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# Understanding Psychological Flexibility: A Multimethod Exploration of Pursuing Valued Goals Despite the Presence of Distress

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Psychological flexibility (PF), defined as the ability to pursue valued life aims despite the presence of distress, is a fundamental contributor to health (Kashdan & Rottenberg, 2010). Existing measures of PF have failed to consider the valued goals that give context for why people are willing to manage distress. Using 4 independent samples and 3 follow-up samples, we examined the role of PF in well-being, emotional experience and regulation, resilience, goal pursuit, and daily functioning. We describe the development and psychometric properties of the Personalized Psychological Flexibility Index (PPFI), which captures tendencies to avoid, accept, and harness discomfort during valued goal pursuit. Correlational, laboratory, and experience-sampling methods show that the PPFI measures a trait-like individual difference dimension that is related to a variety of well-being and healthy personality constructs. Unlike existing measures of PF, the PPFI was shown to be distinct from negative emotionality. Beyond trait measures, the PPFI is associated with effective daily goals and life strivings pursuit and adaptive emotional and regulatory responses to stressful life events. By adopting our measurement index, PF may be better integrated into mainstream theory and research on adaptive human functioning.

***Public Significance Statement***
Psychological flexibility is defined as the pursuit of valued life aims despite the presence of distress, but existing measures fail to account for the personalized nature of these aims. We created and validated the Personalized Psychological Flexibility Index to measure 3 ways of managing distress (avoiding, accepting, and harnessing) that arises during the pursuit of personally meaningful goals. Our scale offers an improvement in the measurement of psychological flexibility in basic research and clinical trials.

*Keywords:* psychological flexibility, resilience, well-being, emotion regulation, purpose in life

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Rather than seeking to eradicate symptoms (even those deemed "pathological"), modern clinical interventions are more interested in targeting mechanisms that influence healthy life choices (e.g., Hofmann & Hayes, 2019). Strategies that increase the probability of healthy life choices include making room for unpleasant emotions, memories, or physical sensations (e.g., with mindfulness), extending compassion to parts of the self that are undesirable or difficult to love (e.g., with self-compassion), and creating distance from intrusive thoughts that impair functioning (e.g., with cognitive defusion). When applied haphazardly, such strategies are insufficient for building a satisfying, meaningful life. Rather than indiscriminately remaining in contact with the present moment, for example, theory and research suggest that it is more useful to employ regulatory strategies that are matched to the demands of a situation and service specific goals (e.g., Aldao, Sheppes, & Gross, 2015; Bonanno & Burton, 2013). Ideally, these goals are consistent with core values.

Psychological flexibility (PF) can be succinctly defined as the pursuit of valued goals despite the presence of distress (Hayes, Strosahl, & Wilson, 2011; Kashdan & Rottenberg, 2010). Instrumental approaches to emotion regulation such as harnessing painful emotions in the pursuit of valued goals are deployed less often

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by fewer people, and yet offer a valuable addition to an arsenal of healthy psychological strategies (e.g., Kalokerinos, Tamir, & Kuppens, 2017; Tamir, 2009). For example, upregulating anger is useful for obtaining desired outcomes during a negotiation or summoning courage for an uncomfortable confrontation (e.g., Tamir & Ford, 2009). Upregulating fear can be useful in the pursuit of adaptive goals such as avoiding physical harm (e.g., in a simulated combat situation; Tamir & Ford, 2009). Upregulating worry can enhance performance on cognitively demanding tasks, especially for individuals with high negative emotionality (Tamir, 2005). Upregulating sadness while watching a sad film clip or talking about a recent loss is associated with less severe and chronic depression (Bylsma, Morris, & Rottenberg, 2008). Psychologically flexible individuals are less preoccupied with controlling the form or frequency of uncomfortable internal states solely to maximize pleasant and minimize unpleasant feelings. Psychologically flexible individuals are willing to tolerate uncomfortable states if doing so facilitates meaningful goal pursuit.

## Psychological Flexibility and Adaptive Psychological Functioning

A number of studies found that PF is associated with adaptive personality traits, including higher conscientiousness and openness to experience, and lower negative emotionality. Meta-analytic data suggest that PF has an average correlation of .42 with a range of adaptive outcomes, including physical health and quality of life (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). The literature suggests that greater PF is associated with higher job performance and well-being in the workplace, even after controlling for well-established predictors such as emotional intelligence and Big Five personality traits (Bond, Hayes, & Barnes-Holmes, 2006).

Links between PF and adaptive functioning may be particularly strong in the presence of distress. Active duty military members with higher PF followed for a year postdeployment report lower posttraumatic stress and suicide risk (Bryan, Ray-Sannerud, & Heron, 2015). In an experiment, when people with higher PF are subjected to physical pain (i.e., a cold pressor task), they show greater pain tolerance, perseverance, and a faster recovery to baseline (Feldner et al., 2006). In a different experiment, participants skilled at flexibly enhancing or expressing emotions in response to emotionally evocative stimuli showed greater adjustment at a 3-year follow-up—an association that was particularly strong for individuals undergoing major stress (Westphal, Seivert, & Bonanno, 2010). Together, these data affirm a conceptualization of PF as an adaptive response to distress during stressful or challenging situations, which includes the pursuit of difficult yet meaningful goals.

## Psychological (In)flexibility and Psychopathology

Psychological inflexibility has been positively associated with a range of emotional disturbances, and clinical interventions that directly target PF partially or fully account for change in various conditions including depression (Bohlmeijer, Fledderus, Rokx, & Pieterse, 2011; Zettle, Rains, & Hayes, 2011), anxiety (Arch, Wolitzky-Taylor, Eifert, & Craske, 2012), chronic pain (Cederberg, Cernvall, Dahl, von Essen, & Ljungman, 2016), psychosis (Bacon, Farhall, & Fossey, 2014; Gaudiano, Herbert, & Hayes, 2010), and excessive workplace stress (Bond & Bunce, 2000; Flaxman & Bond, 2010). Data suggest that acceptance and commitment therapy (ACT) along with cognitive–behavioral therapy produce adaptive behavior change by increasing PF and its core features (e.g., acceptance, reconceptualizing problematic thoughts, increased goal-directed behavior; Arch et al., 2012; Arch & Craske, 2008; Niles et al., 2014). Enhancing PF may be a primary mechanism by which evidence-based psychotherapies produce adaptive behavior change (e.g., Hayes et al., 2019; Hofmann & Hayes, 2019; Niles et al., 2014).

## Measurement Problems

Existing measures fail to capture core elements of PF and show little differentiation from general negative emotionality. The Acceptance and Action Questionnaire (AAQ) supposedly measured PF, whereas the revised version (the AAQ-II) measured "psychological inflexibility and experiential avoidance." As such, the AAQ-II has become the most widely used measure—even though theories of PF consider experiential avoidance (EA) a facet rather than a synonym or its opposite (Hayes, Pistorello, & Levin, 2012). Besides conceptual issues, concerns have mounted over discriminant validity. In their scale development paper, Bond and colleagues (2011) reported large positive correlations between the AAQ-II and indices of psychological distress (e.g., .70–.71 with depressive symptoms), indicating the measurement of something similar to, if not the same as, negative affect. Recent studies found that the AAQ-II is more highly correlated with negative affect, neuroticism, and emotional disturbances (e.g., depression and anxiety) than to regulatory responses (e.g., acceptance/nonacceptance; Rochefort, Baldwin, & Chmielewski, 2018; Tyndall et al., 2019; Wolgast, 2014). These studies led to a recommendation to use the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011) or brief version (BEAQ; Gámez et al., 2014). The MEAQ intended to measure EA, defined as, "the tendency to avoid negative internal experiences" (Gámez et al., 2011, p. 692). Given that EA is only a component of psychological flexibility/inflexibility, a valid measure of PF should capture more than just EA (e.g., the avoidance and acceptance of psychological distress in the context of valued goal pursuit).

Other researchers have attempted to create PF measures that extend beyond EA and capture all six purported dimensions of PF per the ACT framework (Rolffs, Rogge, & Wilson, 2018). While this measure (the Multidimensional Psychological Flexibility Index) touches upon factors that obstruct values, there is no link to a person's self-endorsed, meaningful life goals. This is a crucial gap in the measurement of PF. Flexible responses to emotional discomfort are important because they pave the way for a broader, effective range of behavioral responses during goal pursuit. Flexibility *in the service of valued goal-pursuit* is at the core of PF definitions and theories (Hayes et al., 2011). To better measure PF, it is useful to combine a nomothetic approach to studying flexible responses to distress (e.g., avoidance, acceptance, capitalizing on or harnessing distress to facilitate goals) with an idiographic approach to capture the specific goals that are consistent with a person's values.

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## The Present Research

Theory and research suggest that PF is central to well-being and adaptive functioning (Hayes et al., 2011; Kashdan & Rottenberg, 2010). Existing research is contingent on theoretically sound measures that map onto conceptual models. To date, existing measures of PF have left out the most important part of the definition: people are willing to experience distress because they are pursuing valued life aims. Unlike prior attempts, our measurement of PF links content to idiographic or personally relevant goals being presently pursued. Using four independent samples and three follow-up samples, we conducted a comprehensive analysis of whether and how PF is related to healthy functioning, adaptive personality traits, emotional disturbances, and well-being. In this research program, we adopted a multimethod approach to understanding PF that spanned self-reports, in-person interviews, day reconstruction method, performance measures, and longitudinal predictions.

## Study 1: Scale Development

We describe the item selection, development, reliability, and validity of the Personalized Psychological Flexibility Index (PPFI) scores, measuring the ways in which people respond to uncomfortable internal states and external obstacles while pursuing valued goals. We hypothesized that the PPFI would be associated with a wide range of healthy psychological outcomes, concurrently and prospectively (1-month, 4-month, and 6-month follow-ups). Because PF involves effective self-regulation toward valued goals despite obstacles, we hypothesized that the PPFI would be associated with conscientiousness, openness to experience, and self-control. PF also involves awareness of emotions, functional beliefs about emotions, and highly developed abilities to regulate a range of emotional states in the service of valued goals. Given the adaptive nature of PF, we hypothesized that the PPFI would be positively associated with indices of well-being (subjective happiness, life satisfaction, psychological need satisfaction, and meaning in life) and negatively associated with emotional disturbances.

Prior PF measures have been empirically shown to be indistinguishable from negative emotionality (Rochefort et al., 2018; Tyndall et al., 2019; Wolgast, 2014). For this reason, we conducted comparisons to two widely used PF scales, the BEAQ and AAQ-II. We tested which (if any) of these PF scales loaded independently from depression, anxiety, and stress.

### Method

**Participants and procedure.** For Study 1, we used seven samples (see Table 1). Sample A were college students ($n$ = 340) participating for research course credit. Participants in Samples B and E were adult, MTurk workers who completed study measures online at baseline ($n$ = 403) and 4-month follow-up ($n$ = 317). Participants in Samples C and F were adult professionals working for a multinational corporation who completed study measures online at baseline ($n$ = 276) and 1-month follow-up ($n$ = 276). Participants in Samples D and G were community adults in the DC/Maryland/Virginia region completing measures in-person at baseline ($n$ = 303) and online for 6-month follow-ups ($n$ = 205). Participants provided written informed consent and were compensated with Amazon eGift cards. Sample demographics are provided in Table 1. All studies were approved by the university Institutional Review Board.

**Measures.**

***Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011).*** The 7-item AAQ-II measures psychological inflexibility, defined as "rigid dominance of psychological reactions over chosen values and contingencies in guiding actions" (Bond et al., 2011). Items are scored on a 7-point Likert-type scale (α = .91; Sample D).

***Brief Experiential Avoidance measure (BEAQ; Gámez et al., 2014).*** The 15-item BEAQ measures six dimensions of experiential avoidance, defined as an unwillingness to remain in contact

Table 1
*Sample Characteristics*

| Scale item | Sample | | | | | | |
|---|---|---|---|---|---|---|---|
| Characteristic Location | A GMU | B MTurk | C Professionals | D Community | E MTurk | F Professionals | G Community |
| Cronbach's alpha | N/A | .81 | .77 | .84 | .87 | .76 | .79 |
| *N* | 280 | 403 | 276 | 303 | 317 | 276 | 205 |
| Age (years) | 21.8 | 33.8 | 37.3 | 31.3 | 35.0 | 37.3 | 31.4 |
| Age range (years) | 18–65 | 18–69 | 20–74 | 18–81 | 19–69 | 20–75 | 18–8 |
| Female (%) | 64 | 43 | 50 | 66 | 45 | 50 | 62 |
| Caucasian | 44.2 | 80.1 | 79.7 | 47.1 | 81.1 | 79.3 | 55.4 |
| Asian/Pacific Islander | 13.6 | 6.5 | 8.0 | 20.0 | 5.4 | 7.6 | 17.9 |
| African American | 10.0 | 7.4 | 7.6 | 14.2 | 6.9 | 8.0 | 9.2 |
| Latino/Hispanic | 16.1 | 4.7 | 3.6 | 8.4 | 5.0 | 3.6 | 5.6 |
| Arab/Middle Eastern | 9.2 | — | — | 3.5 | — | — | 4.6 |
| Native American | — | — | — | — | | .4 | — |
| Other | 1.4 | 1.2 | 1.1 | 6.8 | 1.6 | 1.1 | 7.2 |

*Note*. Samples E, F, and G represent participants from Samples B, C and D who repeated follow-up assessments (at 1 month, 4 months, and 6 months, respectively). Slight variations in demographics between samples C and F represent differences in self-report from baseline to follow-up. GMU = George Mason University (undergraduate students recruited via the internal psychology department research pool). Cronbach's alpha = internal consistency for the PPFI in each sample. N/A = The GMU sample completed the earliest version of the PPFI/initial item pool, which did not contain the final items; as such, Cronbach's alpha was not calculated. PPFI = Personalized Psychological Flexibility Index.

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with distressing thoughts, emotions, memories, and physical sensations, even when doing so leads to harm (Hayes et al., 2011), on a 6-point Likert scale (α = .86; Sample D).

***Big Five Inventory-2-Short Form (BFI-2-S; Soto & John, 2017).*** The 30-item BFI-2-S measures Extraversion (E), Agreeableness (A), Conscientiousness (C), Negative Emotionality (NE; formerly Neuroticism), and Open-Mindfulness (O-M; formerly Openness to Experience) on a 5-point Likert scale. Only C, NE, and O-M were examined in the present study (αs .71–.82; Sample D).

***Self-Control Scale (SCS; Tangney, Baumeister, & Boone, 2004).*** The 10-item SCS measures the capacity to adapt the self to achieve a better fit with the environment. Items are rated on a 5-point Likert-type scale (α = .80; Sample D).

***Short Grit Scale–Perseverance (Grit-S; Duckworth & Quinn, 2009).*** To measure perseverance in pursuing long-term goals, we used the authors' slightly adjusted items for two of the four items from the original perseverance of effort subscale (from a forthcoming new version). Items included, "I have overcome setbacks to conquer an important challenge (c.f., "Setbacks don't discourage me"—Grit-S), "I am a hard worker," "I finish whatever I begin," and "I am diligent. I never give up" (cf., "I never give up"—Grit-S) on a 5-point Likert-type scale. Data suggest that perseverance of effort demonstrates strong correlations with measures of well-being and achievement whereas the consistency of interests subscale has small to near-zero effects (Credé, Tynan, & Harms, 2017; Disabato, Goodman, & Kashdan, 2019; α = .85; Sample C).

***Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003).*** The 15-item MAAS items are scored on a 6-point Likert scale where higher scores indicate greater mindfulness (α = .93; Sample C).

***Distress intolerance (McHugh & Otto, 2012).*** The 10-item distress intolerance scale relied on the following definition: "The perceived inability to tolerate negative somatic and emotional states." With evidence of a single-factor solution (e.g., "It scares me when I am nervous," "I can't handle feeling distressed or upset," and "I must be free of disturbing feelings as quickly as possible; I can't bear if they continue"), the scale was validated in clinical and nonclinical samples. Items are rated on a 6-point Likert scale (α = .87; Sample D).

***Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985).*** Five items assess the cognitive evaluation of life as desirable on a 7-point Likert scale (α = .86; Sample D).

***Balanced Measure of Psychological Needs (BMPN; Sheldon & Hilpert, 2012).*** The 18-item BMPN measures a person's satisfaction of basic needs to feel autonomous, competent, and a sense of belonging, using a 5-point Likert scale. Evidence suggests that need subscales are distinct and to be measured separately (Sheldon & Hilpert, 2012; αs = .62–.75; Sample D).

***Brief Measure of Purpose in Life (Hill, Edmonds, Peterson, Luyckx, & Andrews, 2016).*** The 4-item Brief Measure of Purpose in Life measures the presence of a clear, authentic purpose and direction in life (e.g., "My plans for the future match with my true interests and values"). Items are rated on a 5-point Likert scale (α = .84; Sample D).

***Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006).*** The 10-item MLQ measures the presence of and search for meaning and purpose in life. Only the 5-item presence subscale (MLQ-P) was used. Items are rated on a 7-point Likert scale (α = .96; Sample D).

***Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001).*** The PHQ-9 assesses depressive symptom severity based on the nine diagnostic criteria for major depressive disorder (American Psychiatric Association, 2013). Items are scored based on symptom frequency in the past month using a 4-point Likert scale (α = .84; Sample D).

***State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA; Grös, Antony, Simms, & McCabe, 2007).*** The trait version of the 21-item STICSA measures general symptoms of cognitive and somatic anxiety using a 4-point Likert scale (α = .90; Sample D).

***Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998).*** The 19-item SIAS measures fear and avoidance of social interactions using a 5-point Likert scale. The SIAS shows strong discriminant validity in differentiating social anxiety disorder from other anxiety disorders (Brown et al., 1997; α = .94; Sample D).

***Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995).*** The DASS-21 measures symptoms of depression (α = .94), anxiety (α = .88), and stress (α = .91) over the past week with seven items each using a 4-point Likert scale (Sample B).

***Beliefs about Well-Being Scale (BWBS; McMahan & Estes, 2011).*** The 16-item BWBS measures the extent to which one believes that well-being is about the experience of pleasure (α = .87; e.g., "Experiencing a great deal of sensual pleasure"), avoidance of negative experience (α = .91; e.g., "Not experiencing negative emotions"), self-development (α = .81; e.g., "The exertion of effort to meet life's challenges"), and contribution to others (α = .92; e.g., "Being a positive influence within the community"). The BWBS measures each conception of well-being with four items rated on a 7-point Likert scale (αs = .81-.92; Sample B).

## Results

**Initial item pool and selection.** We derived PPFI items by synthesizing conceptual and empirical studies on PF (e.g., Hayes et al., 2019; Hofmann & Hayes, 2019) and existing scales on related constructs (e.g., experiential avoidance, cognitive flexibility/rigidity, distress tolerance, goal striving; Burton & Bonanno, 2016; Emmons, 1986). While other measures reflect general reactions to uncomfortable internal experiences (e.g., "I'm afraid of my feelings"; Bond et al., 2011), we created a situationally dependent measure of responses to uncomfortable internal experiences in the midst of valued goal pursuit. In an open-ended format, participants were initially instructed to write down an important goal that they are working on. We drafted preliminary items to reflect a wide range of psychologically flexible and inflexible responses to both internal (e.g., thoughts and feelings) and external obstacles (e.g., setbacks, distractions, other people) during goal pursuit.

We began with a pool of 100 items designed to measure four approaches to discomfort arising from obstacles during goal pursuit: avoidance (i.e., escaping particular feelings, thoughts, and situations because of discomfort, or delaying goal pursuit alto-

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gether), (in)Tolerance (i.e., withstanding distressing psychological states, albeit often with more effort than required by the situation), acceptance (i.e., being aware of and receptive to the natural discomfort that arises during goal pursuit), and harnessing (i.e., using discomfort to motivate and facilitate valued goal pursuit). We submitted the item pool to a panel of eight experts in the study and clinical practice of PF (all eight have a PhD in psychology, six are certified peer-reviewed acceptance and commitment therapy trainers). Only items rated highly and consistently across raters were retained (e.g., any item deemed unsuitable by a single rater was removed). The 38 items that remained from this round of ratings were included in two pilot studies. We relied on a 7-point Likert scale format from *strongly disagree* to *strongly agree*.

**Exploratory factor analyses.** To explore the factor structure of the derived scale, it was completed by a sample of 340 undergraduates in return for course credit. After removing participants who failed to correctly respond to an attention check, the final sample size was 280 (Sample A, Table 1). Parallel analysis, based on a common factor model with 10,000 Monte Carlo samples and a 95% cutoff, indicated six factors with adjusted eigenvalues greater than 0 (Glorfeld, 1995). An exploratory factor analysis (EFA) was conducted with six factors extracted by the minimum residual method (Harman & Jones, 1966). To ensure the discriminant validity of each factor and prevent highly correlated factors, the orthogonal "varimax" rotation criterion was used for clarity in item selection. Four interpretable factors emerged—intolerance (eigenvalue = 4.18), avoidance (eigenvalue = 2.80), acceptance (eigenvalue = 2.76), and harnessing (eigenvalue = 2.39)—each with standardized factor loadings over |.40|. Based on acceptable item factor loadings and conceptually clear wording, 24 items were retained: five for avoidance, seven for intolerance, four for acceptance, and eight for harnessing.

To further explore the factor structure, the truncated item pool was completed twice by 447 English-speaking Amazon Mechanical Turk (MTurk) workers. Participants were asked to identify a different goal for the second completion of the scale. In addition to the 24 retained items from Sample A, we generated nine additional items to capture acceptance and harnessing for the selection of an equal number of items per subscale. Participants completed the 33 scale items. After removing participants who failed to respond to a simple attention check, the final sample size was 403 (Sample B, Table 1). An EFA was conducted with four factors extracted by the minimum residual method. To estimate the assumed nonzero correlations between the factors, we used the oblique "oblimin" rotation criterion. The first extracted factor was a combination of the avoidance and intolerance items (the same result emerged when using the orthogonal "varimax" rotation criterion). This empirically derived factor made conceptual sense as the avoidance and intolerance items both reflected an unwillingness to withstand discomfort and be engaged in goal pursuit. With avoidance and intolerance items loading on the same factor, we moved from a four to three factor solution from here on out.

A second EFA was conducted with the three factors extracted. The avoidance (and prior intolerance) items loaded on the first factor, acceptance items on the second factor, and harnessing items on the third factor. Two items with standardized factor loadings less than |.40| were removed, leaving 31 remaining items. With the aim of finalizing three, brief subscales, suboptimal items were removed. Consideration was given to empirical characteristics of the items (i.e., magnitude of standardized focal loading, presence of standardized cross loadings) and conceptual issues (i.e., reading level, breadth of content). An additional 13 items were removed, resulting in 18 items: six per subscale.

A third EFA was conducted with 18 items. The first three eigenvalues based on the common factor model were larger than 1: 5.31, 1.99, and 1.30. Seventeen of 18 items had standardized loadings greater than |.40|. Only two items had standardized cross loadings greater than |.20|, which were −.23 and +.24. The second completion of the PPFI (with a distinct idiographic goal) was used to determine if further items should be removed. A fourth EFA with the second completion was conducted with the 18 items. Similar results were detected. The first three eigenvalues were larger than 1: 5.42, 2.18, and 1.70. Seventeen of 18 items had standardized loadings greater than |.40|. Only one item had a standardized cross loading greater than |.20|. Upon reviewing results from the first and second PPFI completion, one item from each subscale was removed (i.e., the lone item with cross loading greater than |.20|). The final scale resulted in 15 items: five items for each subscale. Factor correlations between avoidance (reverse-scored) and acceptance ($r$ = .44), avoidance and harnessing ($r$ = .11), and acceptance and harnessing ($r$ = .26) indicated acceptable separability. Final items are in Table 2.

**Confirmatory factor analyses.** Data from a new sample of 276 adult professionals from a major, multinational corporation was used to perform confirmatory factor analysis (CFA) using maximum likelihood estimation (see Sample C in Table 1 for demographics). Using the lavaan R package (Rosseel, 2012), three correlated factors with no correlated errors were specified for the final 15 items revealed by exploratory analysis. The model fit indices indicated that the correspondence between the three-factor model and sample covariance matrix was satisfactory: $\chi^2(87)$ = 277.08, $p$ = .000, RMSEA = .09, SRMR = .07, TLI = .88, CFI = .90. Factor correlations between avoidance and acceptance ($r$ = .29), avoidance and harnessing ($r$ = .08), and acceptance and harnessing ($r$ = .39) indicating separability. The standardized factor loadings for the 15 scale items were greater than |.50| (see Table 2). These results suggest the final items could be organized into three subscales: avoidance, acceptance, and harnessing.

Cross-validation of the CFA model in a second, independent sample is recommended to increase the likelihood of population generalizabilty (Schumacker & Lomax, 2015). The factor model was evaluated with a general sample of 303 community adults from the Mid-Atlantic region of the United States (see Sample D in Table 1). The model fit was satisfactory and similar to sample C, $\chi^2(87)$ = 222.99, $p < .001$, RMSEA = .07, SRMR = .07, TLI = .90, CFI = .92. Factor correlations between avoidance and acceptance ($r$ = .40), avoidance and harnessing ($r$ = .33), and acceptance and harnessing ($r$ = .27) indicated separability. The standardized factor loadings for the 15 scale items were similar to sample C, greater than |.45|, and reported in Table 2. The alpha coefficient of the observed total score was .84, slightly larger than the value of .78 for Sample C. These results replicate the CFA model with stronger associations between factors, suggesting the reliability of a PPFI total score.

**Test–retest reliability.** The temporal stability of the PPFI was examined in the professional and community adult samples (Samples C and D, respectively). In Sample C, we assessed test–retest reliability by computing the Pearson correlation coefficient ($r$)

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Table 2
*Means, Standard Deviations, Factor Loadings, and Item-Total Correlations for the Personalized Psychological Flexibility Index*

| Scale items | Sample C | | | | Sample D | | | |
|---|---|---|---|---|---|---|---|---|
| | F | I-T | *M* | *SD* | F | I-T | *M* | *SD* |
| Avoidance | | | | | | | | |
| 1. I avoid the most difficult goal-related tasks. | .72 | .34 | 5.53 | 1.41 | .71 | .57 | 4.55 | 1.75 |
| 2. I put off pursuing this goal when I could be doing a more enjoyable task. | .73 | .34 | 4.98 | 1.67 | .70 | .50 | 4.15 | 1.79 |
| 3. When I feel stressed pursuing this goal, I give up. | .87 | .48 | 5.59 | 1.41 | .83 | .62 | 5.08 | 1.74 |
| 4. I get so caught up in thoughts and feelings that I am unable to pursue this goal. | .83 | .32 | 5.61 | 1.49 | .75 | .59 | 4.91 | 1.71 |
| 5. When I feel discouraged, I let my commitment for this goal slide. | .82 | .45 | 5.13 | 1.69 | .82 | .66 | 4.42 | 1.80 |
| Acceptance | | | | | | | | |
| 6. I accept the setbacks when pursuing this goal. | .58 | .51 | 5.41 | 1.23 | .66 | .47 | 5.12 | 1.25 |
| 7. While pursuing this goal, I try to accept my negative thoughts and feelings rather than resist them. | .78 | .44 | 4.96 | 1.38 | .73 | .42 | 4.82 | 1.42 |
| 8. I am willing to experience negative thoughts and emotions related to this goal. | .88 | .50 | 5.16 | 1.31 | .80 | .45 | 5.23 | 1.27 |
| 9. I accept things I cannot change about this goal. | .61 | .35 | 5.37 | 1.27 | .53 | .35 | 5.02 | 1.46 |
| 10. While pursuing this goal, I can observe unpleasant feelings without being drawn into them. | .65 | .47 | 5.1 | 1.29 | .65 | .56 | 4.6 | 1.51 |
| Harnessing | | | | | | | | |
| 11. When faced with obstacles related to this goal, my frustration serves to energize me. | .64 | .45 | 4.45 | 1.54 | .62 | .57 | 4.24 | 1.61 |
| 12. I find worrying helpful to solving goal-related problems | .76 | .33 | 3.54 | 1.68 | .62 | .31 | 3.29 | 1.76 |
| 13. When people distract me from this goal, I use any anger that arises to stay focused. | .73 | .28 | 3.36 | 1.7 | .48 | .29 | 3.27 | 1.67 |
| 14. I get motivated by guilt when I fail to meet my own expectations pursuing this goal. | .54 | .12 | 3.84 | 1.79 | .52 | .35 | 4.27 | 1.68 |
| 15. I find unpleasant emotions useful for reaching this goal. | .74 | .37 | 3.43 | 1.66 | .68 | .38 | 3.34 | 1.59 |

*Note*. All scores are derived from the Personalized Psychological Flexibility Index (PPFI) items pertaining to participants' first chosen goal from Samples C (Professional Adult Baseline; $N = 276$) and D (Community Adult Baseline; $N = 303$). Statistics for items 1–5 reflect the reverse-scored values. Scale instructions were as follows: "Please take a few moments to think of an important goal that you are working on. This goal can be in any area of your life, but it must be one and only one goal. Don't choose too quickly. Take a few moments to think about it. After you choose the goal, please write it in the following blank: ___. For each statement below, select the rating that best describes *your* thoughts and feelings about this goal." Participants responded using the following 7-point scale: 1 = *Strongly Disagree,* 2 = *Disagree,* 3 = *Somewhat Disagree,* 4 = *Neither Agree nor Disagree,* 5 = *Somewhat Agree,* 6 = *Agree,* and 7 = *Strongly Agree*. F = factor loadings; I-T = item–total correlations (between each item and its subscale).

between each of the five-item PPFI subscales as well as the 15-item total score from baseline (Time 1) to 4-month follow-up (Time 2; Sample F in Table 1). Test–retest reliability was .55 for avoidance, .57 for acceptance, .61 for harnessing, and .59 for total PF scores ($ps < .001$). For Sample D, we assessed test–retest reliability from baseline (Time 1) to 6-month follow-up (Time 2; Sample G in Table 1) with the two-goal version of the PPFI, capturing responses to discomfort while pursuing two separate personally meaningful goals. For the two-goal scale version, equivalent items from each subscale were averaged together, and composite subscales and full scale were created. Test–retest reliability from Time 1 (baseline) to Time 2 (6-month follow-up) was .57 for avoidance, .44 for acceptance, .55 for harnessing, and .52 for total PF scores ($ps < .001$).

**Construct validity.** Zero-order correlations among the PPFI and other measures are detailed in Table 3. The PPFI exhibited correlations with adaptive personality traits, including positive associations with conscientiousness, open-mindedness, self-control, and grit and a negative association with negative emotionality. The PPFI also showed associations with adaptive metaemotion constructs including a positive association with mindfulness, beliefs that emotions are malleable (i.e., incremental theories about emo-

Table 3
*Correlations for the Personalized Psychological Flexibility Index With Other Scales: Construct Validity (Study 1)*

| Constructs (measures) | Sample | Correlations | | | |
|---|---|---|---|---|---|
| | | Total PPFI | Avoidance | Acceptance | Harnessing |
| Conscientiousness (BFI-2-S) | D | .37* | −.42** | .19* | .17* |
| Negative emotionality (BFI-2-S) | D | −.42* | .47** | −.36* | −.06 |
| Open-mindedness (BFI-2-S) | D | .13* | −.14* | .18* | −.03 |
| Distress intolerance (DI) | B, D, E | −.42*, −.39*, −.42* | .47*, .41*, .48* | −.37*, −.40*, −.36* | −.03, −.04, −.05 |
| Self-control (SCS) | D | .44* | −.46* | .27* | .21* |
| Flexible regulation of emotional expression (FREE) | | | | | |
| Enhancing positive emotion | B | .17* | −.19* | .20* | −.03 |
| Enhancing negative emotion | B | .22* | −.25* | .11* | .10 |
| Suppression positive emotion | B | .20* | −.13* | .16* | .14* |
| Suppressing negative emotion | B | .16* | −.08 | .17* | .11* |
| Emotional intelligence (MSCEIT 2.0) | | | | | |
| Perceiving emotions | D | .05 | −.03 | .15* | −.07 |
| Using emotions | D | .07 | −.07 | .18* | −.08 |
| Understanding emotions | D | −.01 | .08 | .15* | −.07 |
| Managing | D | .07 | −.01 | .21* | −.04 |
| Total emotional intelligence | D | .06 | −.01 | .24* | −.09 |
| Implicit theories of emotion | B | .41* | −.36** | .36* | .16* |
| Grit–Perseverance subscale (SGS) | B, C, E, F | .46*, .41*, .49*, .41* | −.46*, −.38*, −.52*, −.38* | .33*, .27*, .35*, .29* | .17*, .12*, .16*, .09 |
| Mindfulness (MAAS) | C, F | .32*, .29* | −.53*, −.40* | .25*, .23* | −.17*, −.08 |
| Subjective happiness (SHS) | B, D, E, G | .35*, .36*, .32*, .23* | −.34*, −.35*, −.30*, −.25* | .33*, .30*, .25*, .22* | .06, .13*, .12*, .00 |
| Satisfaction with life (SWLS) | D, G | .36*, .10 | −.34*, −.09 | .26*, .13 | .17*, −.01 |
| Beliefs that well-being is about. . .(BWBS) | | | | | |
| Experience of pleasure | B | .08 | −.04 | .13* | .00 |
| Avoidance of negative experience | B | −.13* | .19* | −.09 | .01 |
| Self-development | B | .34* | −.24* | .33* | .15* |
| Contribution to others | B | .31* | −.25* | .25* | .17* |
| Brief measure of purpose in life | D, G | .36*, .23* | −.37*, −.25* | .17*, .14 | .22*, .09 |
| Presence of meaning in life (MLQ-P) | B | .30** | −.30* | .23* | .09 |
| Psychological needs satisfaction (BMPN) | | | | | |
| Autonomy | B, D, E, G | .41*, .25*, .44*, .04 | −.38*, −.31*, −.43*, −.09 | .44*, .22*, .40*, .12 | .05, .00, .11, −.13 |
| Competence | B, D, E, G | .44*, .40*, .44*, .11 | −.45*, −.47*, −.46*, −.24* | .40*, .28*, .35*, .06 | .09, .10, .13*, −.12 |
| Belonging | B, D, E, G | .39*, .28*, .37*, .10 | −.42*, −.29*, −.40*, −.17* | .36*, .24*, .31*, .11 | .05, .09, .07, −.08 |
| Depression | | | | | |
| PHQ | D, G | −.35*, −.10 | .41*, .17* | −.24*, −.16* | −.09, .12 |
| Depression scale (DASS-21) | B, E | −.38*, −.34* | .40*, .38* | −.37*, −.28* | −.03, −.05 |
| Generalized anxiety | | | | | |
| Trait cognitive and somatic anxiety (STICSA) | D, G | −.34*, −.19* | .40*, .26* | −.28*, −.27* | −.03, .14 |
| Anxiety scale (DASS-21) | B, E | −.23*, −.16* | .31*, .27* | −.30*, −.22* | .12*, .15* |
| Stress (DASS-21) | B, E | −.28*, −.29* | .33*, .30* | −.37*, −.34* | .09, .01 |
| Social Anxiety (SIAS) | D | −.43* | .47* | −.33* | −.11 |

*Note.* *Ns* for samples B, C, D, and E, F, and G are 403, 276, and 303, 317, 276, and 205, respectively. BFI-2-S = Big Five Inventory-2-Short Version; DI = distress intolerance measure from McHugh & Otto (2012); SCS = Self-Control Scale; FREE = Flexible Regulation of Emotional Expression; ITAE = Implicit Theories About Emotions; MAAS = Mindful Attention Awareness Scale; SHS = Subjective Happiness Scale; SWLS = Satisfaction with Life Scale; BWBS = Beliefs about Well-Being Scale; BMPL = Brief Purpose in Life Measure; MLQ = Meaning in Life Questionnaire; BMPN = Balanced Measure of Psychological Needs; PHQ = Patient Health Questionnaire; DASS-21 = Depression Anxiety Stress Scale-21; STICSA = State-Trait Inventory for Cognitive and Somatic Anxiety; SIAS = Social Interaction Anxiety Scale.
* $p < .05$.

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tions), and a negative association with distress intolerance. The PPFI was positively associated with measures of well-being (subjective happiness, life satisfaction, meaning and purpose in life, satisfaction of psychological needs) and negatively associated with measures of depression, generalized anxiety, social anxiety, and stress. As for beliefs about well-being, the PPFI was positively associated with the belief that well-being is about self-development and contributing to others, and negatively associated with the notion that well-being is about avoiding negative experiences.

Correlations among the PPFI and other measures were similarly strong for the total PPFI score (i.e., average of 15 PPFI items with reverse-scored avoidance items), the reverse-scored avoidance subscale, and the acceptance subscale. Relative to these scales, harnessing was a weaker predictor of trait-like outcomes. While the harnessing subscale was significantly correlated with a number of measures in the hypothesized directions, it was weakly/nonsignificantly correlated with other measures (e.g., negative emotionality, distress intolerance, depression, stress) and significantly correlated with certain measures in the opposing direction (e.g., anxiety on DASS-21, lower psychological need satisfaction at 6-month follow-up).

**Differentiation from negative emotionality: Comparing psychological flexibility scales.** A final EFA tested whether PF could be differentiated from negative emotions. An EFA (minimum residual estimates using oblique minimization rotation and 1,000 bootstrapped models for robust confidence intervals) included the three subscales of the PPFI along with the most widely used psychological (in)flexibility measures (i.e., the AAQ-II and BEAQ) and measures of negative emotions (i.e., the PHQ, BFI, and BMIS) resulted in two extracted factors that correlated −.40. From the loadings, the results indicated that the PPFI subscales loaded on one factor, defined as a PF factor (eigenvalue = 1.01) whereas the AAQ-II, BEAQ, and all negative emotion scales all strongly loaded together on a second factor (eigenvalue = 3.03). The PPFI subscales of avoidance and acceptance provided some cross loadings with the latent negative emotionality factor; however, the PPFI avoidance and acceptance subscales had substantially larger primary loadings on the PF factor (derived of only PPFI items; see Table 4 and Figure 1).

## Discussion

Our results offer new insights on the phenomenology of PF. Using four independent samples and three follow-up samples, we provided support for the usefulness of the PPFI as an improved measurement of PF. The factor structure of the PPFI extends existing theory by including three separate dimensions that vary from passive, relatively unhealthy strategies (avoidance) when pursuing a personally meaningful goal to strategies that are increasingly active and healthy (acceptance), and finally, a less common strategy to seek out and use negative emotions to propel goal pursuit (harnessing). These findings suggest the importance of distinguishing between avoidance and acceptance (as opposed to measurement strategies that treat them as endpoints on a single continuum; e.g., Brown & Ryan, 2003) and separating the wisdom of knowing when so-called negative emotions such as anxiety and anger are helpful to goal pursuit (e.g., Ford & Gross, 2019; Tamir, 2009).

The PPFI is the first measure of PF linking reactions to distress and external obstacles to idiographic, personally meaningful goals chosen by the user. Our personalized approach ensured that the operationalization matched the nuanced theory of PF as the trait-like propensity to respond adaptively to distress and obstacles while pursuing personally meaningful goals (e.g., Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Hayes et al., 2011). A criticism of prior attempts at measuring PF is that item content might be capturing negative emotions themselves rather than the ability to pursue goals despite their presence. Building on prior evidence (Tyndall et al., 2019; Wolgast, 2014), our results suggest that while both the AAQ-II and BEAQ loaded together with various indices of negative emotionality, the PPFI alone did not. Besides evidence of being distinct from negative emotionality, we found support for strong internal consistency and acceptable temporal stability of each PPFI subscale over 1-, 4-, and 6-month intervals. Understandably, temporal stability for the PPFI (ranging from .55 to .61 over 4 months in one study, and .44 to .57 over 6 months in a second study) was lower compared to measures adopting purely nomothetic approaches to assess global trait constructs, such as the Short Grit Scale ($r$ = .77; assessed from baseline to 4-month follow-up). However, compared to the Goal-Specific Hope Scale (GSHS; Feldman, Rand, & Kahle-Wrobleski, 2009; $r$ = .41 from

Table 4
*Coefficients and Bootstrapped Confidence Intervals for Exploratory Factor Analysis—Differentiating the PPFI From Negative Emotionality*

| Measures and constructs | Low | Factor 1 | Upper | Low | Factor 2 | Upper |
|---|---|---|---|---|---|---|
| PHQ-9 | .70 | .79 | .86 | −.12 | .06 | .21 |
| BFI-2-S-NE | .65 | .75 | .83 | −.19 | −.06 | .05 |
| BMIS-PU | −.81 | −.73 | −.65 | −.13 | −.02 | .13 |
| Avoidance (R-S) | .26 | .37 | .51 | −.69 | −.47 | −.26 |
| Acceptance | −.46 | −.33 | −.22 | .22 | .44 | .68 |
| Harnessing | .00 | .12 | .21 | .53 | .71 | .96 |
| AAQ-II | .75 | .84 | .91 | −.12 | .02 | .12 |
| BEAQ | .39 | .52 | .64 | −.21 | −.03 | .12 |

*Note*. PHQ-9 = Patient Health Questionnaire-9; BFI-2-S-NE = Big Five Inventory-2-Short Version-Negative Emotionality; BMIS-PU = Brief Mood Introspection Scale-Pleasant-Unpleasant emotions scale; Avoidance (R-S) = Reverse-scored avoidance; AAQ-II = Acceptance and Action Questionnaire-II; BEAQ = Brief Experiential Avoidance Questionnaire; PPFI = Personalized Psychological Flexibility Index.

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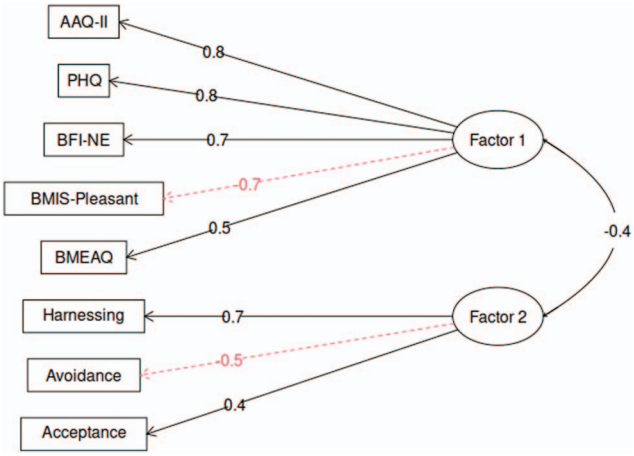



*Figure 1.* Exploratory factor analysis differentiating Personalized Psychological Flexibility Index (PPFI) scales from negative emotionality. Factor 1 = negative emotionality. Factor 2 = psychological flexibility. AAQ-II = Acceptance and Action Questionnaire-II; PHQ-9 = Patient Health Questionnaire-9; BFI-NE = Big Five Inventory-Negative Emotionality; BMIS P-U = Brief Mood Introspection Scale Pleasant-Unpleasant emotions scale; BEAQ = Brief Experiential Avoidance Questionnaire. See the online article for the color version of this figure.

baseline to 6-month follow-up)—the only other published nomothetic/idiographic hybrid measure related to goal-pursuit (to our knowledge)—the PPFI's temporal stability was higher.

Building on basic psychometrics, findings provide support for a multidimensional conceptualization. The PPFI subscales revealed a differential pattern of associations with a range of personality, well-being, and clinically relevant variables concurrently and at 1-, 4-, and 6-month follow-up assessments. PF, as measured by the PPFI, was associated with indices of effective self-regulation when pursuing goals (such as conscientiousness, self-control, grit, distress tolerance, mindfulness, and the flexible regulation of emotional expression).

Strong associations between the PPFI total and well-being outcomes such as subjective happiness, life satisfaction, psychological need satisfaction, and meaning and purpose in life support the idea that PF is fundamental to health (e.g., Hayes et al., 2011; Kashdan & Rottenberg, 2010). Beyond simply experiencing positive emotions, avoiding negative emotions, and being free of psychiatric symptoms, PF theory suggests that pursuing valued goals and remaining open to the resulting distress is at the core of living well. The baseline PPFI's total score did not predict certain outcomes at 6-month follow-up in Sample G (e.g., life satisfaction, psychological need satisfaction, depression). Additional analyses revealed that the follow-up PPFI, compared to the baseline administration, was more strongly associated with these follow-up measures (satisfaction with life [$r = .31$], satisfaction of autonomy [$r = .34$], competence [$r = .34$], and relatedness [$r = .22$], depression [$r = -.24$]). This is unsurprising when examining cross-sectional compared to longitudinal correlations over 6 months. Future research should investigate whether shifts in goal pursuit and the centrality of chosen goals over time influence associations between the PPFI and relevant outcomes.

Beyond positivity and well-being, the PPFI was associated with adaptive beliefs about the nature of well-being (e.g., well-being is about self-development and contributing to others rather than simply experiencing pleasure). This aligns with theory that psychologically flexible individuals move beyond merely approaching pleasure and avoiding distress. Since psychologically flexible people are more accepting of all emotions, their conceptualization of well-being involves meaningful living. The fact that the PPFI was associated with stronger beliefs that emotions are malleable sounds at odds with PF theory (since excessive attempts to control emotions reflect psychological rigidity). However, a person's belief that they can control emotions does not imply consistent or unhealthy use of emotional control strategies. Psychologically flexible people likely have strong beliefs that they can respond to emotions in ways deemed fitting based on situational demands. This may include acceptance, reappraisal, up- or downregulating negative or positive affect, or another suitable strategy that aids valued goal pursuit (e.g., Gutentag, Halperin, Porat, Bigman, & Tamir, 2017; Tamir, John, Srivastava, & Gross, 2007).

Inverse associations between the PPFI and emotional disturbances support literature underscoring the importance of accepting and embracing distress and pursuing valued goals for psychological health (e.g., Cisler, Olatunji, Feldner, & Forsyth, 2010; Goodman, Larrazabal, West, & Kashdan, 2019). With social anxiety, for example, experiential avoidance has been shown to increase emotional suffering, worsen daily functioning, and lead to substance use to suppress discomfort (e.g., Buckner, Zvolensky, Farris, & Hogan, 2014; Cisler et al., 2010; Kashdan et al., 2013, 2014). While the total PPFI score as well as avoidance and acceptance subscale scores predicted less emotional disturbance concurrently and prospectively, the harnessing scale was largely unrelated to these outcomes. The PPFI harnessing scale did show small positive correlations with the anxiety subscale of the DASS-21 at baseline and follow-up (in the adult MTurk sample), which primarily captures physiological symptoms of anxiety (e.g., "I was aware of dryness of my mouth," "I experienced trembling [e.g., in the hands]"). Of the three PPFI subscales, higher scores on the harnessing scale may be the most reliant on a considerable amount of emotional difficulty during goal pursuit—a natural component of pursuing meaningful goals. Thus, it is unsurprising that greater harnessing may occasionally be associated with increased negative emotions, since they are the content being harnessed.

## Study 2: Psychological Flexibility and Life Pursuits, Life Events, and Life as Lived

With few exceptions (e.g., Levin, Krafft, Pistorello, & Seeley, 2019; Ong, Pierce, Woods, Twohig, & Levin, 2019), studies have primarily investigated associations between PF (e.g., via the AAQ-II) and global self-report measures, but these tests are insufficient for establishing construct validity. In Study 2 we examined links between the PPFI and meaningful real-life outcomes. Using a community sample of adults, we conducted a multimethod study with a comprehensive assessment of a single day in their lives (i.e., experience-sampling), a broader assessment of the personal strivings that constitute the life projects they are devoted to, and a semistructured interview to assess stressful life events and reactions to them. Together, these methods allowed us to understand how PF predicts goal-related activity and responses to potential obstructions.

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We hypothesized that the PPFI would be associated with more progress toward daily goals and less interference due to distressing thoughts and feelings. To test this hypothesis, we used a method that allowed for a sequential analysis of activities and experiences over the course of a single day in everyday life (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004).

Research suggests that PF influences what people strive for and how they fare (Kashdan, Breen, & Julian, 2010; Kashdan & Rottenberg, 2010). Individuals with high PF are theorized to better regulate attention and effort when pursuing goals that are reflective of core values (Hayes et al., 2011). As such, we hypothesized that the PPFI would be associated with the effective pursuit of strivings that are consistent with a purpose in life. We also hypothesized that the PPFI would be associated with efficient pursuit, operationalized by greater harmony among strivings (i.e., where pursuing a given striving does not adversely affect others). To test these hypotheses, we used a striving assessment approach where people provided open-ended descriptions of life pursuits that their time is strategically being spent on (Emmons, 1986).

Adversity is common when pursuing daily goals or broader personal strivings. We tested whether PF serves as a form of resilience, moderating the negative association between daily distress and goal progress. As another index of resilience, we explored whether PF predicts healthy emotional responses to stressful life events (cross-sectionally and 6-months later; i.e., resilience). While some research exists on PF and resilience, scant attention has been given to how PF is linked to the regulation of emotion in daily life. It may be that PF is not associated with using certain emotion regulation strategies more than others, but rather a wider range of healthy regulatory strategies. Alternatively, since PF is theoretically linked to dedicating time to meaningful and pleasurable pursuits (e.g., Sheldon, Cummins, & Kamble, 2010), greater PF might promote more positive and less negative emotion. On an exploratory basis, we examined how PF is linked to emotions and the use of emotion regulation strategies to cope with stressful events. We hypothesized that individuals with higher PF use a wider range of daily emotion regulation strategies, since they likely possess a larger array of strategies at their disposal and are sensitive to what can lead to performance enhancements in situations. To conduct these explorations, we used a semistructured interview of stressful life events and emotions experienced and regulated.

Taken together, Study 2 used multiple methods to test how PF operates in people's naturalistic environment. Our goal was to expand knowledge on the phenomenology and psychological benefits of being a highly psychologically flexible person. The PPFI initially served as the sole predictor of daily events and broader personal strivings. In a second set of analyses, we tested incremental validity of the PPFI above and beyond the AAQ-II and BEAQ. This allowed a direct test of whether a newer measure possessed value over existing, widely used measures of PF.

## Method

**Participants and procedure.** Study 2 involved community adults living in the DC/Maryland/Virginia region (Samples D and G, Table 1) who completed multiple assessment devices in the laboratory. At baseline and follow-up, participants also completed measures of well-being (SHS, SWLS, BMPN) and emotional disturbances (PHQ-9, STICSA, SIAS; see Study 1 measures).

**Measures.**

***Day reconstruction survey.*** Using the Day Reconstruction Method (DRM; Kahneman et al., 2004), participants were instructed to "think about yesterday as a story with five different chapters, or episodes" and select five episodes of any length that stood out as being particularly meaningful/memorable. Starting with their first episode from the previous day then proceeding chronologically, participants answered questions about their activities (using the Ultra-Brief Assessment of Situational Characteristics; Rauthmann & Sherman, 2016 and another, more exhaustive list of activities created for this survey), interaction partners, emotions (using an affect grid adapted from Russell, Weiss, & Mendelsohn, 1989), goals (difficulty, competence, effort, distress, joy, meaning, control, values-consistency, progress, and autonomy; adapted from Emmons, 1986), negative and positive experiences, and emotion regulation strategies (adapted from Heiy & Cheavens, 2014; see Day Reconstruction Survey in the online supplemental materials).

***Personal strivings packet.*** We expanded upon Emmons (1986) to assess broader life strivings. In Part 1, participants chose their six most personally meaningful strivings at the present time. As an aid, participants were given a list of broader categories their strivings may fall into (e.g., "Working to improve the lives of others"). In Part 2, participants answered follow-up questions about each of six strivings on a 1–7 scale from *Not at all* to *Extremely*. Items assessed centrality ("It is part of who you are to pursue your striving"), organization ("You are clear about how to work toward your striving"), the extent that each striving was an important life aim ("You expect your striving to be important for you in the foreseeable future"), meaning and purpose derived from pursuit, effort, and success. Each Part 2 item was averaged across the six strivings for analyses. In Part 3, participants evaluated the extent to which their six strivings were in harmony/conflict. A research assistant described a hypothetical situation in which pursuing a striving (e.g., earn at least a 3.0 GPA) could negatively impact progress towards another (e.g., spend more quality time with friends and family) while other strivings may work harmoniously (e.g., striving for a more regular sleep schedule and striving to eat healthier). Participants rated the impact of their first striving (Striving 1) on Strivings 2 through 6 using a −2 (*very negative*) to +2 (*very positive*) where 0 indicated a *neutral* impact (see Personal Strivings Packet in the online supplemental materials).

***Stressful life events interview.*** Participants completed a modified version of the Life Events Schedule (LES) Interview, which has acceptable psychometrics (Alloy & Clements, 1992; Needles & Abramson, 1990). Our LES version includes a list of 134 stressful life events, and participants checked off events experienced in the past six months and rated the subjective impact on a 0 (*not at all*) to 4 (*very much*) scale. Based on impact ratings, participants selected their five most stressful events, which served as the basis for an Emotion Regulation Interview. After confirming the validity of each life event, trained interviewers asked participants to generate the emotions felt during/after each episode and choose the single (negative) emotion that best characterized their experience. Participants then rated their use of 18 different strategies to regulate emotions related to each episode on a 0–2 scale

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(0 = *did not use*; 1 = *sometimes used*; 2 = *frequently used*). Regulatory strategies were averaged across the five stressful life events for analyses (see Stressful Life Events Interview in the online supplemental materials).

**Data analytic approach.** To test hypotheses with the PPFI and measures from the day reconstruction survey (e.g., episode-level goal pursuit, emotions), we constructed multilevel models with the PPFI at Level 2 (person level) and daily episode-level outcomes at Level 1 using R (R Core Team, 2017). To test the hypothesis that higher scores on the PPFI would buffer the effects of emotional distress on goal progress at the daily episode-level, we conducted multilevel moderated regressions with negative emotions predicting goal-related progress (a single item ["To what extent did you make progress toward your goal?"] averaged across episodes) moderated by PPFI total and subscale scores. We averaged four items each to measure daily positive (happy, content, relaxed, grateful) and negative emotions (nervous, angry, sad, guilty).

Hypotheses related to the association between the PPFI and personal strivings, striving harmony, and living a purpose-driven life were tested using linear regressions. We entered each striving item as a separate outcome in analyses. Harmony among strivings was operationalized as the average impact rating of each striving on every other striving. Living a purpose-driven life was operationalized as the average of the six strivings pursuit items for the striving participants chose as most consistent with their purpose in life. All analyses were done separately with the total PPFI (with the reverse-scored avoidance subscale) and subscale scores as predictors, respectively. For simple regressions, we standardized variables using the percent of maximum possible method (Cohen, Cohen, Aiken, & West, 1999) except for the average strivings harmony variable, which remained on a −2 to +2 scale. For multiple/moderated regressions, we standardized all variables using *Z*-scores.

## Results

**Day reconstruction goals and broader personal strivings.** PPFI total and subscale scores were associated with more effective goal pursuit during daily life. Total PPFI and acceptance scores were associated with greater goal-related competence, effort, joy, sense of meaning, control, values-consistency, progress, and autonomy. Avoidance was negatively associated with these outcomes. Total PPFI and acceptance were associated with less goal interference due to distress, while avoidance was associated with greater goal interference due to distress. Harnessing was associated with greater goal-related difficulty, greater effort, and greater meaning derived from goal pursuit (see Table 5).

The PPFI did not moderate the association between negative emotions and goal progress during daily episodes. There were significant main effects in these models for the PPFI total score ($\beta = .12$, $t = 3.46$, $p < .001$) and acceptance subscale ($\beta = .10$, $t = 2.92$, $p = .003$) predicting greater goal progress, but not for the avoidance or harnessing subscales. There were also significant main effects for negative emotions predicting less goal progress during episodes in models containing the total PPFI ($\beta = -.29$, $t = -9.39$, $p < .001$), avoidance ($\beta = -.28$, $t = -9.11$, $p < .001$), acceptance ($\beta = -.29$, $t = -9.36$, $p < .001$), and harnessing ($\beta = -.30$, $t = -9.90$, $p < .001$).

The PPFI was associated with more effective pursuit of broader life strivings. The total PPFI was associated with pursuing strivings that were more central to one's life, greater organization around strivings pursuit, pursuing strivings that were viewed as more important in the foreseeable future, deriving more purpose and meaning from strivings, devoting more time and effort to strivings, and more successful strivings pursuit over the past month. The avoidance subscale was negatively associated with these outcomes. The acceptance and harnessing subscales were positively associated with each dimension of strivings pursuit except for striving importance. Contrary to hypotheses, neither the PPFI total score nor subscale scores were associated with greater harmony among participants' six strivings (see Table 5).

The total PPFI, acceptance, and harnessing scores were positively associated with the average of striving items for what participants indicated as being most closely aligned with their purpose in life—suggesting that the PPFI is associated with adopting a more purpose-driven life. The avoidance subscale was negatively associated with a purpose-driven life (see Table 5).

**Incremental validity.** In terms of incremental validity, when predicting broader striving related outcomes, the PPFI outperformed both the AAQ-II and BEAQ in seven out of seven regression models. In the eight model, each of the PF measures had a near-zero association with harmony among strivings (see Table 5). When predicting goal-oriented outcomes using the Day Reconstruction Method, the PPFI outperformed both the AAQ-II and BEAQ in predicting feelings of competence, effort expenditure, joy, meaning, sense of control, and progress when pursuing personally meaningful strivings. Compared with the PPFI, the AAQ-II was a stronger predictor of distress and difficulties that arose during the pursuit of personally meaningful strivings; the AAQ-II was only oddly, inversely related to the degree that strivings being pursued were consistent with a person's values. Results showing that the AAQ-II is only a stronger predictor of goal-related distress and difficulties fit with prior findings suggesting that both the AAQ-II and BEAQ essentially assess negative emotionality (see Figure 1; e.g., Tyndall et al., 2019; Wolgast, 2014). These conservative tests show strong evidence for the unique value of the PPFI above and beyond the overlapping content shared with existing measures of PF.

**Stressful life events and resilience.** Cross-sectionally, the PPFI total score moderated (buffered) the association between subjective life event (LE) intensity and belonging satisfaction ($\beta = .14$, $t = 2.39$, $p = .017$). While subjective LE intensity was negatively associated with satisfying the need for belonging for individuals with low PPFI total scores ($\beta = -.32$, $t = -3.75$, $p < .001$), this association was not present for individuals with high PPFI total scores ($\beta = -.04$, $t = -.55$, $p = .584$). The PPFI avoidance scale moderated (strengthened) the negative association between subjective LE intensity and satisfying the need for belonging ($\beta = -.12$, $t = -1.99$, $p = .047$). While subjective LE intensity was not associated with satisfying the need for belonging at low levels of avoidance ($\beta = -.07$, $t = -.82$, $p = .410$), intensity was negatively associated with satisfying the need for belonging at high levels of avoidance ($\beta = -.31$, $t = -3.50$, $p < .001$). The PPFI harnessing scale also moderated (buffered) negative associations between subjective LE intensity and satisfying the need for autonomy ($\beta = .20$, $t = 3.28$, $p = .001$) and competence ($\beta = .13$, $t = 2.16$, $p = .031$). At low levels of harnessing, subjective LE intensity was negatively associated with

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Table 5
*Predicting Daily Goal Pursuit (Averaged Across Five Episodes Using the Day Reconstruction Method) and Broader Life Pursuits (Averaged Across Six Self-Endorsed Strivings)*

| Striving-related outcome | BEAQ | | AAQ-II | | Total PPFI | | Avoidance | | Acceptance | | Harnessing | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regression type | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* |
| Centrality | | | | | | | | | | | | |
| (1–main effects) | −.16* | −2.74 | −.05 | −.80 | **.33*** | 5.88 | −.31* | −5.37 | .16* | 2.67 | .25* | 4.39 |
| (2–incremental validity) | −.13 | −1.82 | .17* | 2.41 | **.38*** | 5.73 | | | | | | |
| Self-organizing | | | | | | | | | | | | |
| (1–main effects) | −.18* | −3.06 | −.31* | −5.40 | **.41*** | 7.36 | −.38* | −6.81 | .30* | 4.64 | .23* | 4.02 |
| (2–incremental validity) | .07 | 1.00 | −.21* | −3.09 | **.35*** | 5.55 | | | | | | |
| Life aim | | | | | | | | | | | | |
| (1–main effects) | −.13* | −2.24 | −.06 | −.97 | **.18*** | 3.08 | −.17* | −2.85 | .11* | 1.85 | .12* | 1.95 |
| (2–incremental validity) | −.11* | −1.49 | .08 | 1.02 | **.18*** | 2.60 | | | | | | |
| Purpose/meaning | | | | | | | | | | | | |
| (1–main effects) | −.05 | −.80 | −.05 | −.79 | **.30*** | 5.13 | −.26* | −4.41 | .12* | 2.08 | .26* | 4.46 |
| (2–incremental validity) | .05 | .65 | .07 | .92 | **.37*** | 5.45 | | | | | | |
| Effort | | | | | | | | | | | | |
| (1–main effects) | −.18* | −3.02 | −.11 | −1.91 | **.42*** | 7.55 | −.38* | −6.95 | .15* | 2.56 | .35* | 6.23 |
| (2–incremental validity) | −.08 | −1.21 | .11 | 1.53 | **.43*** | 6.93 | | | | | | |
| Success | | | | | | | | | | | | |
| (1–main effects) | −.26* | −4.59 | −.18* | −3.06 | **.38*** | 6.70 | −.35* | −6.15 | .18* | 3.11 | .27* | 4.80 |
| (2–incremental validity) | −.18* | −2.57 | .05 | .68 | **.32*** | 4.94 | | | | | | |
| Purpose composite | | | | | | | | | | | | |
| (1–main effects) | −.08 | −1.22 | −.13 | −1.93 | **.33*** | 4.97 | −.32* | −4.89 | .14* | 2.14 | .21* | 3.29 |
| (2–incremental validity) | .05 | .56 | −.05 | −.55 | **.33*** | 4.51 | | | | | | |
| Harmony among strivings | | | | | | | | | | | | |
| (1–main effects) | .02 | .73 | .03 | 1.17 | .01 | .35 | −.02 | −.83 | −.01 | −.86 | .002 | .10 |
| (2–incremental validity) | .01 | .28 | .04 | .26 | .04 | .29 | | | | | | |
| **Daily goal-related outcome** | **BEAQ** | | **AAQ-II** | | **Total PPFI** | | **Avoidance** | | **Acceptance** | | **Harnessing** | |
| Regression type | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* |
| Difficulty | | | | | | | | | | | | |
| (1–main effects) | .04 | 1.30 | **.12*** | 3.97 | −.02 | −.53 | .07* | 2.13 | −.04 | −1.35 | .09* | 2.65 |
| (2–incremental validity) | −.04 | −1.09 | **.16*** | 4.11 | .03 | .92 | | | | | | |
| Competence | | | | | | | | | | | | |
| (1–main effects) | −.15* | −4.44 | −.15 | −4.29 | **.20*** | 5.74 | −.19* | −5.57 | .19* | 5.42 | .06 | 1.60 |
| (2–incremental validity) | −.07 | −1.67 | −.04 | −.96 | **.17*** | 4.31 | | | | | | |
| Effort | | | | | | | | | | | | |
| (1–main effects) | −.09 | −2.31 | .02 | .54 | **.12*** | 3.30 | −.10* | −2.66 | .02 | .50 | .15* | 4.04 |
| (2–incremental validity) | −.11 | −2.43 | **.14*** | 2.98 | .13* | 3.25 | | | | | | |
| Distress | | | | | | | | | | | | |
| (1–main effects) | .11* | 3.18 | **.22*** | 6.75 | −.12* | −3.27 | .15* | 4.19 | −.13* | −3.70 | .03 | .76 |
| (2–incremental validity) | −.03 | −.71 | **.23*** | 5.56 | −.02 | −.45 | | | | | | |
| Joy | | | | | | | | | | | | |
| (1–main effects) | −.10* | −3.17 | −.12* | −3.58 | **.15*** | 4.72 | −.16* | −4.86 | .12* | 3.72 | .06 | 1.65 |
| (2–incremental validity) | −.04 | −.86 | −.05 | −1.29 | **.11*** | 2.95 | | | | | | |
| Meaning | | | | | | | | | | | | |
| (1–main effects) | −.12* | −3.27 | −.10* | −2.78 | **.19*** | 5.45 | −.19* | −5.55 | .12* | 3.30 | .10* | 2.81 |
| (2–incremental validity) | −.06 | −1.29 | .004 | .09 | **.18*** | 4.45 | | | | | | |
| Control | | | | | | | | | | | | |
| (1–main effects) | −.08* | −2.32 | −.118 | −3.45 | **.15*** | 4.47 | −.15* | −4.57 | .14* | 4.36 | .03 | .91 |
| (2–incremental validity) | .01 | .27 | −.06 | −1.48 | **.15*** | 4.00 | | | | | | |
| Values–consistency | | | | | | | | | | | | |
| (1–main effects) | **−.20*** | −5.07 | −.13* | −3.33 | .16* | 4.19 | −.17* | −4.54 | .16* | 4.08 | .02 | .57 |
| (2–incremental validity) | **−.16*** | −3.22 | .004 | .09 | .12* | 2.63 | | | | | | |
| Progress | | | | | | | | | | | | |
| (1–main effects) | **−.18*** | −4.94 | −.15* | −4.08 | .17* | 4.71 | −.17* | −4.85 | .15* | 4.15 | .05 | 1.27 |
| (2–incremental validity) | −.11* | −2.51 | −.03 | −.45 | **.13*** | 3.12 | | | | | | |

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Table 5 (*continued*)

| Daily goal-related outcome | BEAQ | | AAQ-II | | Total PPFI | | Avoidance | | Acceptance | | Harnessing | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regression type | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* |
| Autonomy | | | | | | | | | | | | |
| (1–main effects) | **–.11*** | −3.15 | −.10* | −2.90 | .09* | 2.62 | −.12* | −3.39 | .11* | 3.03 | −.03 | −.71 |
| (2–incremental validity) | −.07 | −1.46 | −.04 | −.86 | .07 | 1.64 | | | | | | |

*Note*. The scale (BEAQ, AAQ-II, or PPFI total score) that most strongly predicts each outcome is bolded. Avoidance, Acceptance, and Harnessing are the three subscales of the PPFI. The Avoidance scale was reverse scored to compute the total PPFI score. AAQ-II = Acceptance and Action Questionnaire-II. Higher scores on the AAQ-II mean less psychological flexibility (i.e., more psychological inflexibility). BEAQ = Brief Experiential Avoidance Questionnaire. Higher scores on the BEAQ mean more experiential avoidance (similar to more psychological inflexibility). Purpose composite = Average of the six primary strivings outcomes above (Centrality, Self-Organizing, etc.) for the striving reported as most consistent with participants' purpose in life. In the initial analytic approach (1), each scale and PPFI subscale was entered into a separate model. In tests of incremental validity (2), the BEAQ, AAQ-II, and PPFI total scores were entered simultaneously as predictors in one regression model. This allowed us to examine whether, and by how much, the PPFI predicts variance above and beyond the BEAQ and AAQ-II. Predictor and outcome variables standardized as *z* scores for all models except for those predicting harmony among strivings, which was coded on scale from −2 to +2 (−2 = *Very negative impact,* 0 = *Neutral Impact,* +2 = *Very positive impact*).
* $p < .05$.

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satisfying the need for autonomy (β = −.39, $t = -4.45$, $p < .001$) and competence (β = −.22, $t = -2.43$, $p = .015$); no such effects were found at high levels of harnessing (*p*s > .50).

When examining moderation effects prospectively, the total PPFI and subscale scores at baseline moderated associations between subjective LE intensity and satisfying the need for belonging at 6-month follow-up. Total PPFI (β = .30, $t = 3.80$, $p < .001$), acceptance (β = .24, $t = 2.91$, $p = .004$), and harnessing scores (β = .23, $t = 2.80$, $p = .005$) buffered negative associations between subjective LE intensity and follow-up belonging. Specifically, subjective LE intensity was negatively associated with belonging at low levels of PF (Total: β = −.51, $t = -4.89$, $p < .001$; acceptance: β = −.45, $t = -4.13$, $p < .001$; harnessing: β = −.44, $t = -4.13$, $p < .001$), but these associations were not present at high levels of PF (Total: β = .08, $t = .80$, $p = .422$; acceptance: β = .03, $t = .30$, $p = 763$; harnessing: β = .02, $t = .21$, $p = .837$). The PPFI avoidance scale moderated (strengthened) the negative association between subjective LE intensity and belonging (β = −.22, $t = -2.88$, $p = .004$). While subjective LE intensity was not associated with belonging at low levels of avoidance (β = .003, $t = .03$, $p = .972$), there was a negative association at high levels of avoidance (β = −.43, $t = -4.10$, $p < .001$). The PPFI total and subscale scores did not moderate associations between subjective LE intensity and other well-being indices (e.g., subjective happiness, satisfaction with life) cross-sectionally or prospectively.

The PPFI was a weaker moderator of the association between subjective LE intensity and emotional disturbances compared to well-being. Only one moderation effect emerged in which the total PPFI moderated the association between subjective LE intensity and generalized anxiety at 6-month follow-up (β = −.16, $t = -2.02$, $p = .044$). Subjective LE intensity was associated with higher generalized anxiety at follow-up for those scoring low on the PPFI (β = .44, $t = 4.16$, $p < .001$), and this association weakened for individuals with high PPFI scores (β = .12, $t = 1.16$, $p = .247$). The PPFI total and subscale scores did not moderate associations between subjective LE intensity and other emotional disturbances (depression, social anxiety) cross-sectionally or prospectively.

**Incremental validity.** As displayed in Figures 2, 3, and 4 we found nine statistically significant moderation effects pointing to the role of the PPFI in resilience. Specifically, higher PPFI total score/subscales reduced the association between life event stress and well-being (as defined by the satisfaction of basic psychological needs). In terms of incremental validity, we ran each of these moderation models replacing the PPFI with the BEAQ and AAQ and found no statistically significant results. This suggests that the PPFI is a stronger predictor of resilient responses to major life stressors.

**Experiencing and generating emotions in daily life.** Exploratory analyses revealed that the total PPFI and acceptance scales were associated with greater positive emotions during daily episodes, and avoidance was associated with less positive emotions. Associations between the PPFI and negative emotions during daily episodes were mixed. The total PPFI was associated with lower sadness and guilt and unrelated to nervousness and anger. Avoidance was associated with greater nervousness and guilt and unrelated to anger and sadness. Acceptance was associated with less anger, sadness, and guilt, and unrelated to nervousness. Harnessing was unrelated to both positive and negative emotions during daily episodes (see Table 6).

Exploratory analyses revealed that the PPFI was associated with a range of daily emotion regulation strategies (controlling for negative emotions during episodes). The total PPFI was associated with greater use of reappraisal, acceptance, problem solving, perspective taking, benefit finding, and seeking to understand feelings and less use of cognitive avoidance. Avoidance was associated with greater use of emotional suppression, behavioral activation (i.e., distraction), and cognitive avoidance and less use of problem solving and benefit finding. Acceptance was associated with greater use of reappraisal, acceptance, and problem solving and less cognitive avoidance. Harnessing, compared to other PPFI subscales, was associated with greater use of all emotion regulation strategies except for acceptance and relaxation (see Table 7). Regarding the positive association between harnessing and emotional suppression, this fits with work suggesting that it is hard to find a regulatory strategy that is universally problematic. Regulatory strategy value depends on the context and function (this goes for suppression and other avoidant and approach strategies; e.g., Ford & Troy, 2019).

**Incremental validity.** In terms of incremental validity, when predicting positive emotions experienced during episodes measured using the Day Reconstruction Method the PPFI predicted

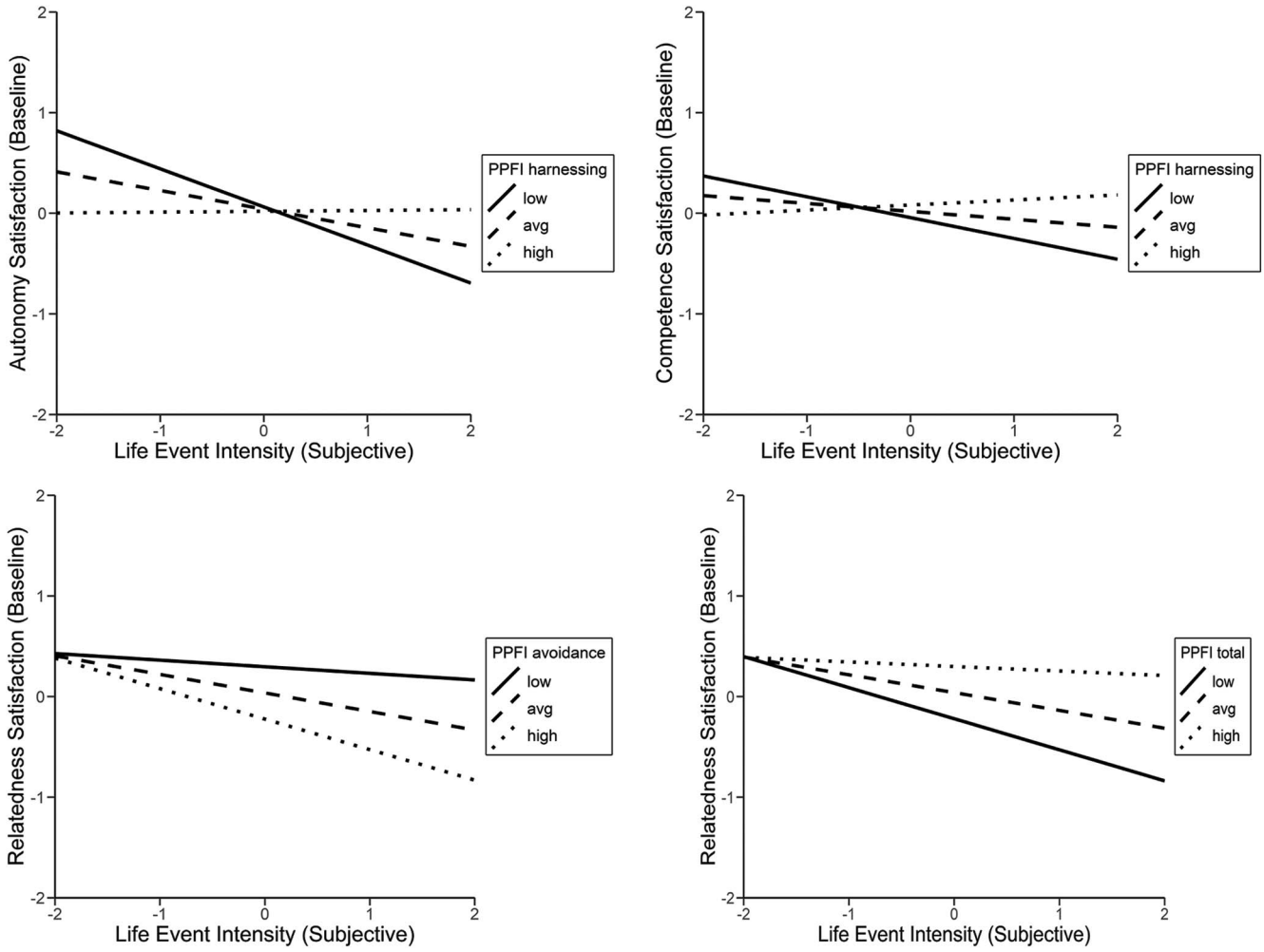



*Figure 2.* Interactions between the subjective intensity of stressful life events and Personalized Psychological Flexibility Index (PPFI) total and subscale scores predicting satisfaction of psychological needs (autonomy, competence, and relatedness) cross-sectionally.

a greater propensity to feel relaxed and grateful, along with general positive emotionality over and above the AAQ-II and BEAQ (see Table 6). The PPFI was also the strongest positive predictor of feelings of contentment, whereas the AAQ-II, oddly, had an inverse relationship with the feeling of contentment. When predicting negative emotions, the AAQ-II was a stronger positive predictor of feeling nervous, angry, sad, guilty, and general negative emotionality over and above the PPFI and BEAQ. Finally, in Table 7, we show that compared with the BEAQ and AAQ-II, the PPFI was the strongest predictor of various emotion regulation strategies considered to be adaptive across contexts (e.g., cognitive reappraisal, problem solving, perspective taking, benefit finding) while the AAQ was a stronger predictor of regulatory strategies based on suppression or avoidance (e.g., expressive and emotional suppression, behavioral and cognitive avoidance). This is further evidence that the PPFI is a strong predictor of adaptive, daily emotion regulation strategies above and beyond other PF measures.

## Discussion

The pursuit of meaningful life aims is at the core of PF, yet, existing PF measures (e.g., AAQ, BMEAQ) fail to capture this element. Consistent with theory, our results suggest that psychologically flexible individuals expend more effort, which translates into more progress toward value-consistent goals; and greater progress occurs irrespective of distress experienced. Relative to the other PPFI subscales, only harnessing was associated with pursuing more difficult daily goals, greater effort expenditure when pursuing daily goals, and greater extraction of meaning in life from daily goals. People endorsing greater harnessing pursued their daily goals without being impeded by distressing thoughts and emotions. As such, harnessing may play a pivotal role in the tenacious pursuit of meaningful goals, even when doing so is difficult—which has been described as a hallmark of optimal functioning (Hayes et al., 2011).

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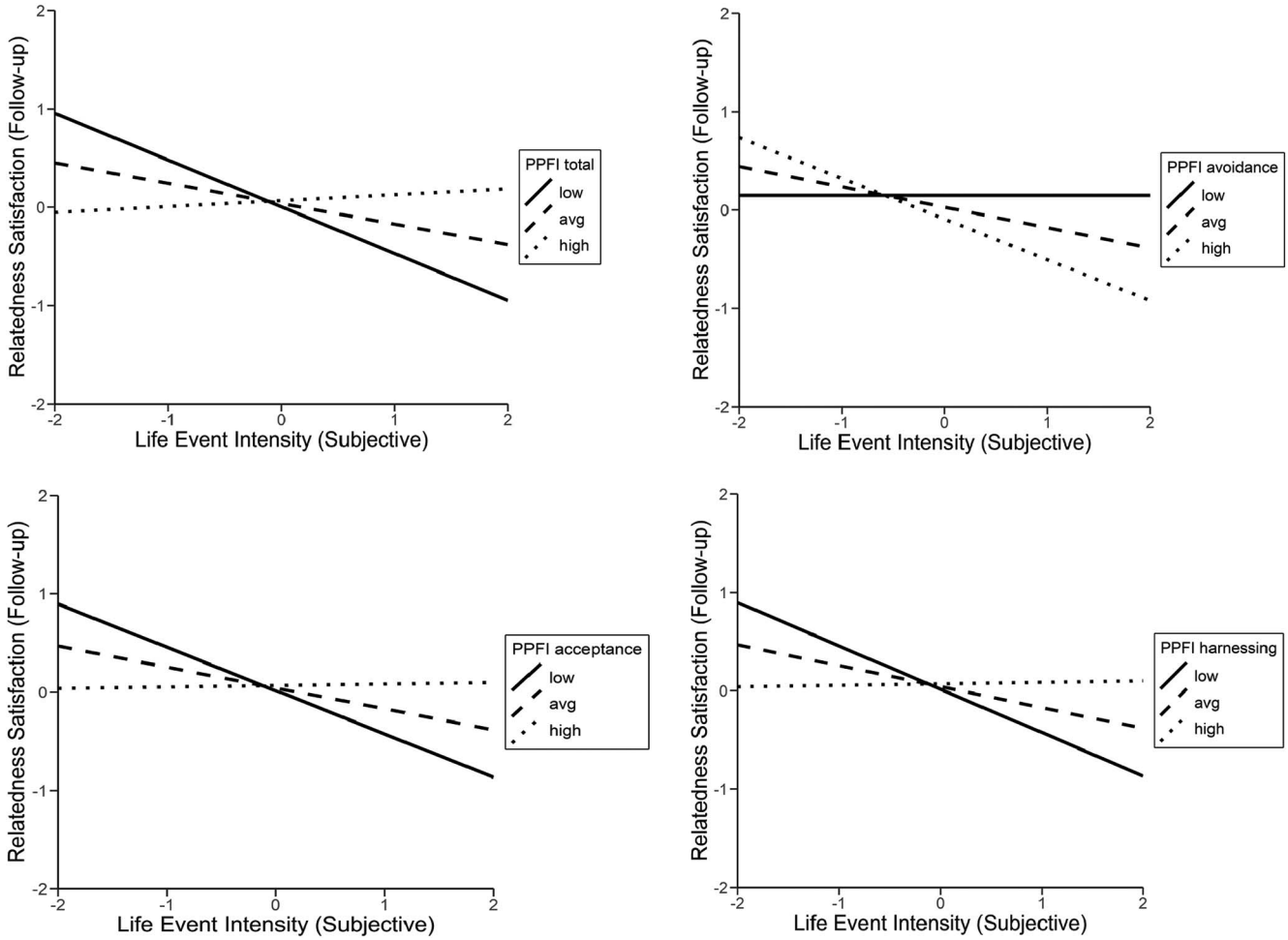



*Figure 3.* Interactions between baseline subjective intensity of stressful life events and Personalized Psychological Flexibility Index (PPFI) total and subscale scores predicting satisfaction of psychological needs (autonomy, competence, and relatedness) at 6-month follow-up.

Our measure of PF was not only relevant to experiences in a single day of people's lives but also what they are currently striving for across days and weeks. Of the PPFI subscales, harnessing predicted the broadest range of personal striving outcomes. These data support the psychometrics of our PF measure and the particular importance of adding the regulatory strategy of harnessing into conceptual models. While there is a large literature on the problems associated with a tendency to have more of an avoidance rather than an approach orientation, there is less empirical work on approaching both goals and whatever distressing emotions arise when pursuing those goals. This is the province of harnessing, which appears to be a valuable psychological strategy for effective goal pursuit.

While prior studies found associations between trait-level measures of PF (and related constructs) and resilience, our findings are notable in that our measure of PF was associated with greater satisfaction of each of three basic psychological needs (belonging, autonomy, competence; Deci & Ryan, 2000). Prior theories have pointed out that the notion of a uniform human strategy to regulate emotions in the aftermath of stressors and trauma is a fallacy (Bonanno & Burton, 2013). From this perspective, a person with regulatory flexibility is at an advantage because they possess alternative ways to cope if one strategy is unavailable or obstructed (for instance, friends are not physically nearby to provide social support). We found that PF serves as a form of resilience. The adverse effects of stressful life events on present and future emotional functioning ended up being lower for psychologically flexible individuals.

Our results also suggest that more flexible responses to negative emotions during valued goal pursuit (most prominently, harnessing) is associated with highly flexible use of emotion regulation strategies in daily life. We theorize that harnessing is the most infrequent albeit adaptive response to negative emotions, and thus to no surprise, predicted a wider use of distinct regulatory strategies compared to other PF facets. To test a core tenant of theory (Hayes et al., 2011), future studies should investigate the association between the PPFI and degree of fit between chosen emotion regulation strategies and situational contingencies/goals. If individuals with high PF are using more strategies, this might indicate greater skill in de-

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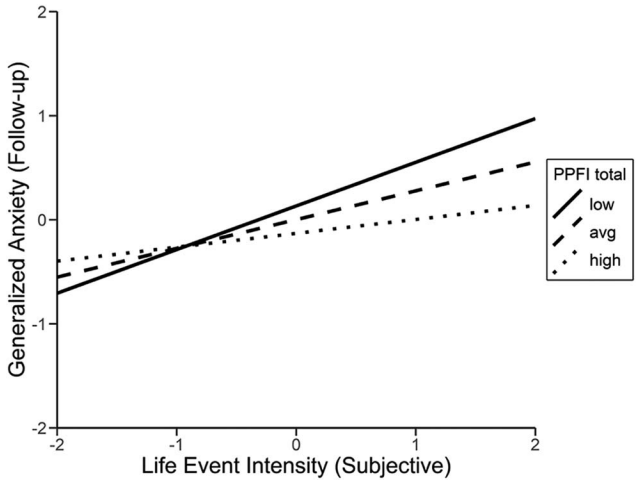



*Figure 4.* Interaction between baseline subjective intensity of stressful life events and Personalized Psychological Flexibility Index (PPFI) total score predicting generalized anxiety at 6-month follow-up.

ploying the right strategies in the right situations—and the deep self-awareness inherent in terms such as wisdom, maturity, and self-actualization.

Tests of incremental validity provide evidence that the PPFI is the strongest predictor of daily goal related outcomes, broader personal striving outcomes, and resilience in the aftermath of life stressors compared with the more widely used AAQ-II and BEAQ. In contrast, the AAQ-II is the strongest predictor of negative emotions and dysfunction, fitting with prior work suggesting that maybe this instrument in not in fact measuring PF but only distress (Tyndall et al., 2019; Wolgast, 2014).

## General Discussion

The research program in this article is based on seven independent samples and three follow-up samples. Unlike prior approaches to measuring PF, we asked people to generate open-ended, personally important goals they are working toward and tied subsequent questions to this idiographic goal. Our approach yielded a measure that truly allows for an operationalization and test of existing theories (e.g., Hayes et al., 2011) that emphasize how PF is about pursuing valued goals despite the presence of distress.

Initial studies provided evidence for the psychometric adequacy and validity of the Personalized Psychological Flexibility Index (PPFI) through exploratory and confirmatory factor analysis. The PPFI was shown to be a reliable and valid instrument in college students, general adult populations in the community, and working professionals. From these analyses, it became apparent that PF is a multidimensional construct defined by several related but distinct ways of responding to distress that arises during valued goal pursuit: avoidance, acceptance, and harnessing. Based on correlational studies with other trait-related individual difference scales, the PPFI was associated with healthy expressions of personality, healthy emotional experiences and regulatory strategies, metaemotion beliefs, low levels of emotional disturbances, and well-being. Addressing the primary shortcoming of existing PF scales, in a factor analysis we showed that the PFFI could be differentiated from measures of negative emotionality whereas other attempts to operationalize PF (i.e., AAQ-II and BEAQ) could not (e.g., Rochefort et al., 2018; Tyndall et al., 2019; Wolgast, 2014). Taken together, these findings show that the PPFI is a superior measure of PF and introduces a new dimension, harnessing, which moves beyond avoidance and acceptance to capture people's ability to use certain forms of distress in particular situations as fuel to amplify goal-related effort and progress (e.g., Ford & Gross, 2019; Tamir, 2009).

Using more sophisticated methodologies, this research program explored how PF operates in life as lived. Day reconstruction/experience-sampling findings showed that the PPFI not only predicts less difficulty and more effort and progress during goal pursuit but also the derivation of greater well-being (including joy, meaning, sense of control, sense of competence, sense of autonomy, and a wide range of positive emotions and fewer negative emotions). Notably, of the PPFI subscales, avoidance and acceptance had the broadest range of positive correlations with healthy experiences when pursuing goals in a single day in people's life. Broader striving assessment approaches that go beyond a single day to capture what a person's general life revolves around led to findings showing that the PPFI predicted the pursuit of strivings that reflect a purpose in life, defined by McKnight and Kashdan (2009) as a central, self-organizing life aim. Specifically, the PPFI was associated with a greater tendency to select personal strivings that are central to a person's identity, provide a systematic framework for selecting goals and deal with competing options for allocating finite resources such as time and energy, and are part of a continual future-oriented plan. Notably, of the PPFI subscales, harnessing had the broadest range of positive correlations with the pursuit of strivings toward a purpose in life, and effort and success in these strivings. When assessing stressful life events in a semi-structured interview, the PPFI was associated with the use of a wide range of regulatory strategies, with harnessing showing the broadest range of positive correlations compared to the other PPFI subscales.

Prior measurement attempts of PF have been limited to (experiential) avoidance and (mindful) accepting. The third dimension uncovered in this research program, harnessing, is a new addition. It is a dimension that we intentionally covered in the item content, as it is the most active approach to working with instead of against (avoidance) or passively (accepting) when unwanted, distressing thoughts, feelings, memories, or bodily sensations arise. The effects found for harnessing were interesting because the benefits did not show up consistently when examining correlations with context-free, trait scales. The benefits of being the type of person who harnesses distress during valued goal pursuit primarily emerged when using methodologies that captured contextualized events and experiences (i.e., day reconstruction approach, striving assessment packet, and semistructured interviews). PF is best understood as a strength that arises in situations, which begs the question why the vast majority of past research on the topic has been limited to trait-like measures divorced from meaningful context. Our work points to the pressing need for multimethod approaches to design measures and study the etiology, nature, and consequences of psychological phenomena such as PF. If we had limited our study to trait-like measures to understanding PF, we

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Table 6
*Predicting Momentary Positive and Negative Emotions During Daily Episodes (Day Reconstruction Method)*

| Outcome | BEAQ | | AAQ-II | | Total PPFI | | Avoidance | | Acceptance | | Harnessing | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regression type | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* |
| Happy | | | | | | | | | | | | |
| (1–main effects) | −.12* | −3.43 | **–.14*** | −3.96 | **.14*** | 3.84 | −.13* | −3.69 | .13* | 3.54 | .04 | 1.23 |
| (2–incremental validity) | −.05 | −1.21 | −.08 | −1.75 | .08 | 1.94 | | | | | | |
| Content | | | | | | | | | | | | |
| (1–main effects) | −.14* | −4.05 | **–.18*** | −5.32 | .17* | 5.20 | −.17* | −5.04 | .16* | 4.96 | .05 | 1.44 |
| (2–incremental validity) | −.03 | −.77 | **–.12*** | −2.82 | .11* | 2.87 | | | | | | |
| Relaxed | | | | | | | | | | | | |
| (1–main effects) | −.14* | −3.99 | **–.17*** | −5.17 | **.17*** | 5.16 | −.19* | −5.81 | .15* | 4.45 | .03 | .91 |
| (2–incremental validity) | −.03 | −.60 | −.11* | −2.55 | **.13*** | 3.54 | | | | | | |
| Grateful | | | | | | | | | | | | |
| (1–main effects) | −.12* | 3.10 | −.14* | −3.61 | **.15*** | 3.85 | −.16* | −4.21 | .12* | 3.25 | .03 | .88 |
| (2–incremental validity) | −.05 | −1.01 | −.07 | −1.49 | **.10*** | 2.21 | | | | | | |
| Average positive emotions | | | | | | | | | | | | |
| (1–main effects) | −.16* | −4.34 | **–.19*** | −5.38 | **.19*** | 5.37 | −.20* | −5.59 | .17* | 4.80 | .05 | 1.31 |
| (2–incremental validity) | −.05 | −1.11 | −.11* | −2.57 | **.13*** | 3.18 | | | | | | |
| Outcome | BEAQ | | AAQ-II | | Total PPFI | | Avoidance | | Acceptance | | Harnessing | |
| Regression type | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* |
| Nervous | | | | | | | | | | | | |
| (1–main effects) | .07* | 2.27 | **.15*** | 4.88 | −.04 | −1.31 | .08* | 2.62 | −.06 | −1.94 | .06 | 1.89 |
| (2–incremental validity) | −.02 | −.52 | **.16*** | 4.23 | .01 | .31 | | | | | | |
| Angry | | | | | | | | | | | | |
| (1–main effects) | .08* | 2.69 | **.14*** | 4.89 | −.05 | −1.63 | .07* | 2.33 | −.08 | −2.49 | .04 | 1.28 |
| (2–incremental validity) | .004 | .10 | **.15*** | 4.07 | .02 | .72 | | | | | | |
| Sad | | | | | | | | | | | | |
| (1–main effects) | .08* | 2.22 | **.20*** | 5.98 | −.12* | −3.55 | .13* | 3.76 | −.13* | −3.80 | −.01 | −.30 |
| (2–incremental validity) | −.06 | −1.44 | **.23*** | 5.46 | −.01 | −.32 | | | | | | |
| Guilty | | | | | | | | | | | | |
| (1–main effects) | .12* | 3.60 | **.17*** | 5.13 | −.11* | −3.26 | .15* | 4.46 | −.12* | −3.39 | .03 | .83 |
| (2–incremental validity) | .04 | .84 | .15* | 3.44 | −.01 | −.24 | | | | | | |
| Average negative emotions | | | | | | | | | | | | |
| (1–main effects) | .16* | 4.38 | **.27*** | 7.83 | −.13* | −3.45 | .17* | 4.52 | −.14* | −3.82 | .03 | .73 |
| (2–incremental validity) | .01 | .31 | **.27*** | 6.13 | .02 | .41 | | | | | | |

*Note*. The scale (BEAQ, AAQ-II, or PPFI total score) that most strongly predicts each outcome is bolded. The Avoidance scale was reverse-scored to compute the total PPFI score. All predictor and outcome variables were standardized as POMP (Percent Of Maximum Possible) scores. Happy is a composite variable comprised of Enthusiastic and Cheerful, which were highly correlated at the between- and within-person level (*r*s = .86 and .84, respectively). AAQ-II = Acceptance and Action Questionnaire-II; BEAQ = Brief Experiential Avoidance Questionnaire. Higher scores on the AAQ-II mean less psychological flexibility (i.e., more psychological *in*flexibility). Higher scores on the BEAQ mean more experiential avoidance (similar to more psychological inflexibility). In the initial analytic approach (1), each scale and PPFI subscale was entered into a separate model. In tests of incremental validity (2), the BEAQ, AAQ-II, and PPFI total scores were entered simultaneously as predictors in one regression model. This allowed us to examine whether, and by how much, the PPFI predicts variance above and beyond the BEAQ and AAQ-II. PPFI = Personalized Psychological Flexibility Index.
* $p < .05$.

would have erroneously concluded that harnessing is of little utility.

We added conservative tests of incremental validity to evaluate the pattern of what the PPFI predicts compared to existing, widely used measures of PF. Across studies, we provide a clear pattern of results. Whereas the PPFI predicts positive/adaptive aspects of daily functioning above and beyond the AAQ-II or BEAQ, the AAQ-II and BEAQ fail to offer predictive value after controlling for shared variance with the PPFI. Only the PPFI attenuated the effects of stressful life events on well-being. These tests provide evidence that PF serves as a resiliency factor, mapping onto existing theories on the benefits of PF (e.g., Hayes et al., 2006, 2011). The evidence shows that the AAQ-II and BEAQ do not show empirical independence from negative emotionality, and when moving beyond trait surveys, the AAQ-II primarily predicts distress and dysfunction. The consequence of these results is that the AAQ-II and BEAQ are conflated with distress-related outcomes, making it difficult to interpret prior research (e.g., Tyndall et al., 2019; Wolgast, 2014).

The present research provided empirical support for theoretical perspectives on PF (e.g., Chawla & Ostafin, 2007; Hayes et al., 1996, 2011) and personality (e.g., Fleeson & Jayawickreme, 2015; Little, 2015) that carve out a key role for the ways that values and goals are clarified and pursued, and how distress is responded to in human health and well-being. We theorized that PF serves an important self-regulatory function. Evidence supporting the resilience function of PF was provided with a day reconstruction approach and semistructured interview study showing that the PPFI buffered the adverse effects of stressful life events on present

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Table 7
*Predicting Coping Strategies During Daily Episodes, Controlling for Negative Emotions During Episodes*

| Emotion regulation strategy | BEAQ | | AAQ-II | | Total PPFI | | Avoidance | | Acceptance | | Harnessing | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regression type | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* | β | *t* |
| Reappraisal | | | | | | | | | | | | |
| (1–main effects) | −.03 | −.85 | −.01 | −.21 | **.11*** | 3.18 | −.05 | −1.40 | .10* | 2.98 | .10* | 3.00 |
| (2–incremental validity) | −.02 | −.47 | .06 | 1.36 | **.13*** | 3.35 | | | | | | |
| Acceptance | | | | | | | | | | | | |
| (1–main effects) | **−.09*** | −2.64 | −.08* | −2.21 | .08* | 2.46 | −.06 | −1.75 | .16* | 4.57 | −.01 | −.33 |
| (2–incremental validity) | −.06 | −1.31 | −.03 | −.56 | .05 | 1.32 | | | | | | |
| Problem solving | | | | | | | | | | | | |
| (1–main effects) | −.08* | −2.35 | −.03 | −.95 | **.17*** | 5.21 | −.16* | −4.66 | .10* | 2.89 | .13* | 3.79 |
| (2–incremental validity) | −.06 | −1.50 | .08 | 1.82 | **.19*** | 5.00 | | | | | | |
| Perspective | | | | | | | | | | | | |
| (1–main effects) | .03 | .75 | .04 | 1.09 | **.10*** | 2.63 | −.04 | −1.07 | .06 | 1.60 | .13* | 3.40 |
| (2–incremental validity) | .03 | .67 | .09 | 1.80 | **.15*** | 3.43 | | | | | | |
| Expressive suppression | | | | | | | | | | | | |
| (1–main effects) | −.06 | −1.64 | **.11*** | 2.81 | −.01 | .15 | .06 | 1.56 | −.03 | −.80 | .09* | 2.29 |
| (2–incremental validity) | .01 | .17 | **.13*** | 2.58 | .05 | 1.12 | | | | | | |
| Emotional suppression | | | | | | | | | | | | |
| (1–main effects) | .14* | 3.54 | **.18*** | 4.63 | −.05 | −1.28 | .12* | 3.43 | −.04 | −1.16 | .08* | 2.21 |
| (2–incremental validity) | .05 | 1.12 | **.16*** | 3.36 | .03 | .75 | | | | | | |
| Benefit finding | | | | | | | | | | | | |
| (1–main effects) | −.05 | −1.24 | −.04 | −1.05 | **.14*** | 3.86 | −.11* | −2.77 | .06 | 1.67 | .15* | 4.15 |
| (2–incremental validity) | −.01 | −.21 | .04 | .74 | **.17*** | 3.83 | | | | | | |
| Positive refocusing | | | | | | | | | | | | |
| (1–main effects) | .07 | 1.83 | **.08*** | 2.26 | .05 | 1.36 | .03 | .91 | .02 | .60 | .14* | 3.79 |
| (2–incremental validity) | .05 | 1.11 | **.10*** | 2.11 | **.10*** | 2.54 | | | | | | |
| Rumination | | | | | | | | | | | | |
| (1–main effects) | **.08*** | 2.30 | .07* | 2.16 | −.002 | −.08 | .04 | 1.30 | −.03 | −.80 | .07* | 2.17 |
| (2–incremental validity) | .04 | .96 | .06 | 1.52 | .02 | .44 | | | | | | |
| Behavioral activation | | | | | | | | | | | | |
| (1–main effects) | .09* | 2.48 | **.11*** | 2.98 | −.05 | −1.37 | .13* | 3.75 | −.04 | −1.09 | .08* | 2.33 |
| (2–incremental validity) | .03 | .56 | **.09*** | 2.05 | −.02 | −.39 | | | | | | |
| Cognitive avoidance | | | | | | | | | | | | |
| (1–main effects) | .15* | 4.19 | **.19*** | 5.36 | −.08* | −2.35 | .15* | 4.43 | −.09* | −2.39 | .07* | 2.01 |
| (2–incremental validity) | .05 | 1.56 | **.17*** | 3.91 | .01 | .28 | | | | | | |
| Relaxation | | | | | | | | | | | | |
| (1–main effects) | .07 | 1.72 | **.10*** | 2.53 | .03 | .76 | .02 | .41 | .02 | .40 | .07 | 1.91 |
| (2–incremental validity) | .03 | .67 | **.13*** | 2.74 | .12* | 2.76 | | | | | | |
| Understanding feelings | | | | | | | | | | | | |
| (1–main effects) | −.02 | −.45 | .05 | 1.10 | .08 | 1.91 | −.02 | −.55 | .05 | 1.11 | .11* | 2.78 |
| (2–incremental validity) | −.07 | −1.25 | .13* | 2.40 | .09 | 1.87 | | | | | | |

*Note.* The scale (BEAQ, AAQ-II, or PPFI total score) that most strongly predicts each outcome is bolded. The Avoidance scale was reverse scored to compute the total PPFI score. All variables were standardized as *z* scores. Reappraisal = "I thought about the situation in a different way." Acceptance = "I accepted the situation and/or my emotions." Problem solving = "I made a plan to make the situation better." Perspective = "I reminded myself that things could be worse." Expressive suppression = "I controlled my emotions by not showing them." Emotional suppression = "I ignored my feelings." Benefit finding = "I thought about how I could become stronger or learn from this situation." Positive refocusing = "I thought of something pleasant instead of the situation." Rumination = "I thought over and over again about the situation and my feelings." Behavioral activation = "I found an activity to keep myself busy and distracted." Cognitive avoidance = "I tried to think about something else instead of dealing with my emotions and thoughts." Relaxation = "I did something to help me relax." Understanding feelings = "I tried to figure out the specific emotions I was feeling." In the initial analytic approach (1), each scale and PPFI subscale was entered into a separate model. In tests of incremental validity (2), the BEAQ, AAQ-II, and PPFI total scores were entered simultaneously as predictors in one regression model. This allowed us to examine whether, and by how much, the PPFI predicts variance above and beyond the BEAQ and AAQ-II. PPFI = Personalized Psychological Flexibility Index; AAQ-II = Acceptance and Action Questionnaire-II; BEAQ = Brief Experiential Avoidance Questionnaire.
* $p < .05$.

and future emotional health, and a wider repertoire of regulatory responses.

The PPFI was constructed to be a tool for individuals to list the personally meaningful goals they are pursuing, and from this each question is contextualized to what the person cares about. As such, the PPFI is designed to be a research and clinical tool. While the scale predicted a variety of well-being indicators, it does not measure well-being itself, and therefore is not confounded with it (e.g., see factor analyses with negative emotionality). Relying on existing theory (Hayes et al., 2011), PF is not about trying to change psychological states to feel more positive and less negative; rather, it is about being able to function toward desirable aims. The willingness to pursue meaningful aims often means accepting a difficult path, and because of this, emotional well-being is often compromised in the short-term. For this reason, the positive correlation between

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the use of harnessing and the difficulty of pursuing daily goals is sensible.

## Limitations and Future Directions

The study of PF is still in its infancy, and our results suggest a number of opportunities for further investigation. Although multiple methodologies were used (e.g., experience-sampling, interview, trait surveys, personal strivings packets), much can be learned about the nature of PF by gathering independent informant reports or behavioral observations. It is possible, for example, that individuals might under- or overestimate their level and nature of PF relative to how peers, romantic partners, or colleagues perceive them, with this bias being consequential to healthy functioning.

The field of psychology has started to gravitate toward replicability and generalizability over strict guidelines about *p* values and other model fit indices. More complex measurement models—in our case, three related but independent factors—are harder to fit. It is even harder to fit when a scale, such as ours, uses an idiographic prompt with items keyed to self-endorsed goals in response to the prompt. The PPFI also contains a scale (harnessing) assessing a complex and relatively understudied metaemotional phenomenon with items that may be more difficult to endorse for some participants (leading to lower endorsement rates). Item difficulty is irrelevant to their importance. We were willing to sacrifice a small amount of model fit in hopes of creating a better measure that maps onto the complexity of how individuals respond to the distress that arises when pursuing idiographic, personally important goals. While we could have created a purely nomothetic instead of idiographic/nomothetic hybrid measure (and perhaps excluded harnessing due to its complexity) to achieve greater model fit, our goal was to maximize validity. An attenuation paradox exists in scale development where researchers can overemphasize reliability to the extent that construct breadth and validity is sacrificed. We emphasized both reliability and construct validity, avoiding the mistake of creating narrow operational models of constructs.

While the present research found reliable individual differences in PF, the question remains as to how this psychological strength or process develops, and what psychological and social conditions support and hinder its dispositional, state-level, or momentary expression. For instance, a growing body of work on metaemotions suggests that a person's beliefs and attitudes toward emotional experiences have implications for regulation (e.g., Kneeland, Goodman, & Dovidio, 2019) and psychopathology (e.g., Goodman, Kashdan, & İmamoğlu, 2020). Any discussion of causality must be resisted until there are ample experimental investigations and time-lagged clinical interventions. Research exploring the antecedents of PF would do much to deepen our understanding of the nature of this important phenomenon and how to best intervene and increase the probability of its development.

This research focused on the consequences of PF for well-being. Future research could embrace a more ambitious scope. For example, PF has only recently been explored in interpersonal situations, and there has been an absence of research on cultural influences. As with much of psychological science, the participants in this research were drawn from WEIRD (White, Educated, Industrialized, Rich, and Democratic) samples—a subset of the world that represents a mere 12% of the world population (Henrich, Heine, & Norenzayan, 2010). Many conceptual and measurement questions remain unanswered: are there cultural differences in average levels of PF? Is PF a universally desirable trait? Does PF develop differently in highly individualistic versus collectivistic cultures? Given the relevance of emotional experiences and responses to PF, processes that are heavily influenced by culture, it will be important to examine if, how, and under what conditions PF unfolds different across cultures.

## Conclusion

The intent of this program of studies was to provide comprehensive information on the psychological benefits and phenomenology of PF. The main conclusion is that PF as measured by our multidimensional PPFI is linked to a wide range of beneficial outcomes, in stressful and nonstressful circumstances. PF can be measured in a way that closely aligns with existing theory in a reliable and valid manner. Our hope is that the present research opens new avenues of research for understanding the enablers and barriers to PF along with enhancement strategies of both PF and subsequent well-being.

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