**Abstract**

Engagement in daily valued action is a core component of psychological well-being. Although valued action is a common target of cognitive-behavioral intervention, the degree to which it fluctuates at a daily level—and its predictors—remain relatively untested. Thus, the present daily diary study examined the influence of daily stress and intrapersonal resources such as mindfulness, meaning, and psychological flexibility on valued action among 122 undergraduates. Results of multilevel modeling revealed significant within-and between-person variance in daily valued action, predicted positively by daily fluctuations in stress as well as average stress across days, dispositional mindfulness, meaning, and psychological flexibility. Intrapersonal resources did not significantly buffer the effects of stress on valued action. Future research should continue to examine valued action in a multilevel framework, given the significant within-person variation in the present study. In the context of clinical interventions, acute stressors experienced outside of session may interfere with valued action.

*Keywords:* valued living, daily stressors, meaning, mindfulness, psychological flexibility

Living one’s life in a way that is consistent with one’s core values has long been recognized as the key to happiness, authenticity, and meaning (Frankl, 1959/2006; Hayes, Strosahl, & Wilson, 1999; Kashdan & McKnight, 2013; Kashdan & Steger, 2007; Plumb, Stewart, Dahl, & Lundgren, 2009). Toward the goal of promoting positive well-being and reducing emotional distress, aligning action with personal values is also an essential component of a number of efficacious cognitive-behavioral therapies (e.g., Acceptance and Commitment Therapy, Brief Behavioral Activation Treatment for Depression, Logotherapy, Motivational Interviewing; Davis, Deane, & Lyons, 2016; Frankl, 1959/2006; Hayes et al., 1999; Hettema, Steele, & Miller, 2005; Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011; Schulenberg, Hutzell, Nassif, & Rogina, 2008).

In the view of contextual behavioral science, values are defined as ‘freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity, which establish predominant reinforcers for that activity that are intrinsic in engagement in the valued behavioral pattern itself’ (Hayes et al., 1999; p. 64). In other words, values represent personally meaningful frameworks that guide action in a given domain (e.g., family, career, physical health and well-being, spirituality, etc.). In contrast to goals (i.e., find a partner, lose ten pounds), which are future focused and defined by an obtainable end-point, values (e.g., be open and honest in relationships, engage in physical activity) represent an ongoing process that can guide actions on a moment-to-moment basis.

Given the dynamic nature of personal values as they unfold over time, the degree to which individuals perceive daily actions as consistent with values is highly subjective (Smout et al., 2014). As such, valued action represents a positive psychological outcome in its own regard that has been suggested to improve both positive and negative affective states. Individuals endorsing progress toward personally valued goals report lower levels of anxiety and depression (Graham, West, & Roemer, 2015) as well as greater perceived growth following stressful life events (McDiarmid, Taku, & Phillips, 2017). In addition, valued action has been associated with greater coping efficacy after the loss of a parent (Murrell, Jackson, Lester, & Hulsey, 2017) and lower motivation to use alcohol to cope with stress (Palfai, Ralston, & Wright, 2011).

In addition to its direct effect on adjustment, values-based action has also been conceptualized as a protective factor for individuals with elevated posttraumatic stress symptoms (PTSS), such that the association between PTSS and mood-related functional impairment is weakened for individuals who report greater valued action (Donahue, Khans, Huggins, & Marrow, 2017). Engagement in values-based action is associated with various aspects of physical health as well. Valued action has been positively related to pain tolerance (Branstetter, Cushing, & Duleh, 2009), reduced pain-related anxiety (McCracken & Yang, 2006), and fuller recovery of function following traumatic brain injury (Pais, Ponsford, Gould, & Wong, 2017). In sum, living consistently with one’s values appears to be a correlate of greater quality of life and lower psychological and physical distress (A-Tjak et al., 2016; Smout, Davies, Burns, & Christie, 2014). In contrast, individuals who perceive a discrepancy between personal values and action (i.e., value-action incongruency) are at greater risk for psychopathology (Hayes, Strosahl, & Wilson, 2012).

The extent to which one acts in ways consistent with one’s values is often considered to be an individual difference variable, commonly measured by cross-sectional self-report. Research with the Valued Living Questionnaire (VLQ; Wilson, Sandoz, Kitchens, & Roberts, 2010) and the Valuing Questionnaire (VQ; Smout et al., 2014), two of the most commonly used measures of values-consistent action, shows stable differences across individuals in trait-level self-report and with test-retest stability. However, trait-like engagement in valued action can also change as a result of therapeutic interventions (Runyan & Steinke, 2015). In fact, change in consistent adherence to valued action is often considered a mediator of cognitive-behavioral treatment effectiveness for mood disorders (e.g., Michelson, Lee, Orsillo, & Roemer, 2011). In therapeutic approaches focused primarily on building personal meaning, such as Logotherapy (Frankl, 1959/2006) or meaning-focused psychotherapy (Breitbart, 2017), valued action may represent a key therapeutic outcome in and of itself.

Given the degree to which values-consistent action appears responsive to clinical intervention, it is likely that valued action further varies day to day, depending on naturalistic changes in one’s daily environment. For example, individuals may have lower capacity to engage with personally valued domains if they slept poorly the night before. Although little research has addressed daily fluctuations in valued action, variation in daily stress and coping represent one likely correlate of this variable. A burgeoning literature has suggested that daily stress is associated with increases in negative affect (Finkelstein-Fox, Park, & Riley, 2019; Hill, Sin, Turiano, Burrow, & Almeida, 2018) and engagement in unhealthy behaviors that contradict previous intention to maintain health (Riley, Park, & Laurenceau, 2018). As such, it is essential that a complete conceptualization of daily valued action include environmental stressors that may interrupt its maintenance, although no empirical studies to our knowledge have tested average associations between daily stress and values-consistent actions, let alone as they fluctuate within individuals from day to day.

In addition to the importance of considering contextual factors that influence daily valued action, understanding personal resources that help individuals to better align their actions with their values – aside from engagement in psychotherapy – may also lead to innovations in promoting well-being and life satisfaction. Several dispositional psychological resources that may be addressed in clinical intervention have recently been linked to greater average values-adherent living across days, including mindfulness (Brown & Ryan, 2003; Smout et al., 2014; Warren, Wray-Lake, & Syvertsen, 2018) and sense of purpose/meaning (Smout et al., 2014; Warren et al., 2018), but are, in practice, primarily tested as correlates of dispositional valuing rather than predictors of valued action as a daily process variable. In addition to mindfulness and meaning, psychological flexibility (i.e., willingness to engage with distressing emotional experience, or lower dispositional experiential avoidance) is a third variable that also facilitates greater values-consistent action (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Preliminary research suggests that greater psychological flexibility, a construct commonly targeted in contextual behavior therapy, is a moderately strong positive correlate of dispositional valued living (Smout et al., 2014). Further, daily decreases in psychological flexibility have recently been causally linked to decreases in valued action at the daily level (Berghoff, Ritzert, & Forsyth, 2018). Few studies, however, have examined psychological flexibility as a positive dispositional characteristic that predicts the course of valued action on average, across days, as theorized by Hayes and colleagues (1996).

Understanding the role of personal resources in promoting daily adjustment is essential to the development of effective clinical interventions; further, understanding the extent to which these resources may be helpful targets above and beyond daily stress management may inform individualized treatment. In short, dispositional mindfulness, meaning in life, and psychological flexibility represent three resources that may help individuals to stay engaged with their personal value systems and adhere to values on a daily basis, regardless of daily variation in environmental stressors. Given the dearth of empirical literature testing the overlapping versus distinct effects of daily stress and adaptive psychological resources on daily valued action, additional multilevel research using these variables is sorely needed.

Finally, in addition to direct links between psychological resources and daily valued action, some preliminary research has also proposed a stress-buffering hypothesis of psychological resources on valued action at the daily level, suggesting that individuals with a greater sense of purpose in life experience less negative reactivity when faced with acute stressful events (Hill et al., 2018). Existing studies have also suggested that dispositional resources such as mindfulness promote positive adjustment via reductions in subjective stress appraisals of daily events as well as active engagement in self-regulation practices (Finkelstein-Fox et al., 2019; Weinstein, Brown, & Ryan, 2009), although a full model of interactions between mindfulness, meaning or psychological flexibility and acute daily stressors as they predict daily values-consistent action remains to be tested.

  Building upon this literature, we hypothesized that: 1) people would reliably differ from one another, as well as from day to day within-person, in the degree to which they live consistently with their values across days. At the daily level, we further hypothesized that: 2a) fluctuating environmental demands (operationalized via number of daily stressful events) would be associated with within-person variation in daily values-adherent action, such that it would be more difficult for individuals to behave in ways consistent with their personal values when life was more stressful.

As an extension of existing research showing links between mindfulness, meaning in life, and psychological flexibility, we also expected that: 2b) average (person-level) values-adherent action would be predicted by individual differences in these three dispositional variables. Given the novelty of our inclusion of multiple psychological and cognitive resources, we further examined distinct versus overlapping contributions of psychological resources and daily stress in predicting daily valued behavior as an exploratory hypothesis. Finally, we anticipated that: 3) the psychological resources associated with average values-consistent action (i.e., mindfulness, meaning in life, psychological flexibility) would further serve as stress-buffers when individuals had high stress days, such that stress would be less disruptive to one’s ability to attend to personal values and act in accordance with them when individuals exhibit greater mindfulness, meaning in life, and/or psychological flexibility.

Extending a multilevel research design to an understanding of daily valued action is essential to testing these hypotheses, as both daily- and person-level psychological variables have demonstrated strong linkages to this outcome. Because our current understanding of how best to promote values-adherent living is limited by research relying primarily on retrospective reports and cross-sectional designs, a daily diary design that tests within- and between-person variables (and their interaction) as predictors of daily action represents a highly novel contribution to existing research on values-based cognitive-behavioral interventions.

**Method**

**Participants and Procedure**

The current study included 122 undergraduate students in psychology courses at a southeastern U.S. university. The Institutional Review Board approved the study protocol. Informed consent was obtained from all individual participants included in this study. Initially, a baseline survey was developed in Qualtrics to gather baseline information through the university’s SONA system (an online experiment portal). After signing up in the SONA system and arriving on campus for baseline surveys, participants completed written consent forms regarding the questionnaires and purpose of the study and provided their telephone numbers. The research assistants then enrolled each participant in a mass texting service to receive the daily diary prompts on their phone (www.tellmycell.com). Responses were de-identified during the data screening process by replacing telephone numbers with unique identification codes. After completing the baseline surveys, participants completed daily surveys each day for 14 days. Students received research credits for undergraduate psychology courses as compensation for completing the study. Of the 122 participants enrolled in the study, a total of 112 (91.8%) provided both baseline and daily diary data and were included in the analyses described below. Participants were matched by phone number between the pre-test and daily portion of the study. Eight participants were excluded for only completing the baseline survey, while two datapoints in the daily portion of the study were not able to be matched to baseline data. These points likely represented either incorrectly entered phone numbers from participants enrolled in the study or participants forwarding messages to friends to also complete the study. No participant withdrew from the study during the daily diary period; all participants who completed one or more daily diary surveys were retained for analysis.

**Baseline Measures**

**Five-Facet Mindfulness Questionnaire.** The Five-Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a 39-item self-report measure that employs a 5-point Likert-type scale. Factor analyses have supported a hierarchical five-factor structure, although trait mindfulness is commonly considered as a sum of all 39 items. The FFMQ demonstrates good internal reliability and convergent validity with a uni-dimensional conceptualization of mindfulness, as well as strong associations with multiple measures of personality (Siegling & Petrides, 2014). Total mindfulness scores range from 39-195, with higher scores indicative of greater levels of trait mindfulness. The FFMQ was administered once at baseline. Cronbach’s alpha in the present sample was .84.

**Meaning in Life Questionnaire.** The Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006) is a 10-item measure that employs a 7-point Likert-type scale. Factor analyses from the seminal article revealed two five-item subscales: Presence, assessing the degree to which one perceives his/her life as meaningful, and Search, assessing the degree to which an individual is searching for meaning in life. Given its focus on meaning in life as an existing positive resource, only the Presence subscale was used for the present analysis. The Presence subscale of the MLQ has demonstrated good convergent and discriminant validity, suggesting that this measure meaningfully discriminates meaning from other related aspects of well-being (Steger et al., 2006). Total scores on this subscale range from 5-35, with higher scores indicating greater presence of perceived meaning in life. The MLQ was administered once at baseline. Cronbach’s alpha for the Presence subscale in the current sample was .91.

**Acceptance and Action Questionnaire - II.**The Acceptance and Action Questionnaire – II (AAQ-II; Bond et al., 2011) is a 7-item self-report measure that employs a 7-point Likert-type scale. Factor analyses revealed a single component, termed experiential avoidance or psychological inflexibility, which is interpreted as the degree to which an individual engages in avoidance behaviors related to private events, such as thoughts or physical sensations (Hayes et al., 1996; Bond et al., 2011). The AAQ-II demonstrates good internal and test-retest reliability and validity in a range of samples and appears to measure a distinct psychological experience from depression (Bond et al., 2011), despite high correlations (Wolgast, 2014). Scores range from 7-49 with higher scores indicative of greater trait-level psychological inflexibility (i.e., experiential avoidance). This scale was reversed scored for consistency with other baseline measures; thus, high scores in the present study indicated psychological flexibility. The AAQ-II was administered once at baseline. Cronbach’s alpha in the present sample was .91.

**Daily Measures**

**Valuing Questionnaire.**Daily valued action was measured using five modified items from the Valuing Questionnaire (VQ; Smout et al., 2014), a 10-item measure that employs a 7-point Likert-type scale. Factor analyses from the seminal paper revealed a two-factor structure: Progress, defined as awareness of personal values and goal perseverance, and Obstruction, defined as avoidance of distressing experience and inattention toward values. For the present study, the VQ was adapted for daily use by including three questions from the Progress factor and two questions from the Obstruction factor and adding ‘Right now’ or ‘Currently’ before each question. Participants were prompted to respond to each item in reference to “how much it is true for you right now, in this moment.” Items for this modified daily questionnaire were selected based on high factor loadings in the original published measure (Smout et al., 2014). Because of the present study’s focus on engagement with personal values as an aspect of positive well-being as well as the strong associations reported between Obstruction of values and the AAQ-II (Smout et al., 2014), only the Progress subscale was used for the analyses described below. When measured cross-sectionally in an undergraduate sample, the original Progress subscale demonstrates good reliability and concurrent validity with measures such as positive affect, mastery, self-acceptance, purpose, and satisfaction with life (Smout et al., 2014). Total scores range from 0-18 for the 3-item Progress subscale, with higher scores indicative of greater behavioral adherence to personal values. Items included, ‘I am currently making progress in the areas of my life I care most about;’ ‘Right now, I am proud about how I’m living my life;’ and ‘Right now, I feel like I have a purpose in life.’ A reliability coefficient was calculated by averaging reliability values across days. For the present study, Cronbach’s alpha was .90, demonstrating excellent reliability.

**Daily Stressors.**In each daily survey, participants were presented with a list of 17 general daily interpersonal (8 items; e.g., “had an argument with another person”), academic (5 items; e.g., “received a low test grade”), and extracurricular (e.g., “experienced financial problems”) stressors (4 items). Participants were given the option to select which stressors they had experienced each day (or ‘other stressor’ if none of the options listed were relevant to the individual completing the survey). In contrast to more subjective measures of stress, this list of stressful events represents a more objective assessment of environmental influences on daily well-being that appears to be mostly independent of personality (Dasch, Cohen, Sahl, & Gunthert, 2008). In previous studies, a total sum score of number of daily stressful items has demonstrated strong positive within-person associations with sadness, and negative within-person associations with positive affect and self-esteem (Dasch et al., 2008). Stressors did not specifically address experiences of students with marginalized identities (e.g., overt discrimination, microaggressions), but included items designed to tap into general experiences of being “refused help” or “rejected.” In the present study, each stressor was coded as a ‘1,’ and a total score was created to determine the number of stressors that each participant experienced each day across the 14-day time period. If no stressor was marked, a zero was denoted for their total stressors. The total number of stressors was used to predict values-based action within persons.

**Data Analytic Plan**

Multilevel modeling was employed as the primary method of analysis to investigate the relationship between daily valued action, daily stressors, trait mindfulness, trait meaning, and trait psychological flexibility. Participants who completed baseline surveys and one or more daily diary survey were included in analyses. Initially, fixed intercept models, which specify that all participants started the study reporting the same levels of valued action, were compared to random intercept models, which allow for each participant to start with a different level of valued action and control for correlated errors among responses collected from the same participant (Bolger & Laurenceau, 2013). Model comparisons were significant (*p* < .001), indicating that daily responses were meaningfully nested within person; thus, all subsequent models utilized a random intercept as a predictor. An intraclass correlation coefficient was calculated from the random intercept model for progress in order to identify the amount of variance in valued action that is accounted for by person-level clustering. High values (close to 1) imply that more variance is accounted for by using a random intercept (i.e., clustering), while low values (close to 0) indicate little need to account for the correlated nature of the data.

Time was coded as time from 1/1/1900 12:00AM, which captured the time difference between days when participants completed the study. Therefore, if one participant completed the study 20 hours apart, while another completed the study 25 hours apart, this coding system would control for the differences in completion time. Independent variables included mindfulness, meaning in life, and psychological flexibility (in separate models), which were theorized to interact with stress in predicting valued action. Stress (i.e., number of daily stressors) was partialed into within- and between-person components by subtracting individual timepoints from each participant’s average score in order to examine the effects of average and daily variation in stress on valued action (Bolger & Laurenceau, 2013). The final multilevel models for hypotheses 2 and 3 also included a random slope of time nested within participant to account for individual variability in the effects of time on variation in valued action. Therefore, predictors in each MLM included time, person-centered and mean levels of stress, dispositional mindfulness, meaning in life, and psychological flexibility, as well as two-way interactions of both person-centered and mean stress with dispositional mindfulness/meaning/flexibility. All analyses should be interpreted as testing correlational associations between personality and daily variables and do not indicate causality because no variables were manipulated. All analyses were conducted using the *nlme* function in *R* (Pinheiro, Bates, DebRoy, & Sarkar, 2014).

**Results**

**Data Screening**

The complete data included *N* = 112 participants and 1442 daily data points (*M* = 12.88 surveys completed; 92.0% compliance). Daily data were first screened before merging with baseline data for accuracy errors, missing data, outliers, and assumptions. Twenty-three daily surveys included missing data points. Mahalanobis distance was used to screen for outliers and 230 of the surveys were denoted as outliers. Because significant between-person variability is expected in psychological variables and all participant responses were within acceptable range for the published measures, all scores were retained as meaningful for the present analyses (Aguinis, Gottfredson, & Joo, 2013). Finally, data met assumptions for linearity, normality, homogeneity, and homoscedasticity.

The baseline data were then screened. Fourteen participants were missing 5% or less of their baseline data points (i.e., one to two items across all scale points). These data were imputed using the *mice* package (van Buuren & Groothuis-Oudshoorn, 2011). No outliers were found in these data when examining Mahalanobis distance, and all other assumptions were found to be satisfactory for linear regression modeling. The baseline and daily datasets were then combined to analyze the proposed hypotheses.

**Descriptive Statistics**

The current sample was predominantly female (74.1%), White (79.3%), Black (13.5%), Asian (5.4%), Hispanic/Latinx (1.8%), and adolescent (*M*age = 18.42, *SD* = 0.88). Although participants were given the option to select transgender or other gender identities, all participants in this study self-identified as female or male. The majority of participants identified as Christian (87.5%). Most participants were presently unemployed (77.7%). Family income was reported in $25,000 ranges, with 5.4% reporting < 25K, 11.6% reporting 25-50K, 10.7% reporting 50K-75K, 13.4% reporting 75K-100K, 11.6% reporting 100K-125K, 5.4% reporting 125K-150K, 8.9% reporting 150K-175K, 8.0% reporting 175K-200K, and 25% reporting 200K or greater. Means, standard deviations, and sample sizes for all variables are reported in Table 1. Exploratory analyses revealed that differences between female and male participants on predictor and outcome variables were minimal and characterized by small effect sizes (d = 0.07 – 0.22), with the exception of females experiencing moderately greater psychological flexibility (d = 0.43). Similarly, associations of age and income level with predictor/outcome variables were also very small (*r*s = .00 - .11). Small cell sizes precluded comparisons based on race and religion.

**Hypothesis 1: Daily Valued Action as a Trait versus State Construct**

To test whether participants reliably differ from one another as well as within-person (i.e., from day to day) in perceptions of valued action, an intra-class correlation coefficient (ICC) was calculated from an empty random intercept model with no other predictors. The *ICC* = .67indicated that 67% of the variability in valued action is accounted for at the between-person level, with the remaining 33% varying at the daily level. At the within-person level, the average participant had a standard deviation of 1.96 for daily valued action (median = 1.69) across the 14-day study period.

**Hypothesis 2: Bivariate Correlations and Main effects of Mindfulness, Meaning, Psychological Flexibility, and Stress on Daily Valued Action**

Table 1 summarizes bivariate correlations between daily (i.e., varying within- and between-person) and between-person only (i.e., trait) variables. At the between-person level, mindfulness, meaning in life, and psychological flexibility all demonstrated significant positive associations with average progress toward values, such that a one-unit increase in mindfulness, meaning in life, and flexibility was associated with a .32, .59, and .37 (respectively) unit increase in valued action (all *p*s <.001). Further, a one-unit increase in average stress was significantly associated with a 0.16-unit decrease in valued action (*p* <.001). At the within-person level, a one-unit increase in stress compared to one’s own average was significantly associated with a 0.11-unit decrease in valued action (*p*<.001), holding constant the effects of time. All bivariate correlations between study variables including the hypothesized associations described above are provided in Table 1.

Table 2 reports parameter values from the within- and between- person main effects regression models (i.e., no interactions) for each of the target variables of mindfulness, meaning in life, and psychological flexibility. Within-person variation in stress was significantly negatively associated with valued action in all models controlling for time and daily variables (*b* = -0.51, *p* <.001), such that a one-unit increase in stress compared to one’s own average was associated with a 0.51-unit decrease in valued action with all other predictors held constant. Above and beyond the effects of time and stress, dispositional mindfulness (*b* = 0.09), meaning in life (*b* = 0.36), and psychological flexibility (*b* = 0.17) all remained significantly positively associated with value-consistent action across days (*p*s <.001).

**Hypothesis 3: Stress-Buffering Effects of Mindfulness, Meaning, and Psychological Flexibility**

Above and beyond the effects of time, mindfulness, and meaning in life, and stress, interactions between dispositional psychological resources and within- and between-person stress did not significantly predict valued action. Model estimates are provided in Table 3.

**Discussion**

Results of the present study support a conceptualization of values-adherent action as a time-varying indicator of psychological well-being, with approximately one-third of variance in this construct apparently due to contextual factors and slightly more than two-thirds attributed to individual differences. As reported in Table 1, the average daily perception of progress toward values was relatively high in this sample (12.97 of 18 possible points). Although previous studies of progress toward values have used a longer 5-item version of this scale, pro-rated scoring suggests that the sample included in the present study may have perceived similar or even slightly greater progress toward values at the daily level than has been previously reported cross-sectionally by Australian university student and clinical samples (Smout et al., 2014). Mindfulness, meaning in life, and psychological flexibility were all positively associated with greater average daily valued action, such that individuals with higher levels of these qualities demonstrated more values-adherent action even when accounting for time and daily stressors.

Further, daily and between-person variation in number of stressful events experienced (i.e., experiencing greater or fewer events than usual) was negatively associated with valued action, suggesting that environmental hassles may interrupt individuals’ intentions to maintain progress in valued directions. When individual difference variables including psychological resources (mindfulness, meaning in life, and psychological flexibility) and between-person differences in stressful events were held constant, daily variation in stressful events experienced continued to be a significant predictor of daily valued action. These significant within-person effects were such that individuals perceived less daily valued action on days when they experienced greater levels of stress than usual. In contrast, between-person differences in average stressful events experienced were largely overshadowed by the stronger links between psychological resources and valued action. Thus, both between- and within-person differences appear to exert unique effects on positive well-being among university students. Finally, results supported a direct, rather than stress-buffering, association between all three psychological resources and daily valued action, such that mindfulness, meaning in life, and psychological flexibility predicted greater well-being regardless of daily variation in stressful events.

Interpreting these findings in the context of previous research on daily stress and well-being, it should be noted that the measurement of stress in this study relied on dichotomous endorsement of daily stressful events, whereas some other studies have measured stress in the context of subjective appraisals of one’s worst stressor (e.g., Finkelstein-Fox et al., 2019; Weinstein et al., 2009). In asking about number of stressful events rather than their intensity, our measure of daily stress is best understood as an objective marker of environmental change, rather than a subjective appraisal of the degree to which environmental change was distressing. Given the small within-person associations demonstrated between number of daily stressors and values-adherent action, future studies may wish to compare stressful events experienced to appraised stressfulness of events as distinct indicators of daily experience.

In addition, the focus on daily positive well-being (i.e., values-consistent action) rather than distress may also explain the failure of the present study to support hypotheses regarding stress-action associations. In one recent study, perceived purpose in life buffered the effects of daily stressful events on variation in negative affect and somatic symptoms but not daily positive affect (Hill et al., 2018). Applied to the findings discussed here, the discrepancy in significant interaction effects in negative versus positive well-being models may suggest that psychological resources are best conceptualized as a stress-buffering resource in models specifically predicting distress, exerting only direct effects on positive adjustment. In the same study by Hill and colleagues (2018), perceived purpose also demonstrated a significant negative association with stress appraisals. Extending these findings to the present study, our hypothesized moderators may actually have exerted direct effects on subjective perceptions of stress, which would account for the non-significance of average stressful events in models that included mindfulness, meaning, and psychological flexibility as covariates. Of note, the study described by Hill and colleagues (2018) included middle-aged adults, in comparison to the present study of college students; thus, the types of stressors queried in this study may be different (e.g., low exam score) than those that impact well-being at later developmental stages.

Based on the results described here, it appears that psychological resources such as mindfulness, meaning in life, and psychological flexibility are positive correlates of values-adherent action for college students, regardless of environmental change. This finding has important implications for clinical work, especially for young adult populations struggling to align daily actions with personal values. Mindfulness- and meaning-based interventions such as ACT (Hayes et al., 2012; Hayes et al., 1999), Logotherapy (Frankl, 1959; 2006), and meaning-focused psychotherapy (Breitbart, 2017) may exert benefit by increasing individuals’ abilities to identify personal meaning systems and maintain attention to goals. Psychological flexibility, a construct commonly referenced in ACT (Hayes et al., 2012; Hayes et al., 1996) also appears to exert direct influences on valued action. Recent literature has noted that psychological flexibility as measured by the AAQ-II appears to be a strong negative correlate of emotional distress (Wolgast, 2014); thus, the results described here may also point to the role of distress as an unmeasured third variable predicting daily valued action. Although the present research was limited to the experiences of young adult college students, future longitudinal studies might take a developmental approach to understanding how cultivating psychological resources in young adulthood may support greater values-consistent action in the context of later-life stress.

Although this study makes several important contributions to our understanding of within- and between-person correlates of daily valued action, several limitations must be noted. First, the correlational nature of the daily diary portion of this study precludes causal inference regarding stress’ influence on valued action. Although previous literature supports the suggestion that environmental variation influences perceptions of valued action (e.g., Berghoff et al., 2018), it is also possible that valued action decreases the degree to which individuals attend to environmental changes and label them as stressors. Future studies may extend the present findings by examining fluctuations in psychological resources over time as they both predict and are impacted by environmental stressors in order to better establish temporal precedence. Secondly, it should be noted that the psychological resources (i.e., mindfulness, meaning, and psychological flexibility) measured demonstrated some degree of conceptual overlap with one another and may represent concurrent markers of positive adjustment in study participants. In some cases, measures also demonstrated overlap with our measure of daily valued action; for example, items on the AAQ-II addressed participants’ perception of their ability to maintain well-being in the context of emotional distress, whereas daily valuing items addressed momentary appraisals of progress toward goals. Despite their overlap, correlations between these two measures provide interesting insight about the degree to which participants’ global beliefs about self-regulation abilities predicted their actual momentary perceptions of values progress. Indeed, the AAQ-II shared less than 20% of its variance with our measure of daily values progress. Another limitation is that participants in this study were drawn from a convenience sample of undergraduate students, and thus are non-representative of other types of stressed populations. As such, the highly novel findings described here merit future study and replication in diverse populations, including those who experience identity-related discrimination or microaggressions. Finally, the present study was limited by a relatively small sample size, which may have reduced power to detect small within-person effects.

Despite these limitations, the finding that adherence to valued action varies at both the between- and within-person level and may be promoted by a number of psychological resources, regardless of daily stressful experiences, represents an important next step to understanding the ecological course of valued action. These findings suggest several promising next steps for our understanding of positive psychological processes and resilience to daily stress, including multiple ways of assessing stress, examining change to stress appraisals as a possible mediator of the effects of psychological resources on daily valued action, and an extension of these findings to a broad range of clinical samples.

**Compliance with Ethical Standards**

**Conflict of interest.** The authors report no conflicts of interest.

**Research involving human subjects.** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee ([University name blinded for review], Protocol #17x-260) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent.** Informed consent was obtained from all individual participants included in the study.

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Table 1. *Descriptives and Bivariate Correlations*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Valued Action | Mindfulness | Meaning in Life | | Flexibility | *M* (*SD*), *n* |
| Valued Action | - |  |  | |  | 12.97 (4.16), *n* = 1442 |
| Mindfulness | .32  [.27, .36]  *p* < .001 | - |  | |  | 131.96 (13.91), *n* = 112 |
| Meaning in Life | .59  [.56, .63]  *p* < .001 | .42  [.25, .56]  *p* < .001 | - | |  | 25.89 (6.96), *n* = 112 |
| Flexibility | .37  [.32, .41]  *p* < .001 | .41  [.24, .55]  *p* < .001 | .37  [.19, .52]  *p* < .001 | - | | 29.71 (9.44), *n* = 112 |
| Stress Total | -.19  [-.24, -.14]  *p* < .001 | -.10  [-.15, .05]  *p* < .001 | -.07  [-.12, .02]  *p* = .007 | -.29  [-.33, -.24]  *p* = .002 | | 1.51 (1.35), *n* = 1442 |
| Stress Centered | -.11  [-.16, -.06]  *p* < .001 | .00  [-.05, .05]  *p* ~ 1 | .00  [-.05, .05]  *p* ~ 1 | -.00  [-.05, .05]  *p* ~ 1 | | 0.00 (1.04), *n* = 1442 |
| Stress Mean | -.16  [-.21, -.11]  *p* < .001 | -.16  [-.34, .02]  *p* = .086 | -.11  [-.29, .08]  *p* = .261 | -.46  [-.60, -.30]  *p* < .001 | | 1.54 (0.88), *n* = 112 |

*Notes*. Valued Action was measured using three items from the “Progress” subscale of the Valuing Questionnaire (VQ; Smout et al., 2014), modified for daily use. Values within [] indicate 95% confidence interval for correlation. *N* values represent the sample size of complete responses for baseline or daily measures. Correlations between baseline measures and stress mean were calculated as traditional bivariate correlations, while multilevel correlations between baseline measures, stress total, stress centered, and valued action were calculated as standardized beta values using *lmer()* and controlling for the effects of time and random intercepts for each participant.

Table 2. *Daily Stress and Psychological Resources Main Effects Predicting Daily Valued Action*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | Predictor | *b* | *SE* | *df* | *t* | *p* |
| Mindfulness | Intercept | 1.81 | 3.00 | 111.98 | 0.60 | .548 |
| Time | -0.07 | 0.03 | 107.94 | -2.71 | .008 |
| Centered Stress | -0.51 | 0.06 | 1313.69 | -8.34 | <.001 |
| **Mindfulness** | **0.09** | **0.02** | **111.62** | **4.28** | **<.001** |
| Mean Stress | -0.43 | 0.34 | 113.42 | -1.24 | .218 |
| Meaning in Life | Intercept | 4.74 | 0.99 | 113.02 | 4.81 | <.001 |
| Time | -0.07 | 0.03 | 107.25 | -2.70 | .008 |
| Centered Stress | -0.51 | 0.06 | 1317.03 | -8.34 | <.001 |
| **Meaning** | **0.36** | **0.03** | **110.91** | **11.10** | **<.001** |
| Mean Stress | -0.36 | 0.26 | 112.78 | -1.42 | .160 |
| Flexibility | Intercept | 16.38 | 0.72 | 115.22 | 22.70 | <.001 |
| Time | -0.07 | 0.03 | 107.64 | -2.67 | .009 |
| Centered Stress | -0.51 | 0.06 | 1313.81 | -8.31 | <.001 |
| **Flexibility** | **0.17** | **0.03** | **111.02** | **4.86** | **<.001** |
| Mean Stress | 0.18 | 0.38 | 112.62 | 0.47 | .639 |

Table 3. *Daily Stress and Psychological Resources Interact to Predict Daily Valued Action*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | Predictor | *b* | *SE* | *df* | *t* | *p* |
| Mindfulness | Intercept | 1.26 | 6.72 | 111.47 | 0.19 | .852 |
| Time | -0.07 | 0.03 | 107.66 | -2.71 | .008 |
| Centered Stress | -0.24 | 0.52 | 1309.96 | -0.46 | .642 |
| **Mindfulness** | 0.10 | 0.05 | 111.55 | 1.86 | .066 |
| Mean Stress | -0.09 | 3.96 | 111.79 | -0.02 | .982 |
| Centered Stress X Mindfulness | 0.00 | 0.00 | 1307.74 | -0.52 | .606 |
| Mean Stress X Mindfulness | 0.00 | 0.03 | 111.94 | -0.09 | .931 |
| Meaning in Life | Intercept | 4.60 | 1.81 | 110.35 | 2.55 | .012 |
| Time | -0.07 | 0.03 | 107.05 | -2.69 | .008 |
| Centered Stress | -0.42 | 0.20 | 1308.65 | -2.16 | .031 |
| **Meaning** | 0.36 | 0.07 | 110.25 | 5.23 | <.001 |
| Mean Stress | -0.28 | 1.01 | 110.61 | -0.28 | .779 |
| Centered Stress X Meaning | 0.00 | 0.01 | 1303.13 | -0.47 | .637 |
| Mean Stress X Meaning | 0.00 | 0.04 | 111.07 | -0.08 | .934 |
| Flexibility | Intercept | 16.46 | 1.46 | 112.53 | 11.32 | <.001 |
| Time | -0.07 | 0.03 | 107.59 | -2.67 | .009 |
| Centered Stress | -0.36 | 0.14 | 1313.52 | -2.50 | .013 |
| **Flexibility** | 0.17 | 0.06 | 111.08 | 2.98 | .004 |
| Mean Stress | 0.11 | 0.94 | 111.92 | 0.11 | .910 |
| Centered Stress X Flexibility | -0.01 | 0.01 | 1303.24 | -1.21 | .225 |
| Mean Stress X Flexibility | 0.00 | 0.03 | 111.63 | 0.09 | .927 |