



Psychometric properties of a Turkish version of the body connection scale and exploring the mediating role of body connection in interpersonal emotion regulation, mindfulness and flourishing

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Abstract

The aim of this study was to adapt the Scale of Body Connection into Turkish and to test the mediating role of body awareness and body dissociation in the relationship between interpersonal emotion regulation, mindfulness, and flourishing. Data was sourced from a total of 440 participants (125 males, 315 females) from Istanbul Medeniyet University, as well as their relatives through a snowball sampling method. The participants had an age range between 15 and 84, with a mean age of 24.41 (SD = 9.35). The construct validity of the scale was tested via a confirmatory factor analysis. The Cronbach's Alpha coefficients were analyzed to test the internal consistency. Finally, a path analysis was used to test the research model. The results of the CFA showed that the scale is a valid instrument after eliminating few items. In addition, the reliability level of the scale was found to be satisfactory. The findings of the path analysis indicated that both mindfulness and interpersonal emotion regulation have significantly positive relationship with body awareness while mindfulness has a significantly negative relationship with body dissociation. In addition, there is a negative relationship between body dissociation and flourishing while body awareness has a significantly positive relationship with flourishing. The adjusted model accounted for a 9% variance in body awareness, 22% variance in body dissociation, and 6% variance in flourishing scores of participants.

Keywords Body connection · Flourishing · Interpersonal emotion regulation · Mindfulness

Introduction

Body Connection

Human beings are socially complex creatures whose body awareness, emotions, and thoughts change regularly. These changes are claimed to be stemming from the social context and the situational demands (Bonanno and Burton 2013; Hofmann 2014; Kashdan and Rottenberg 2010). In other words, their bodily, cognitive, and emotional awareness are

based on self-regulation. Self-regulation is the ability of autonomously directing and organizing their own feelings, thoughts, behaviors, using their inner strength, personal resources, taking into account the basic psychological needs and contextual characteristics (Deci and Ryan 2008; Posner and Rothbart 2000; Wallace et al. 2016). Therefore, there are many therapy models, such as mindfulness therapy, body awareness therapy, psychophysical therapy, and yoga therapy, which focus on reinforcing the strength of self-knowledge and self-regulation. All these methods have the aim of shoring up the connection between mind and body (Price & Price and Thompson 2007). Hefferon (2013) pointed toward a rising interest in the connection between body and mind in the field of psychology. Based on these statements it can be inferred that the integrity of the body and mind is required for the individual to regulate herself/himself.

Moreover, in order to connect between body and mind, individuals must firstly be aware of their own bodily experience. Being aware of body experience requires individuals to monitor and recognize the body stimulus (numbness), experience them (resolution of

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numbness) and accept them. These body experiences are based on holistic view aimed at heightening the psycho-physical awareness that provides flourishing (Aposhyan 1999; Bakal 1999; Blackburn and Price 2007). In contrast to body awareness, body dissociation alludes to the action of escaping internal experiences, such as becoming isolated from body and emotion, having difficulty in monitoring, recognizing, and describing body stimuli and experience (Price & Price and Thompson 2007; Price et al. 2017). Further, body dissociation is related to defensive mechanisms of trauma and trauma-related experiences (Herman 1992; Maltz 2012; Van der Kolk 2014). It can be understood from this paragraph that body awareness has an important effect on the individual's feeling of integrity and flourishing.

The Relationship between Body Connection and Flourishing

Flourishing is one of the significant concepts in positive psychology. Flourishing has been addressed by many researchers via differing definitions (Diener 1984; Keyes 1998; Ryff 1989; Seligman 2011). Diener (1984) defined flourishing as experiencing more positive emotions and getting satisfaction from life. Ryff (1989) stated that flourishing differs from feeling well and is related to psychological functionality. While some definitions are hedonic-based, others are eudaemonic-based (Ryan and Deci 2000). The hedonic factor focuses on positive emotions (happiness), while the eudaemonic factor focuses on psychological growth (Eryılmaz 2015; Schueller and Seligman 2010). Seligman states that there are both hedonic and eudemonic elements in the concept of flourishing (Schueller and Seligman 2010).

Seligman (2011) explains flourishing through a multi-dimensional model. In his model, he described happiness as a “thing” and flourishing as a “structure.” In this model, there are five dimensions, of which initials are composed of PERMA in English; positive emotions, engagement, positive relationships, meaning, and accomplishment (Lovett and Lovett 2016). To have all these dimensions, people first may be aware of inner sensations and experiences. However, in psychology— and particularly in positive psychology— the body awareness still remains under investigation (Brani et al. 2014; Hefferon 2013).

Anderson (2006), meanwhile, indicates that body awareness is respectably related to mental health and flourishing. Mehling et al. (2009) states that monitoring and experiencing inner sensations have many physiological and psychological consequences. Furthermore, many studies found that body awareness has a positive impact on psychological symptoms such as pain, eating, substance abuse (Archer 2005; Burns 2006), and trauma (Price & Price and Thompson 2007).

The Mediator Role of Body Awareness and Body Dissociation in the Relationship between Interpersonal Emotion Regulation and Flourishing

The human, as a social being, is influenced by the context in which he/she interacts. As social beings, individuals express, experience, and regulate emotions (Higgins and Pittman 2008). Emotions are one of our connections with the social environment and social environment has an effect on emotion regulation strategies (Grecucci et al. 2013; Tamir and Ford 2012). Theories about emotions change understandable shifts due to the growth of emotion science. William James (1984), the pioneer of modern psychology, explained emotions as body oriented. However, in the twentieth century, emotions were further linked to a more mind-oriented cognitive perspective. Until the beginning of the 2000s, mind-oriented perspectives take emotion and emotion regulation as intrapersonal regulation (Gross 2002; Gross and John 2003; Gross and Levenson 1997). Intrapersonal regulation is explained as a generally stable personal disposition with relatively situational features (Gross and John 2003; John and Gross 2004). Given these statements, it can be concluded that emotions were handled separately from body or mind theories for a long time.

However, since the 2000s, embodiment theories have proposed how the body and mind communicate with each other to regulate emotions in terms of physical and social environment (Porges 2011; Craig 2015). Therefore, emotion regulation includes the relationship between body, thoughts, and feelings (Price and Hooven 2018). In line with this, interpersonal emotion regulation is quite vital due to taking the adaptiveness on the social situation and situational demands and being based on self-regulation (Bonanno and Burton 2013; Kashdan and Rottenberg 2010). It can be understood from this paragraph that emotions were regulated when body and mind interacted with each other.

Zaki and Williams (2013) introduced the interpersonal regulation model to the field. According to this model, individuals regulate their emotions via social relations such as social support (Hofmann et al. 2016; Williams et al. 2018), social sharing (Rimé 2009), and soothing with others (Niven et al. 2009). All these factors emerged are two-fold: extrinsically or intrinsically. And this two-fold approach changes from respond dependent to respond independent. In intrinsic interpersonal emotion regulation, individuals start social interactions to change and regulate their emotions. Contrarily, in extrinsic interpersonal emotion regulation, individuals help others to change and regulate others' emotions (Zaki and Williams 2013). Marroquín et al. (2017) stated that both these sharing traits lead to a wholesome physical and mental state.

In intrinsic or extrinsic interpersonal emotional regulation, individuals should attend and be aware of inner sensations and inner experiences. In this regard, interpersonal emotion regulation is highly related to body awareness. Although there are

a remarkable amount of studies about the relationship between emotion regulation and body awareness (Füstös et al. 2013; Lobel et al. 2014; Price and Hooven 2018), there have been no studies specifically related to the relationship between interpersonal emotional regulation and body awareness. For this reason, this study contributed to indicate a relationship between interpersonal emotion regulation and body awareness.

In contrast to body awareness, body dissociation that is escaping from internal experiences such as isolation from bodily sensations and emotions is associated with defensive mechanisms linked to trauma and trauma-related experiences (Herman 1992; Maltz 2012; Van der Kolk 2014). Trauma and trauma-related problems include dissociations that contain ineffective, automated, habitual, and conditioned emotional regulation, even in minor stressors (Frewen & Frewen and Lanius 2006; Schore 2009; Sierra et al. 2002). This habitual, automated conditioned emotion regulation may not match specific styles of interpersonal emotion regulation, which change according to the social context. To this end, there are no studies about the relationship between interpersonal emotional regulation and body dissociation.

Furthermore, both interpersonal emotion regulation (Gable and Reis 2010; Puterman et al. 2010; Marroquín et al. 2016) and body awareness (Anderson 2006; Brani et al. 2014; Mehling et al. 2009; Tihanyi et al. 2016a) result in flourishing. However, to our knowledge, there are no specific studies examining the nature of the relationships between interpersonal regulation, body awareness and flourishing.

The Mediating Role of Body Awareness and Body Dissociation in the Relationship between Mindfulness and Flourishing

Mindfulness, based on Buddhist philosophy, is a particularly crucial concept in psychology. Kabat-Zinn (2003) conceptualizes mindfulness as monitoring the inner experiences in the present moment, paying attention to what is happening here and now, noticing the nature of one's awareness and responding to the environment without judgment. Bishop et al. (2004) explained mindfulness with a two-component model. One component includes self-regulation of attention, another alludes to experiences and how one adapts to them. Second component is also conceptualized by curiosity, openness, and acceptance. All components also include the continuous and repetitive observation of whole inner body sensations (Davidson et al. 2003). Observation of inner body sensations leads to body awareness (Tihanyi et al. 2016b). Kattenstroth (2009) stated mindfulness as a body-mind unity. In this respect, mindfulness and body awareness are remarkably relevant concepts.

Mehling et al. (2009) have pointed out the closeness between these two concepts, conceptually. Having indicated that mindfulness covers awareness of inner sensations and thus the concept of

body awareness, it is clear that as individuals develop their mindfulness skills, they also develop body connection skills, together. Furthermore, many studies (Tihanyi et al. 2016b; Hölzel et al. 2011; Mehling et al. 2009; Zgierska et al. 2009) have shown the relationship between mindfulness and body awareness.

In addition, both mindfulness and body awareness can increase self-regulation (Levine 2010, 2015). As well, they both promote flourishing (Mehling et al. 2011). All these concepts may be explained through self-regulatory processes (Hanley et al. 2017; Mehling 2016). In other words, as individuals pay attention, monitor, and accept their inner experiences (bodily, emotionally, and cognitively), their flourishing also increases. Most studies (Brani et al. 2014; Hanley et al. 2017) indicated the relationship among body awareness, mindfulness, and flourishing.

As mentioned above, mindfulness and bodily awareness are interwoven concepts (Mehling et al. 2009). Bodily dissociation, which lies in contrast to bodily awareness, may be considered antithetical to mindfulness (Nestler et al. 2015).

Body dissociation, the inability to be aware of body sensation and emotions, is correlated with defensive mechanisms of trauma and trauma-related experiences (Herman 1992; Maltz 2012; Van der Kolk 2014). Trauma contains emotion, emotional regulation, and dissociation that people experience automatically and ineffectively, even in minor stressors (Frewen & Frewen and Lanius 2006; Nestler et al. 2015; Sierra et al. 2002; Schore 2009). In other words, dissociation includes avoiding sensation, feelings and emotions and the inability to stay in the present moment (Zerubavel and Messman-Moore 2015). In this regard, mindfulness and body dissociation may negatively be associated with each other. While some studies (Corrigan 2002; Escudero-Perez et al. 2015; Kratzer et al. 2017; Zerubavel and Messman-Moore 2015) indicate the negative relationship between dissociation and mindfulness, some (Baslet and Hill 2011; Neziroglu and Donnelly 2013; Sharma et al. 2016) show that mindfulness programs have a significant effect on decreasing dissociation and improving the ability to recognize and forecast dissociation. However, there is no study that specifically follows up mindfulness and body dissociation. Therefore, this study aims to contribute to this end.

All the studies mentioned above have indicated the importance of body awareness and body dissociation, as well as interpersonal emotion regulation, mindfulness in flourishing. In the current studies published in Turkey, there is no a specific scale to measure body awareness and body dissociation (body connection), so it is thus vital to adapt a body connection scale into Turkish. This adaptation provides researchers and clinicians with the ability to assess trauma and flourishing and conduct research about it. In addition, not only in national literature but also in international literature, studies that examine the specific roles of body connection (body awareness and body dissociation) in interpersonal emotion regulation, mindfulness and flourishing are unfortunately

lacking. With this study, the role and importance of bodily awareness in regulating the mind, emotion and flourishing of the individual can be revealed. Last but not least, all these variables are based on self-regulation, which are also the main ingredients of new therapy models like mindfulness therapy, body awareness therapy, psychophysical therapy and yoga. In line with the results obtained from this study, body awareness can be included more in future self-regulation researches and put in new features in self-regulation therapy applications.

Thus, the current study has two major aims; to adapt the Scale of Body Connection into Turkish and to examine the mediating role of body awareness and body connection in the relationship interpersonal regulation, mindfulness and flourishing as depicted in Fig. 1.

Method

Participants

The sample of the study involved 440 participants (125 males, 315 females) drawn from Istanbul Medeniyet University students at Social Work department, as well as their relatives. The age range of the participants ranged between 15 to 84 with a mean age of 24.41 (SD = 9.35). The distribution of the educational level was as follows; literacy available ($N = 3$, 0,7%), primary school ($N = 28$, 6,4%), secondary school ($N = 13$, 3%), high school ($N = 67$, 15,2%) and university ($N = 329$, 74,8%). In addition, the occupational status of the sample was as follows; white collar ($N = 31$, 7%), blue collar ($N = 69$, 15,7%), university students ($N = 302$, 68,6%), housewife ($N = 31$, 7%) and non-worker ($N = 4$, 0,9%). The snowball sampling method was used to select the sample. Snowball sampling (network, chain referral, or reputational sampling) is a way of drawing the sample in quantitative and qualitative designs. This sampling method identifies and samples the individuals in a network. This way of selecting the sample starts with certain people and expands to the link of these initial cases reached (Cohen and Arieli 2011). We also began to

collect the data from Istanbul Medeniyet University students at Social Work department and requested them to reach their network for spreading the scales to their surroundings.

Procedures

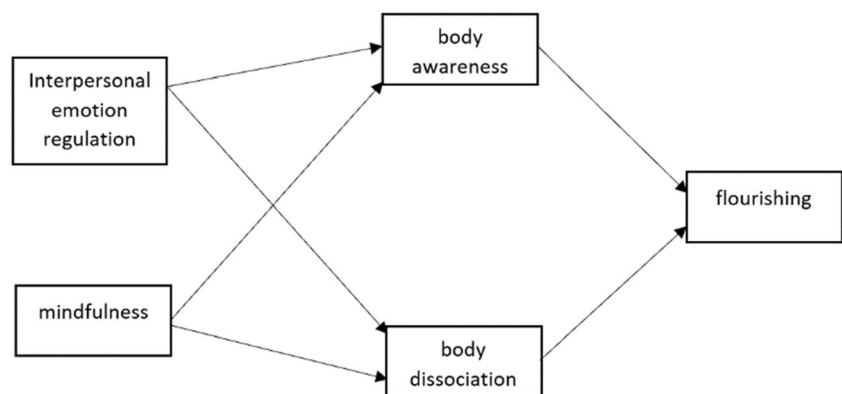
Ethical permission for the study was received from Istanbul Medeniyet University. Initially, the scale translation procedures were followed to translate and adapt the Scale of Body Connection into Turkish. A translation of the scale was carried out via a three-step procedure: Converting the items from the original language to the target language, determining the equivalence of the items in the original form and the draft form, and determining the validity and reliability of the obtained Turkish form (Hambleton and Bollwark 1991). First, four experts translated the scale into Turkish. Following this, the same experts reached a consensus for the most suitable translation for each item. This was followed by a process which resulted in a coherence of Turkish and English forms, with a final version given. Finally, the scale was applied to participants in order to determine its psychometric properties.

The data from this study was obtained from Istanbul Medeniyet University students at the institution’s Social Work department, as well as their relatives, between September 2019 and December 2019 term. The participants were selected via a snowball sampling method and did not receive any incentive for their participation. At first, the number of total participants were 470 but after eliminating 30 inappropriately answered scales, the remaining 440 individuals formed the sample of this study. Participants were asked to read and sign an informed consent and voluntary participation form before completing the surveys. Confidentiality was guaranteed by keeping the participant names and identities anonymous. The average time to complete the scales was 15 minutes.

Measures

Mindful Attention Awareness Scale (MAAS; Brown and Ryan 2003) measures the receptive awareness and attention features

Fig. 1 The proposed path model of flourishing



of mindfulness. The scale is a single construct measure made up of negatively stated 15 items. The scale is a 6-point Likert type instrument from 1 (almost always) to 6 (always never) and the total score is calculated through summing the mean of all items. Higher scores obtained in the scale indicate higher levels of mindfulness. The results of the CFA validate the single factor structure of MAAS (GFI = .92, CFI = .91, RMSEA = .06). The Cronbach alpha coefficient of the scale was .82, while the test-retest value came to .81. The Cronbach alpha value of the Turkish form was .80, along with a test-retest measure of .86 (Özyeşil et al. 2011).

Interpersonal Emotion Regulation Scale (IERS; Hofmann et al. 2016) is a recent measure of interpersonal emotion regulation. The scale has 20 items and four sub-factors: enhancing positive affect, perspective taking, soothing and social modeling. The scale is in a 5-point Likert type from 1 (not true for me at all) to 5 (extremely true for me). In order to determine each subscale score, the sum of responses to each group of four items is calculated while a total score is obtained through calculating the sum of all four subscale scores. Higher scores show higher levels of interpersonal emotion regulation. The internal consistency indicators for the sub scales were .89 for enhancing positive affect, .91 for perspective taking, .94 for soothing and .93 for social modeling. The four-factor structure of the scale contains satisfactory evidence of construct validity (CFI = .97, NNFI = .97, RMSEA = .04). The Turkish adaptation of the study yielded Cronbach alpha coefficients of .86 for enhancing positive affect, .80 for perspective taking, .88 for soothing and .87 for social modeling (Malkoç et al. 2018).

Scale of Body Connection (SBC; Price & Price and Thompson 2007) has 20 items measuring bodily connection through body awareness (12 items) and body dissociation (8 items). The scale is scored on a 5-point Likert type scale ranging from 1 (not at all) to 5 (all the time). To calculate a body awareness score, the endorsed items are summed and divided by the total number of items (12) while a body dissociation score is obtained through summing the validated items and dividing by the total number of items (8). A total score can also be attained through reversing the body dissociation items and then summing the endorsed items and divide by the total (20). Higher scores in the body awareness sub-scale points to higher levels of one's awareness of his body while higher scores in the body dissociation sub-scale mean increased levels of dissociation from the body. In addition, greater scores for the total scale show superior levels of body connection. The Cronbach alpha values for the original scale emerged as .83 for body awareness and .78 for bodily dissociation. The construct validity of the scale also revealed

acceptable goodness of fit index values (CFI = 0.96; GFI = 0.89, NFI = 0.90, SRMR = 0.07, RMSEA = 0.05; CI = 0.043–0.065). The reliability and validity properties of the Turkish version of SBC were explored under the scope of this study.

PERMA-Profiler (Butler and Kern 2016) measures higher levels of flourishing named as flourishing. The scale has 23 items that include 7 filler items, one happiness item and 15 items measuring five sub-factors named as positive feelings, engagement, relationships, meaning, and accomplishment. There are three items in each PERMA construct, and composite scores are averaged across the three items per construct. The items are scored through a Likert type scale from 0 (never) to 10 (always). The overall flourishing score is calculated through getting the mean score of 15 PERMA items and the overall happiness item. Higher scores attained in the scale display greater levels of flourishing. The Cronbach alpha values range between .92 and .95 for the sub-scales. The results of the confirmatory factor analysis also indicated satisfactory goodness of fit values in two different samples (Sample 1: $n = 3029$, RMSEA = .055 [90% confidence interval = .051, .058], SRMR = .037, CFI = .976, TLI = .968; Sample 2: $n = 408$, RMSEA = .077 [.067, .087]; SRMR = .034, CFI = .946, TLI = .929). The Cronbach alpha and test-retest values for the overall Turkish version of Perma-Profiler were .91 and .83, respectively (Demirci et al. 2017).

Data Analysis

In the initial phase of the data analysis, data cleaning and screening steps and the normality and linearity assumptions of CFA were examined through SPSS 20 package program. The mean substitution method was performed to deal with the missing data (Tabachnick and Fidell 2006). In addition, univariate outliers were explored through the z scores of each item. The descriptive statistics and intercorrelations between the study variables were also explored through SPSS 20 package program. In the next step, we conducted a confirmatory factor analysis for testing the model fit indices and unstandardized/standardized estimates of SBC. Then, we used a path analysis to examine the mediating role of body awareness and body dissociation in the relationship between interpersonal emotion regulation, mindfulness, and flourishing. It should be noted that, as we do not have any latent variables in our model, we conducted a path analysis which is a specific form of structural equation modeling used with only observed variables as in our study. Both confirmatory factor analysis and path analysis were conducted through AMOS 18 program (Byrne 2001). In addition, through the same program, a bootstrapping method was performed to test the mediation model for the proposed path model of the study.

Results

Confirmatory Factor Analysis for the Scale of Body Connection

We utilized a confirmatory factor analysis in order to determine and validate the originally proposed two-factor structure of SBC (Price & Price and Thompson 2007). First, the data was refined from missing values through a mean substitution technique. Then, regarding the assumptions of CFA, a number of parameters were examined. According to Kline (2011), the required sample size in CFA is indicated to be 200 with 5/10 units that is 440 in this study. In addition, univariate outliers were screened through the examination of z scores and no data was excluded based on the ± 3.29 cut-off. The assumptions of normality and linearity were also confirmed through skewness and kurtosis values and bivariate scatterplots, respectively (Tabachnick and Fidell 2006).

Given satisfactory evidence for the assumptions of CFA, a maximum likelihood estimation was performed through the AMOS 18 program (Byrne 2001). A number of model fit indices, and then standardized parameter estimates, were explored for the measurement model of SBC. The model fit values emerged for SBC was found to be poor ($\chi^2/df = 790.96/170$, $p < .001$; GFI = .84; CFI = .60; TLI = .56; RMSEA = .09). Brown (2006) points out three major reasons for poor model values in CFA: low factor loadings, high error covariances between items, and the lack of indicators. Regarding these sources for a poor fit, items with factor loadings below .30 (Item 2, Item 8, Item 9, Item 11, Item 12, and Item 16) were deleted from the scale. Then, items with high error variances (items 3–5, item 3 and dissociation sub-scale, items 13–14, items 14–17) were let to covariate in the measurement model. Following these revisions, the normed chi square value, Tucker-Lewis index (TLI) and comparative fit index (CFI), root mean square error of approximation (RMSEA) and goodness of fit index (GFI) were investigated for the adjusted model. Table 1 includes the results of these indices of the measurement model of SBC.

Table 1 presents all of the model fit indices having emerged for SBC ($\chi^2/df = 2,25$, $p < .001$; GFI = .95; CFI = .91; TLI = .89; RMSEA = .05), relatively satisfying the criterion

ranges (Bentler 1990; Kline 2011; Tucker and Lewis 1973). Owing to these model fit values, unstandardized/standardized estimates, standard errors, t values and R^2 values for the remaining 14 items (9 body awareness items; 5 dissociation items) were examined and presented in Table 2.

According to Table 2, standardized factor coefficients lie from .33 to .72 for the items. In addition, the R^2 (explained variance) values for the items are between .11 and .51 that are all statistically significant ($p < .001$).

Measurement Invariance of SBC across Genders

In order to measure the gender invariance of the scale, the configural measurement invariance and metric invariance were checked. Regarding the configural measurement invariance, the model fit values for the baseline model compared against all the subsequent specified invariance models were investigated. The goodness of fit values for the configural model was found to be satisfactory, indicating a configural invariance for SBC ($\chi^2/df = 235.82/146$, $p < .001$; GFI = .93; CFI = .91; TLI = .88; RMSEA = .04). Then, we looked over a metric invariance for SBC. The chi-square difference test yielded a non-significant difference of χ^2 ($\Delta\chi^2 = 13.1$, $\Delta df = 14$, $p > .05$) suggesting that the measurement unit is same for items across genders and the response manner of the participants is similar also indicating a satisfactory metric invariance for SBC (Horn and McArdle 1992).

Internal Consistency

We also explored the internal consistency of the SBC in order to get a sound basis of reliability. The Cronbach Alpha coefficients were found to be .64 for both body awareness and body dissociation and .73 for the whole scale.

The Results of the Path Analysis for the Proposed Model of Flourishing

In the second part of the study, a flourishing model was tested. In the model, mindfulness and interpersonal emotion regulation were the independent variables where body dissociation and bodily awareness were hypothesized to mediate the relations of mindfulness and interpersonal emotion regulation to flourishing. Before conducting the path analysis, the correlations between these variables and gender differences in terms of the dependent variable, flourishing were examined.

Correlations between Study Variables and Gender Differences in Flourishing

The Pearson product-moment correlation values between the variables were explored and results were summarized in Table 3.

Table 1 Model fit indices from measurement models of SBC

| Goodness of Fit Indexes | Measurement Model of MSCS | Criterion Ranges |
|-------------------------|---------------------------|-------------------------|
| χ^2/df | 2.25 | $\chi^2/df < 3$ |
| CFI | .91 | .90 < CFI or close to 1 |
| TLI | .89 | .90 < TLI or close to 1 |
| RMSEA | .05 | .05 < RMSEA < .08 |
| GFI | .95 | .90 < GFI |

Table 2 Unstandardized and standardized parameter estimates for SBC

| Construct | Item | Unstandardized Factor Loadings | Standardized Factor Loadings | SE | T | R ² |
|-------------------|--------|--------------------------------|------------------------------|-----|-------|----------------|
| Body awareness | Item1 | .57 | .54 | .05 | 10.65 | .30 |
| | Item3 | .46 | .36 | .06 | 7.24 | .13 |
| | Item4 | .52 | .47 | .06 | 9.09 | .22 |
| | Item6 | .60 | .51 | .06 | 9.97 | .26 |
| | Item13 | .51 | .47 | .06 | 8.93 | .22 |
| | Item14 | .39 | .33 | .07 | 5.96 | .11 |
| | Item15 | .68 | .66 | .05 | 13.25 | .43 |
| | Item17 | .55 | .46 | .06 | 8.84 | .21 |
| Body dissociation | Item18 | .68 | .58 | .06 | 11.39 | .33 |
| | Item5 | .50 | .39 | .07 | 7.17 | .16 |
| | Item7 | .90 | .72 | .07 | 13.04 | .51 |
| | Item10 | .78 | .68 | .06 | 12.43 | .46 |
| | Item19 | .50 | .41 | .07 | 7.54 | .17 |
| | Item20 | .43 | .37 | .06 | 6.75 | .14 |

All t values were significant, $p < .001$

The correlation matrix in Table 3 exposes that the independent variable, mindfulness has significant correlations with the mediator variable, body dissociation ($r = -.37$, $p < .001$), and the dependent variable, flourishing (*flourishing*) ($r = .16$, $p < .01$). In addition, the independent variable, interpersonal emotion regulation holds significant correlations with the mediator variable, body awareness ($r = .22$, $p < .001$). There are also significant correlations between body awareness and flourishing ($r = .10$, $p < .05$) as well as between body dissociation and flourishing ($r = -.11$, $p < .05$).

According to Schumacker and Lomax (2004), any significant gender variance in the dependent variable leads to an untestable model for the whole sample. In case of a difference in the dependent variable as a function of gender, one should result in forming separate models for each gender. Thus, an independent sample t-test was conducted to test the gender differences in flourishing. The results showed that there is no significant difference in flourishing scores between females and males ($t = .71$; $p = .48$). Therefore, a single path analysis was tested for the whole sample.

The Model Fit Values and Standardized E Stimates for the Proposed Model

Following the examination of the descriptive parameters, a Maximum Likelihood Estimation was run to test the proposed relations in the model (See Fig. 1). First of all, the goodness of fit values were checked over – and these values came out to be good for the proposed model ($\chi^2/df = 3212.47/1901$, $p < .001$; CFI = .90; TLI = .89; RMSEA = .04). However, an investigation of the non-significant paths showed that the direct path from interpersonal emotion regulation to body dissociation was not significant. Thus, the model fit values were re-examined after excluding this path. After this adjustment, the model fit values were found as $\chi^2/df = 3212.8/1902$, $p < .001$; CFI = .90; TLI = .90; RMSEA = .04 which were still relatively satisfactory (Bentler 1990; Kline 2011; Tucker and Lewis 1973). The measurement model of flourishing was given in Fig. 2.

On the next step, the standardized path coefficients for the adjusted model were generated by exploring the total, direct and indirect estimates by the bootstrapping procedures in

Table 3 Inter-Correlations between variables

| Variable | 1 | 2 | 3 | 4 | 5 |
|-------------------------------------|--------|---------|--------|-------|---|
| 1. Interpersonal emotion regulation | - | | | | |
| 2. Mindfulness | -.07 | - | | | |
| 3. Body awareness | .22*** | .09 | - | | |
| 4. Body dissociation | .04 | -.37*** | .20*** | - | |
| 5. Flourishing | .09 | .16** | .10* | -.11* | - |

$N = 440$, *** $p < .001$, ** $p < .01$, * $p < .05$ (2-tailed)

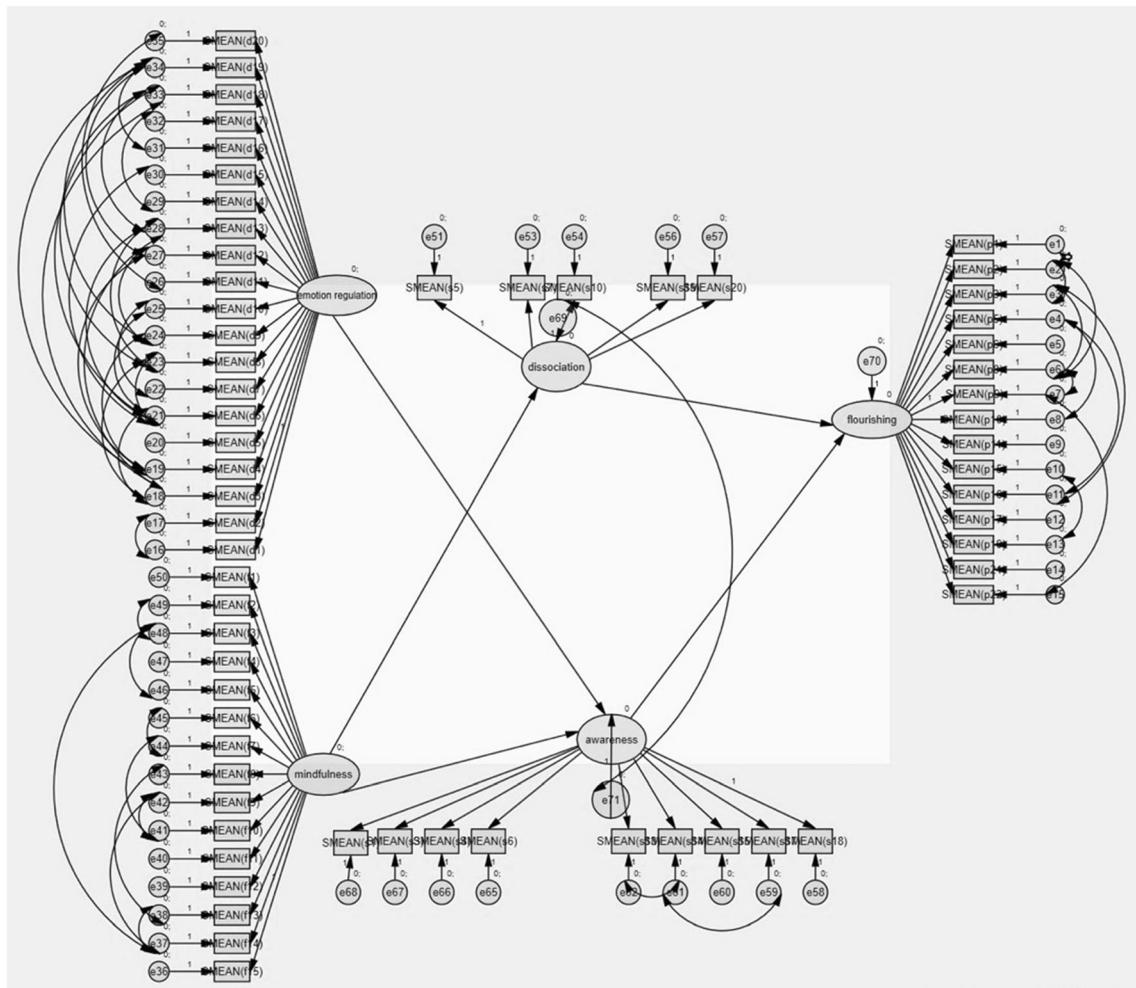


Fig. 2 The measurement model of flourishing

AMOS 18 program (Byrne 2001). The results for these estimates were presented in Table 4.

Table 4 yields that there were significantly positive direct relationships between interpersonal emotion regulation & body awareness ($\beta = .24, p < .01, 95\% \text{ BC, CI } [.128, .352]$), mindfulness & body awareness ($\beta = .19, p < .01, 95\% \text{ BC, CI } [.057, .318]$), and body awareness & flourishing ($\beta = .16, p < .01, 95\% \text{ BC, CI } [.041, .274]$). In addition, significantly positive direct relationships were found between mindfulness & body dissociation ($\beta = -.48, p < .01, 95\% \text{ BC, CI } [-.601, -.355]$) and body dissociation & flourishing ($\beta = -.21, p < .01, 95\% \text{ BC, CI } [-.320, -.096]$). Regarding the indirect relationships, interpersonal emotion regulation was found to have a significantly indirect relation to flourishing through the mediating role of body awareness ($\beta = .04, p < .05, 95\% \text{ BC, CI } [.01, .076]$). Likewise, mindfulness had significantly indirect relations to flourishing through the mediating role of body awareness and body dissociation ($\beta = .13, p < .01, 95\% \text{ BC, CI } [.065, .199]$) The adjusted model accounts for a 9% variance in body awareness, 22% variance in body dissociation, and 6% variance in flourishing scores of participants.

Discussion & Conclusion

As a first step of this study, the body connection scale, developed by Price and Price and Thompson (2007), was adapted into Turkish. To examine the validity of the scale, a confirmatory factor analysis was performed. The results of the confirmatory factor analysis showed that the emerged model fit indices supported the two-factor structure of the scale as in the original form of the Turkish sample. Furthermore, the Cronbach’s Alpha coefficients indicated the scale’s reliability. The scale is composed of two sub-dimensions; body awareness and body dissociation, consistent with original scale developed by Price and Price and Thompson (2007).

Secondly, to show the predictive validity of body awareness, the mediating role of body awareness in the relationship between interpersonal emotion regulation and flourishing was examined. Many studies (Craig 2015; Porges 2011; Price and Hooven 2018) indicated the importance of body and mind interaction in the regulation of emotions according to physical and social environment. Supporting this, studies about the relationship between emotion regulation and body awareness

Table 4 Standardized total, direct, and indirect estimates

| Paths | Standardized Estimates (β) | 5%, 95%, BC, CI |
|---|------------------------------------|-----------------|
| Interpersonal emotion regulation → Flourishing | .04* | (.01, .076) |
| Indirect (Total) | | |
| Indirect by body awareness | .04* | (.01, .076) |
| Interpersonal emotion regulation → Body awareness | .24** | (.128, .352) |
| Mindfulness → Flourishing | .13** | (.065, .199) |
| Indirect by body dissociation and body awareness | | |
| Mindfulness → Body dissociation | -.48** | (-.601, -.355) |
| Mindfulness → Body awareness | .19** | (.057, .318) |
| Body dissociation → Flourishing | -.21** | (-.320, -.096) |
| Body awareness → Flourishing | .16** | (.041, .274) |

* $p < .05$; ** $p < .01$; *** $p < .001$

have been found (Füstös et al. 2013; Lobel et al. 2014; Price and Hooven 2018). All these studies indirectly supported the results of the study in terms of the relationship between body awareness and interpersonal emotion regulation. Although physical and social environment are vital in regulating the body and emotion, the relationship between interpersonal emotion regulation and body awareness was not taken into any consideration. Thus, this is the first study that indicates the relationship between interpersonal emotion regulation and body awareness. Moreover, many studies separately have shown the importance of the relationship between interpersonal emotion regulation & flourishing (Gable and Reis 2010; Marroquín et al. 2016; Puterman et al. 2010) and body awareness & flourishing (Anderson 2006; Brani et al. 2014; Mehling et al. 2009; Tihanyi et al. 2016a). All these studies support our results. The difference between these studies and ours is that we have examined the relationship of the variables (interpersonal regulation, body awareness, flourishing), together. In this way, this study is the first examining the relationship among interpersonal regulation, body awareness, and flourishing. And it can be also understood from this result that self-regulation can be so vital for body awareness, interpersonal emotion, and flourishing.

In contrast to body awareness, there has been proven no negative relationship between body dissociation and interpersonal emotion regulation. Hereby, we have not found the mediating role of body dissociation in the relationship between interpersonal emotion regulation and flourishing. As stated before (Frewen & Frewen and Lanius 2006; Schore 2009; Sierra et al. 2002), bodily dissociated people have used automated, habitual and conditioned emotion regulation which is not matched with interpersonal emotion regulation style because interpersonal emotion regulation style changes from social contexts to contexts. This also may be explained by trauma. That is, people with body dissociation may have generally traumatized histories which may lead them avoid their interpersonal feelings due to the fear of retraumatized.

In order to demonstrate the predictive validity of bodily awareness, the current study has examined the mediating role of body awareness in the relationship between mindfulness and flourishing. The emerged model has proven to be statistically significant. A lot of studies (Tihanyi et al. 2016b; Hölzel et al. 2011; Mehling et al. 2009; Zgierska et al. 2009) that pointed out the relationship between mindfulness and body awareness supported the result of the current study about the significant relationship between mindfulness and body awareness. As Davidson et al. (2003) have announced, to be mindful, a person must observe all inner body sensations repetitively and continuously, which increases their flourishing due to increasing self-regulation abilities (Hanley et al. 2017; Mehling 2016; Mehling et al. 2011). Furthermore, many studies (Brani et al. 2014; Hanley et al. 2017) about the relationship between body awareness, mindfulness and flourishing find parallel results with the current study in the case of the mediating role of body awareness in the relationship between mindfulness and flourishing. It can be said from this result, mindfulness may provide awareness of body and flourishing via self-regulation. In this context, mindfulness may provide people to regulate their life.

Moreover, to demonstrate the predictive validity of bodily dissociation, the study has investigated the mediating role of body dissociation in the relationship between mindfulness and flourishing. The emerged model proved to be statistically significant. Some studies have indicated that body dissociation may be antithetical to mindfulness due to defensive mechanism of trauma and trauma-related experiences (Herman 1992, Maltz 2012; Nestler et al. 2015). Thus, many studies (Corrigan 2002; Escudero-Perez et al. 2015; Kratzer et al. 2017; Zerubavel and Messman-Moore 2015) indicated the negative relationship between mindfulness and dissociation, which may be indirectly or generally supported the result of the current study regarding the relationship between mindfulness and body dissociation. Furthermore, the experimental studies (Baslet and Hill 2011; Neziroglu and Donnelly 2013;

Sharma et al. 2016) about mindfulness reduction program in decreasing dissociation may indirectly supported the mediating role of body dissociation in the relationship between mindfulness and flourishing. It can be inferred from this result that mindfulness may have power to resolute body dissociation via self-regulation.

The current study has some limitations. One of them pertains to the fact that self-report measurements were utilized, which may have negatively affected the reliability of the results due to social desirability. Second, the study included more female participants than male participants. To control the gender effect, this attribute was taken as a control variable in the study model. Despite the limitations, this study has many contributions, for sure. First, the body connection scale was adapted into Turkish and validated in our Turkish sample. This scale can now be utilized by researchers and clinicians to measure the level of body awareness and body dissociation in Turkish context. Second, this research makes an adequate contribution to the current literature, since it has tested two mediation models for examining how interpersonal emotion regulation, mindfulness and flourishing are related through the mediating influences of body connection (body awareness and body dissociation).

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