxiety, and stress on individuals. Because we know that all humans have PF to a greater or lesser degree and PF is also malleable with existence techniques to improve it (Gloster et al., 2017).

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