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journal homepage: [www.elsevier.com/locate/jrp](http://www.elsevier.com/locate/jrp)Purpose in daily life: Considering within-person sense of purpose variability<sup>☆</sup>Gabrielle N. Pfund<sup>a,b,\*</sup>, Anthony L. Burrow<sup>c,d</sup>, Patrick L. Hill<sup>b</sup><sup>a</sup> Department of Medical Social Sciences, Northwestern University, Chicago, IL, USA<sup>b</sup> Department of Psychological & Brain Sciences, Washington University in St. Louis, USA<sup>c</sup> Department of Psychology, Cornell University, Ithaca, NY, USA<sup>d</sup> Bronfenbrenner Center for Translational Research, Cornell University, Ithaca, NY, USA

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## ABSTRACT

Sense of purpose refers to the extent to which one feels that they have personally meaningful goals and directions guiding them through life. Though this construct predicts a host of benefits, little is known regarding the extent to which sense of purpose fluctuates within an individual and the affective changes tied to those fluctuations. The current study uses daily diary data to address this gap by exploring (1) how much sense of purpose and different components of purpose fluctuate from one day to the next, (2) the extent to which these fluctuations correlate with positive and negative affect, and (3) whether dispositional sense of purpose and age correlate with greater variability. Participants ( $N = 354$ ) reported on their sense of purpose and positive and negative affect every day for 10 days. Results suggest that approximately 45–61 % of the variability in sense of purpose scores occurs between-person depending on how it is assessed. Furthermore, the within-person variability in sense of purpose is more strongly correlated with changes in positive affect relative to negative affect. Finally, higher levels of dispositional sense of purpose and age do not appear to be associated with how much variability an individual experiences in their purposefulness from one day to next. The discussion focuses on what these findings mean for the trait-like nature of sense of purpose, short-term sense of purpose measurement, lifespan development, and intervention efforts.

## 1. Introduction

Though the value of purpose is widely recognized, little is known about how this construct functions in the short-term. Sense of purpose can be understood as the extent to which one feels that they engage with personally meaningful activities and have goals and directions guiding them through life (Ryff, 1989; Scheier et al., 2006). This construct is inherently subjective, leading researchers to utilize measures that ask participants to self-report the extent to which they agree to items like, “Some people wander aimlessly through life, but I am not one of them,” (Ryff, 1989), “To me, the things I do are worthwhile,” (Scheier et al., 2006), or “My plans for the future match with my true interests and values,” (Hill et al., 2016). Building research on what sense of purpose looks like in daily life sets crucial foundations to evaluate when and why it changes across adulthood and create more precise interventions to

bolster it (Bleidorn et al., 2020; Hill et al., 2023). The current study calls upon daily diary data to evaluate whether three unique purpose assessment types vary within-person in different amounts, how sense of purpose fluctuations are associated with affect, and whether dispositional sense of purpose and age predict these daily fluctuations.

## 1.1. The robust benefits of purpose

The importance of studying sense of purpose rises from the wide breadth of research illustrating its benefits. In the well-being literature, people with a higher sense of purpose experience greater satisfaction with life, higher positive affect, less negative affect, lower stress reactivity, and fewer depressive symptoms (Anglim et al., 2020; Hill et al., 2018; Irving et al., 2017; Kim et al., 2013; Pfund et al., 2021; Sutin et al., 2024). In the health literature, people with a higher sense of purpose

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have better cognitive functioning (Lewis et al., 2017), experience slower cognitive decline (Kim et al., 2019), and are at a lower risk for receiving an Alzheimer's or mild cognitive impairment diagnosis (Boyle et al., 2010; Sutin et al., 2023). Furthermore, people with a higher sense of purpose report better self-rated health (Windsor et al., 2015), and are at lower risk for stroke (Kim et al., 2013a), physical disability (Mota et al., 2016), cardiovascular events (Cohen et al., 2016; Kim et al., 2013b), and earlier mortality (Boyle et al., 2009; Hill & Turiano, 2014). Thus, with sense of purpose predicting desirable outcomes, researchers have begun to consider its potential for change.

### 1.2. Past knowledge on purpose change and variability

Typically, longitudinal work has suggested that, relative to younger adults, middle-aged adults typically have a higher and more stable sense of purpose (Ko et al., 2016; Mann et al., 2019). Meanwhile, older adulthood is often associated with declines in this construct (Karasawa et al., 2011; Hedberg et al., 2011), partially due to transitions like retirement (Hill & Weston, 2019), health decline (Windsor et al., 2015), and loss of spouses (Pinquart, 2002). Notably, past work demonstrates interindividual differences in intraindividual change trajectories throughout the adult lifespan (Hill et al., 2015; Hill & Weston, 2019; Mann et al., 2019), meaning that there are also individual differences in these change patterns beyond mean-level trajectories. However, while we have evidence of long-term trajectories, research has been less common regarding with the short-term processes that could be shaping between-person development and change.

Few studies to this point have investigated within-person variability in sense of purpose over shorter, more intensive time-scales. Of those that have, one study found that, when asking people each day how "purposeful" they felt for that day as part of a measure on daily affect, about 50 % of the variability in these responses was within-person (Hill et al. 2021). Other research expanded upon this approach by using a measurement burst design in a sample of older adults. Participants responded to three separate weeks of daily diary surveys, each six months apart (Pfund et al., 2022). When asked "How much do you think your life has a purpose today?", about 40 % of the variability in sense of purpose occurred within-person at the daily level. Finally, daily diary research focused on adolescent subpopulations has found that 61 % of the variability in daily purpose occurs at the within-person level (Ratner et al., 2023), suggesting the amount of variability in sense of purpose could be tied to lifespan development as well.

Within-person processes can have implications for long-term development (Bleidorn et al., 2020). By exploring whether and how sense of purpose fluctuates in the short-term, researchers can better pinpoint why sense of purpose changes for individuals and across the lifespan. Additionally, understanding how sense of purpose varies in the short-term may provide better clarity for how to intervene upon it in the long-term (Hill et al., 2023). However, research on daily sense of purpose has failed to employ consistent measures and work has yet to evaluate whether findings differ based on the measurement strategy chosen.

### 1.3. Open questions regarding within-person purpose variability

The current study addresses the gaps of the past literature by employing multiple assessment types to evaluate sense of purpose in a daily diary setting. Specifically, we consider three different components often discussed in the purpose literature: purposefulness (Hill et al., 2023), activity engagement (Scheier et al., 2006), and goal progression (McKnight & Kashdan, 2009), to evaluate whether certain components of sense of purpose are more variable within an individual. Furthermore, this strategy allows us to evaluate variability in the mean of all three items, which better captures daily sense of purpose holistically, while accounting for potential measurement error tied to having fewer items (Wilms et al., 2020). This will provide more context for important

measurement questions of sense of purpose in daily life.

Additionally, it would be valuable to weigh the amount of variability in purpose against a construct well studied in the context of within-person variability, like affect. Positive and negative affect are variables that have been assessed at the state- and trait-level (Eid & Diener, 1999; Tellegen, 1985). While research has illustrated that affect can be dispositional insofar that some people consistently experience more or less positive and/or negative affect (Watson et al., 1988), other research has illustrated that these emotion variables can differ greatly from one time point to the next within the same individual (Diener & Emmons, 1984; Larson, 1987; Merz & Roesch, 2011; Rast et al., 2012). Daily diary research on individual positive and negative emotions has found that 27–48 % of daily emotion reports occurs at the between-person level (Merz & Roesch, 2011), lower relative to past purpose research (Hill et al., 2021; Pfund et al., 2022). As such, one would expect sense of purpose to show lower levels of within-person variability than affect, meaning this construct may be more challenging to manipulate and change in individuals.

Additionally, it is important to consider between-person variables as predictors of within-person variability. One obvious candidate is an individual's dispositional (i.e., trait) level of sense of purpose. Understanding the connection between trait versus state level sense of purpose is valuable for two primary reasons. First, if trait measures are unassociated with state measures, then state measures are likely not capturing the trait (Horstmann & Ziegler, 2020). Second, if state measures are associated perfectly with trait measures, state measures are then not providing novel information about an individual. However, little is known about the connection between dispositional sense of purpose and within-person sense of purpose variability, requiring consideration of other literatures. Research on negative affect typically finds that people who generally have higher negative affect often experience more negative affect variability (Hisler et al., 2020; Leger et al., 2019; Rast et al., 2012; Ringwald & Wright, 2022). Meanwhile, the association between average positive affect and positive affect variability are inconsistent (Charles & Pasupathi, 2003; Gruber et al., 2013; Rast et al., 2012; Hedeker et al., 2008; Hisler et al., 2020; Leger et al., 2019). It is currently unclear whether the connection between dispositional sense of purpose and within-person sense of purpose variability will follow one of these affect patterns.

Finally, age may be associated with within-person variability in sense of purpose. Older adults are particularly vulnerable to decreases in sense of purpose (Hedberg et al., 2011; Mann et al., 2019). This vulnerability is critical for making age predictions, because researchers posit that shorter-term within-person variability is likely a predecessor to long-term change (Bleidorn et al., 2020). As such, within-person variability in sense of purpose could be rooted in the unique and novel daily experiences that older adults may face as they adapt to navigating their lives following these events. Similarly, within-person sense of purpose variability could be greater for younger adults, too, given the life transitions tied to emerging adulthood (Arnett, 2000). Therefore, one may expect greater within-person sense of purpose variability at both ends of adulthood, which aligns with longitudinal work that has found that rank order stability in sense of purpose shows a curvilinear relationship with age (Mann et al., 2019).

### 1.4. The current study

Based on the gaps in the previous research, the current study had three aims: (1) Explore the amount of between- versus within-person variability across the different daily purpose measurement items; (2) Evaluate how within-person variability in sense of purpose compares to and is associated with within-person variability in positive and negative affect; (3) Consider whether dispositional sense of purpose and linear and/or curvilinear age predict within-person sense of purpose variability.

## 2. Methods

### 2.1. Transparency and openness

The current study was pre-registered prior to accessing the data. The pre-registered research questions, hypotheses, and analyses as well as the data cleaning and analytic scripts can be found on the Open Science Framework: <https://osf.io/deguh/> (scripts and results); <https://osf.io/u2vab> (pre-registration).<sup>1</sup> Data will not be publicly available given potentially identifiable qualitative information collected as part of the larger data collection process. Other collaborators have pre-registered hypotheses and analytic plans with this data, but none of these studies involve the daily purpose items that are the focus of the current project (<https://osf.io/x86b7/>; <https://osf.io/t3scj/>; <https://osf.io/xtb54/>).

### 2.2. Participants

These data were collected from April to June 2021 via Survey Signal as part of the broader Daily Prospective Study using a random national sample in the United States. Of the 583 participants who filled out the baseline survey, 113 of those participants did not fill out any additional surveys. This study also included a morning and evening survey for 10 weekdays, in a two-week span. To receive compensation for participation, participants had to fully complete the baseline survey, five days of morning and evening surveys on the same day, and the final survey. After meeting these criteria, participants were also able to receive extra compensation for each same-day morning and evening surveys they completed. As per the IRB agreement, only those participants who received compensation (i.e., filled out baseline, five same day morning-evening surveys, final survey) were included in the current sample. The current study had a final analytic sample size of 354 people. Based on the average effect size in psychological sciences of 0.20 (Funder & Ozer, 2019), the current sample size has the power of 0.97 to detect an effect size of 0.20 with an alpha level of 0.05.

In this final sample, ages ranged from 18 to 74 with a mean age of 39.35 ( $SD = 14.35$ ), the 25th percentile was 29 years, and the 75th percentile was 48 years. For gender, 28.2 % of participants identified as cisgender men, 67.2 % as cisgender women, 0.8 % as transgender men, 1.1 % as gender queer, and 2.5 % identified as another gender or preferred not to respond. For race, 74.3 % identified as White/European American, 9.9 % as Black/African American, 0.2 % as Native American, 11.0 % as Asian/Pacific Islander, 0.8 % as biracial/multiracial, and 1.7 % preferred not to respond.

### 2.3. Procedure

Participants filled out a baseline survey, 10 weekdays of morning and evening surveys over a period of two weeks, and a final survey. Data collection occurred Monday-Friday for two consecutive weeks, following participating in the baseline survey, to control for variability that may be due to weekend differences from day-to-day weekday scheduling. The mean number of responses in this final sample was 8.94 ( $SD = 1.43$ ) days, and 53.4 % of participants completed all 10 of the daily surveys.

### 2.4. Measures

#### 2.4.1. Sense of purpose

Dispositional sense of purpose was assessed at baseline and follow up

<sup>1</sup> The manuscript exactly maps onto the pre-registration with the exception of a set of multilevel models that provided redundant information with the between- and within-person correlations. The results are on OSF (<https://osf.io/deguh/>).

utilizing two separate sense of purpose measures: the Purpose in Life subscale (Ryff, 1989) and the Life Engagement Test (Scheier et al., 2006). Participants provided their agreement to how well the seven items from the Purpose in Life subscale described them on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree). Items were averaged together, and this measure showed good internal consistency ( $\alpha = 0.80$ ). Participants also responded their agreement to how well the six items Life Engagement Test described them on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). These items were averaged together, and this measure showed good internal consistency ( $\alpha = 0.89$ ).

Daily sense of purpose was assessed using three individual items and a daily composite of these items. Each evening, participants were asked to reflect upon their days and respond to three separate purpose items on 4-point Likert scale ranging from 1 (not at all) to 4 (a lot). These items were: “To what extent did you feel purposeful today?”, “How frequently were you engaged in worthwhile activities?”, and “How frequently did you make progress toward your life goals?”. The first item reflected previous use of the “purposeful” item in other daily diary studies (e.g., Hill et al., 2021). The second item captured the focus on meaningful activity engagement from the Life Engagement Test (Scheier et al., 2006). The third item captured the goal-orientation commonly associated with the Purpose in Life subscale (Ryff, 1989). While these items have not been used in previous research, they were developed based on validated, dispositional sense of purpose measures.

#### 2.4.2. Affect

Daily positive and negative affect were assessed each evening with an adapted Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). Participants rated to what extent they felt 20 different emotions that day on a 5-point Likert scale from 1 (very slightly or not at all) to 5 (extremely). Six additional low arousal emotion items were included from the Affective Circumplex (Posner, Russell, & Peterson, 2005), such as “calm” and “sad”. Items for positive and negative affect were averaged separately, and higher scores represented more experience of that affect valence at the daily level. The items enthusiastic (positive affect, high arousal), irritable (negative affect, high arousal), peaceful (positive affect, low arousal), and sad (negative affect, low arousal) were evaluated individually.

#### 2.5. Analytic plan

All data wrangling and analyses were conducted in R (Version 4.1.2; R Core Team, 2021). The pre-registration of the research questions, hypotheses, and analytic scripts can be found on: <https://osf.io/u2vab>. Funder and Ozer’s (2019) criteria for effect sizes in psychological sciences will be used to describe the magnitudes of effects. Brackets following the estimate are used to report 95 % Confidence Intervals (CIs); furthermore, any CIs that do not include 0.00 between their range represent a  $p$ -value  $< 0.05$ .

Prior to hypothesis testing, a series of multilevel models were conducted with Level 1 (day) nested in Level 2 (person) with a random intercept and random slope for time (Day 1 coded as 0) to test whether the variables experienced mean-level change across the length of the study using the *lme4* package (Bates et al., 2015). Additionally, using the *statsBy()* function from the *psych* package (Revelle, 2019), between-versus within-person correlations were calculated between daily sense of purpose and affect composites and items.

First, intercept only models were conducted to derive intraclass correlations (ICCs) for the individual sense of purpose items as well as the sense of purpose composite. In these multilevel models, time was nested within person, and only a random intercept was included. Additionally, zero-order correlations were calculated between individual means (*iM*), which represented an individual’s average score across measurement occasions, and individual standard deviations (*iSD*), which represented the variability in an individual’s score across

measurement occasions.

Second, we sought to compare sense of purpose variability with affect variability. Thus, the same process as Aim 1 was followed for the positive and negative affect items and composite. Intercept only models were conducted to calculate ICCs for individual emotion items as well as for the mean scores for positive and negative affect to compare the amount of within-person variability in sense of purpose with that found for these affect variables. Afterwards, correlations across the *iMs* and *iSDs* for sense of purpose and affect were calculated.

Third, we examined whether dispositional sense of purpose or age predicted within-person sense of purpose variability. Age was centered, so 0 represented average age of the sample and a 1-unit change in age represented one year. For sense of purpose, composites were taken via an average across items for the dispositional sense of purpose scores, and these scores were standardized. Thus, a 0 represented the average sense of purpose score for the sample, and 1-unit change in sense of purpose represented a 1-standard deviation change in sense of purpose.

All analyses were run with both the individual daily sense of purpose items as well as the sense of purpose composites. With all between-person variables, we first calculated correlations between the variable of interest with the sense of purpose *iSD*, and then calculated a correlation when partialling out an individual's sense of purpose *iM*, given that variability is often associated with mean score. Finally, a set of multiple regressions were conducted to evaluate whether these between-person variables predicted the sense of purpose *iSD* without and when accounting for the sense of purpose *iM*. Additionally, a final model regressed the sense of purpose *iSD* onto the linear and quadratic age terms to evaluate whether there was a curvilinear effect of age on sense of purpose variability.

### 3. Results

#### 3.1. Descriptive information

Table 1 reports the mean-level trajectory of each variable across the length of the study. Across the study period, the sense of purpose composite, purposeful item, engagement item, positive affect composite, irritable item, and peaceful item showed a slight decrease. The life goals item, negative affect composite, enthusiastic item, and sad item showed no change. No constructs significantly increased throughout the study period.

Table 2 displays the between- versus within-person correlations for the sense of purpose and affect composites and individual items. Consistently, the associations between the individual items were much stronger at the between-person level ( $r$  ranged from 0.74 to 0.86) than the within-person level ( $r$  ranged from 0.42 to 0.49), suggesting that the associations of sense of purpose items on average are stronger than the fluctuations in one sense of purpose item on a given day relative to another. Furthermore, at the between- and within-person level, the sense of purpose composite and the purpose items were consistently more strongly tied to the positive affect and positive emotion items than the negative affect composite and negative emotion items.

#### 3.2. Within-person variability in sense of purpose

Fig. 1 displays the distributions for the daily *iMs* and *iSDs* for the sense of purpose items and the sense of purpose mean. The three individual items reflected how purposeful they felt that day (*iM*:  $M = 2.61$ ,  $SD = 0.83$ ; *iSD*:  $M = 0.56$ ,  $SD = 0.32$ ), whether they made progress toward their goals (*iM*:  $M = 2.35$ ,  $SD = 0.87$ ; *iSD*:  $M = 0.57$ ,  $SD = 0.32$ ), and how engaged they felt in worthwhile activities (*iM*:  $M = 2.64$ ,  $SD = 0.76$ ; *iSD*:  $M = 0.61$ ,  $SD = 0.30$ ).

Table 2 reports the ICCs for each variable along the diagonal. Activity engagement exhibited the smallest amount of between-person variability, followed by purposefulness, then progress toward life goals. The average daily sense of purpose composite *iM* was 2.54 ( $SD =$

**Table 1**

Multilevel Model Results for Mean-Level Trends for Sense of Purpose and Affect Items with 95% Confidence Intervals [in Brackets].

	Mean-level trend			
	Intercept ( $\beta_{0j}$ )	Time ( $\beta_{1j}$ )	Intercept (SD)	Residual (SD)
<i>Daily (1–4)</i>				
Sense of purpose composite	2.58 [2.50, 2.65]	-0.01 [-0.02, -0.003]	0.65 [0.60, 0.70]	0.51 [0.50, 0.53]
Purposeful	2.69 [2.61, 2.77]	-0.02 [-0.03, -0.01]	0.69 [0.64, 0.75]	0.63 [0.62, 0.65]
Life goals	2.36 [2.27, 2.44]	0.00 [-0.01, 0.01]	0.73 [0.67, 0.79]	0.64 [0.62, 0.65]
Engagement	2.68 [2.61, 2.76]	-0.01 [-0.02, -0.001]	0.63 [0.58, 0.68]	0.66 [0.65, 0.68]
Positive affect composite	2.82 [2.73, 2.91]	-0.02 [-0.03, -0.01]	0.80 [0.74, 0.86]	0.53 [0.52, 0.54]
Negative affect composite	1.60 [1.54, 1.66]	-0.004 [-0.01, 0.001]	0.52 [0.48, 0.57]	0.41 [0.40, 0.42]
Enthusiastic	2.63 [2.52, 2.74]	-0.01 [-0.02, 0.00]	0.88 [0.81, 0.95]	0.82 [0.80, 0.84]
Irritable	1.88 [1.79, 1.96]	-0.01 [-0.02, -0.003]	0.64 [0.58, 0.69]	0.82 [0.80, 0.84]
Peaceful	2.84 [2.73, 2.95]	-0.03 [-0.04, -0.02]	0.91 [0.85, 0.99]	0.80 [0.78, 0.82]
Sad	1.70 [1.61, 1.79]	-0.01 [-0.01, 0.00]	0.73 [0.67, 0.79]	0.72 [0.70, 0.74]

0.76), and showed the least amount of within-person variability, which aligns with it also showing the lowest *iSD* ( $M = 0.46$ ,  $SD = 0.25$ ). Based on the correlations displayed in Table 3, the *iMs* were not associated with the *iSDs* for the sense of purpose composite or the purposeful, life goals, or activity engagement items ( $r$  ranged from -0.12 to 0.02). Thus, one's sense of purpose is on average was not associated with how much their score changes from day to day.

#### 3.3. Within-person variability of sense of purpose versus affect

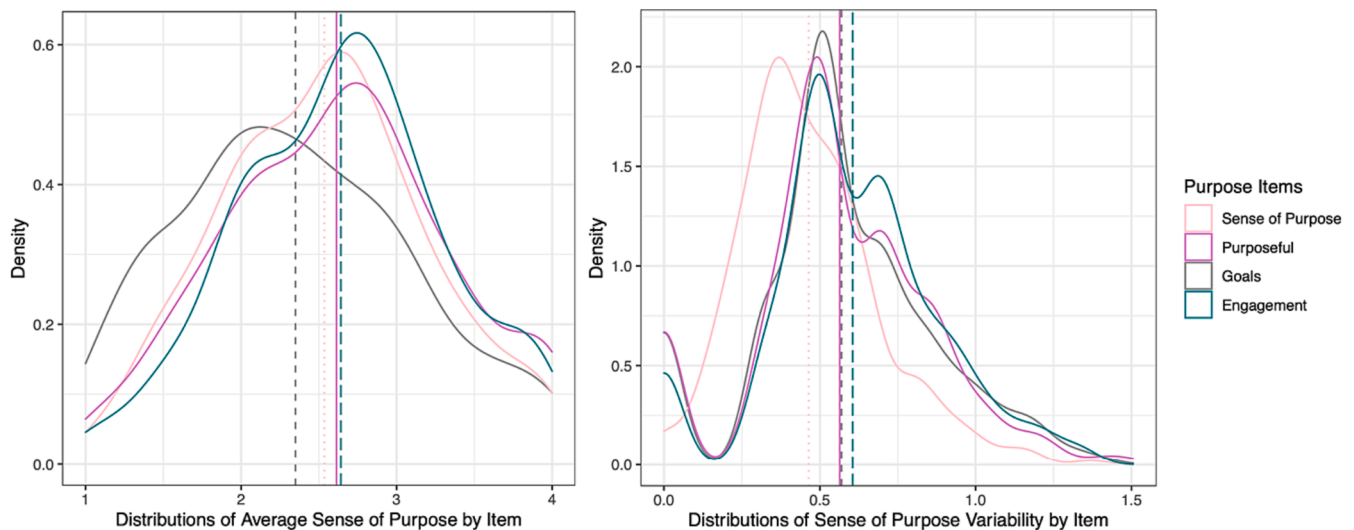
Next, we compared ICCs across constructs. Irritable had the lowest ICC in this dataset ( $ICC = 0.375$ ), followed by activity engagement ( $ICC = 0.473$ ), sad ( $ICC = 0.504$ ), enthusiastic ( $ICC = 0.535$ ), purposeful ( $ICC = 0.544$ ), peaceful ( $ICC = 0.564$ ), life goals ( $ICC = 0.567$ ), the sense of purpose mean ( $ICC = 0.612$ ), the negative affect composite ( $ICC = 0.620$ ), and the positive affect composite ( $ICC = 0.692$ ). As such, all the items had more variability between-person than within-person, except for the irritable and activity engagement items. Furthermore, the three variables with the largest amount of between-person variability were the sense of purpose and affect composites. The sense of purpose composite had less between-person variability than the affect composites, and the individual sense of purpose items had varying degrees of between-person variability relative to the emotion items, with activity engagement showing the least and the life goals item showing the most. The distributions for the *iM* and *iSD* for the purpose composite alongside the emotion items can be found in Fig. 2. Because the sense of purpose items used a rating scale from 1 to 4 and the emotion items used a score from 1 to 5, sense of purpose scores were multiplied by 1.25 to standardize the range of scales across measures.

Next, we compared the associations between the *iM* and *iSD* for the sense of purpose items and emotion items, as well as how much variability on sense of purpose is associated with variability on emotions

**Table 2**  
Between- and Within-Person Correlations and Intraclass Correlation Coefficients for Daily Sense of Purpose and Daily Affect Composites and Items.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Purpose Composite	0.612	0.78 [0.78, 0.79]	0.79 [0.78, 0.80]	0.82 [0.81, 0.83]	0.57 [0.54, 0.59]	-0.20 [-0.23, -0.16]	0.41 [0.38, 0.44]	-0.23 [-0.26, -0.20]	0.26 [0.23, 0.29]	-0.17 [-0.21, -0.14]
2. Purposeful	0.95 [0.94, 0.95]	0.544	0.42 [0.44, 0.49]	0.47 [0.44, 0.49]	0.53 [0.50, 0.55]	-0.22 [-0.25, -0.19]	0.38 [0.35, 0.41]	-0.22 [-0.25, -0.18]	0.25 [0.22, 0.28]	-0.20 [-0.23, -0.16]
3. Life Goals	0.92 [0.91, 0.94]	0.80 [0.76, 0.83]	0.567	0.49 [0.46, 0.51]	0.39 [0.36, 0.42]	-0.14 [-0.18, -0.11]	0.27 [0.24, 0.30]	-0.19 [-0.23, -0.16]	0.18 [0.15, 0.22]	-0.11 [-0.15, -0.08]
4. Engagement	0.93 [0.92, 0.95]	0.86 [0.83, 0.88]	0.78 [0.73, 0.81]	0.473	0.45 [0.42, 0.48]	-0.11 [-0.14, -0.07]	0.34 [0.31, 0.37]	-0.15 [-0.18, -0.11]	0.19 [0.16, 0.23]	-0.10 [-0.14, -0.07]
5. PA Composite	0.82 [0.79, 0.86]	0.83 [0.79, 0.86]	0.76 [0.71, 0.80]	0.72 [0.67, 0.77]	0.692	-0.18 [-0.21, -0.15]	0.74 [0.72, 0.75]	-0.24 [-0.27, -0.21]	0.43 [0.40, 0.45]	-0.23 [-0.26, -0.19]
6. NA Composite	-0.26 [-0.35, -0.16]	-0.23 [-0.33, -0.13]	-0.21 [-0.31, -0.11]	-0.28 [-0.37, -0.18]	-0.15 [-0.25, -0.05]	0.620	-0.19 [-0.22, -0.15]	0.65 [0.63, 0.67]	-0.29 [-0.32, -0.26]	0.49 [0.46, 0.52]
7. Enthusiasm	0.74 [0.69, 0.79]	0.75 [0.70, 0.79]	0.68 [0.62, 0.74]	0.64 [0.58, 0.70]	0.90 [0.88, 0.92]	-0.15 [-0.25, -0.04]	0.535	-0.22 [-0.26, -0.19]	0.36 [0.33, 0.39]	-0.20 [-0.23, -0.17]
8. Irritable	-0.34 [-0.42, -0.24]	-0.30 [-0.39, -0.20]	-0.34 [-0.43, -0.24]	-0.32 [-0.37, -0.18]	-0.25 [-0.35, -0.15]	0.80 [0.76, 0.84]	-0.28 [-0.37, -0.18]	0.375	-0.28 [-0.31, -0.25]	0.32 [0.29, 0.25]
9. Peacefulness	0.68 [0.62, 0.73]	0.67 [0.61, 0.73]	0.65 [0.59, 0.71]	0.58 [0.50, 0.64]	0.80 [0.76, 0.84]	-0.31 [-0.40, -0.21]	0.72 [0.66, 0.76]	-0.39 [-0.48, -0.30]	0.564	-0.21 [-0.25, -0.18]
10. Sadness	-0.28 [-0.37, -0.18]	-0.27 [-0.36, -0.17]	-0.24 [-0.33, -0.14]	-0.28 [-0.37, -0.18]	-0.19 [-0.29, -0.09]	0.80 [0.76, 0.84]	-0.21 [-0.30, -0.10]	0.68 [0.61, 0.73]	-0.31 [-0.40, -0.22]	0.504

Note. Between-person correlations are above the diagonal, within-person correlations are below the diagonal, and intraclass correlation coefficients are reported in the diagonal. All estimates are significant based on an alpha level of 0.05.



**Fig. 1.** Distributions of *iM* and *iSD* for Sense of Purpose Composite, Purposefulness, Life Goals, and Engagement with Vertical Lines Representing Mean Scores for Respective Variable.

(see Table 2). Average daily sense of purpose was not associated with sense of purpose variability for the individual sense of purpose items or the sense of purpose composite ( $r$  ranges from -0.12 to 0.02). This same pattern held for the positive affect mean and the peaceful item, while enthusiastic showed a very small, but positive association between its *iM* and *iSD*. Meanwhile, negative affect, irritable, and sad all showed very strong *iM-iSD* associations, indicating that people who generally scored higher on these negative emotions had more variability in their experiences of these emotions. Thus, sense of purpose appeared to have a similar pattern of no association between level and variability to the positive emotion items, rather than the strong positive association found

for the negative emotion items.

Table 3 displays the associations between the sense of purpose and affect *iSDs*. There was a strong to very strong association between greater variability in sense of and greater variability in positive affect, enthusiastic, and peaceful ( $r$  ranged 0.38 to 0.66). Though the associations were weaker, sense of purpose variability also showed a positive association with irritable variability, negative affect composite variability, and sad variability ( $r$  ranged from 0.23 to 0.28). These correlations indicate that people who were more variable on sense of purpose were more variable on all emotions, though these associations were stronger for emotions with a positive valence.

**Table 3**  
Zero-Order Correlations for Age, Dispositional Sense of Purpose, Daily Sense of Purpose and Affect Composite and Items.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
1. Age	–																					
2. Ryff	0.05 [–0.04, 0.14]	–																				
3. Scheier	0.08 [–0.02, 0.17]	0.79 [0.76, 0.82]	–																			
4. Purp Mean iM	0.20 [0.09, 0.30]	0.48 [0.41, 0.54]	0.53 [0.44, 0.60]	–																		
5. Purposeful iM	0.24 [0.13, 0.34]	0.45 [0.38, 0.52]	0.50 [0.42, 0.57]	0.95 [0.94, 0.96]	–																	
6. Goals iM	0.07 [–0.03, 0.17]	0.45 [0.38, 0.52]	0.50 [0.42, 0.50]	0.92 [0.90, 0.95]	0.80 [0.75, 0.84]	–																
7. Engage iM	0.26 [0.15, 0.36]	0.43 [0.35, 0.50]	0.47 [0.38, 0.55]	0.93 [0.92, 0.95]	0.86 [0.83, 0.89]	0.78 [0.72, 0.82]	–															
8. PA iM	0.17 [0.07, 0.27]	0.44 [0.35, 0.51]	0.50 [0.43, 0.57]	0.82 [0.78, 0.86]	0.83 [0.79, 0.86]	0.76 [0.70, 0.80]	0.72 [0.66, 0.77]	–														
9. NA iM	–0.19 [–0.27, –0.10]	–0.38 [–0.47, –0.27]	–0.36 [–0.45, –0.26]	–0.26 [–0.34, –0.16]	–0.23 [–0.33, –0.13]	–0.21 [–0.30, –0.13]	–0.28 [–0.36, –0.19]	–														
10. Enthusiasm iM	0.09 [0.00, 0.21]	0.40 [0.30, 0.48]	0.46 [0.38, 0.53]	0.74 [0.68, 0.80]	0.75 [0.69, 0.80]	0.68 [0.61, 0.75]	0.64 [0.56, 0.72]	0.90 [0.87, 0.93]	–0.15 [–0.25, –0.03]	–												
11. Irritable iM	–0.12 [–0.22, –0.02]	–0.36 [–0.45, –0.26]	–0.37 [–0.45, –0.28]	–0.34 [–0.42, –0.24]	–0.30 [–0.40, –0.19]	–0.34 [–0.41, –0.24]	–0.32 [–0.39, –0.22]	–0.25 [–0.35, –0.13]	0.80 [0.75, 0.85]	–0.28 [–0.38, –0.16]	–											
12. Peaceful iM	0.11 [0.01, 0.21]	0.37 [0.29, 0.45]	0.45 [0.37, 0.52]	0.68 [0.61, 0.74]	0.67 [0.61, 0.72]	0.65 [0.57, 0.72]	0.58 [0.49, 0.64]	0.80 [0.76, 0.84]	–0.31 [–0.40, –0.20]	0.72 [0.65, 0.77]	–0.39 [–0.48, –0.29]	–										
13. Sad iM	0.00 [–0.11, 0.11]	–0.37 [–0.46, –0.28]	–0.39 [–0.49, –0.30]	–0.28 [–0.37, –0.18]	–0.27 [–0.37, –0.16]	–0.24 [–0.33, –0.15]	–0.04 [–0.18, –0.10]	–0.02 [–0.29, 0.85]	0.10 [0.75, 0.85]	0.01 [–0.30, –0.10]	0.68 [0.60, 0.74]	–0.31 [–0.40, –0.21]	–									
14. Purp Mean iSD	–0.10 [–0.20, 0.00]	–0.04 [–0.16, 0.07]	0.00 [–0.12, 0.10]	–0.05 [–0.15, 0.06]	–0.03 [–0.13, 0.07]	–0.06 [–0.16, 0.04]	–0.04 [–0.15, 0.07]	–0.02 [–0.13, 0.09]	0.10 [0.00, 0.20]	0.01 [–0.10, 0.11]	0.11 [0.01, 0.20]	–0.06 [–0.15, 0.04]	0.06 [–0.03, 0.17]	–								
15. Purposeful iSD	–0.09 [–0.20, 0.02]	–0.05 [–0.16, 0.04]	–0.03 [–0.13, 0.06]	–0.15 [–0.27, –0.03]	–0.12 [–0.24, 0.00]	–0.17 [–0.29, –0.06]	–0.12 [–0.24, 0.00]	–0.11 [–0.22, 0.00]	0.11 [0.00, 0.23]	–0.11 [–0.23, 0.02]	0.11 [0.01, 0.21]	0.12 [–0.22, 0.00]	0.06 [–0.01, 0.20]	0.79 [0.74, 0.81]	–							
16. Goals iSD	–0.06 [–0.15, 0.03]	–0.09 [–0.22, 0.01]	0.00 [–0.11, 0.11]	0.02 [–0.08, 0.13]	0.04 [–0.05, 0.15]	0.02 [–0.09, 0.13]	0.00 [–0.10, 0.11]	0.04 [–0.08, 0.16]	0.15 [0.04, 0.26]	0.09 [–0.02, 0.19]	0.10 [0.00, 0.21]	0.00 [–0.10, 0.11]	0.12 [0.02, 0.22]	0.76 [0.71, 0.81]	0.48 [0.37, 0.58]	–						
17. Engage iSD	–0.11 [–0.21, –0.01]	–0.06 [–0.19, 0.05]	0.03 [–0.08, 0.14]	–0.08 [–0.20, 0.05]	–0.03 [–0.15, 0.02]	–0.10 [–0.22, 0.09]	–0.08 [–0.20, 0.04]	0.01 [–0.12, 0.14]	0.17 [0.07, 0.28]	0.03 [–0.09, 0.14]	0.14 [0.04, 0.25]	0.03 [–0.09, 0.14]	0.14 [0.04, 0.25]	0.79 [0.74, 0.83]	0.56 [0.45, 0.66]	0.57 [0.47, 0.65]	–					
18. PA iSD	–0.12 [–0.21, –0.02]	0.01 [–0.11, 0.12]	0.05 [–0.06, 0.17]	–0.07 [–0.18, 0.03]	–0.07 [–0.17, 0.03]	–0.06 [–0.16, 0.05]	–0.07 [–0.17, 0.02]	0.02 [–0.09, 0.13]	0.10 [0.00, 0.20]	0.07 [–0.04, 0.19]	0.08 [–0.01, 0.18]	–0.07 [–0.17, 0.04]	0.07 [–0.05, 0.19]	0.66 [0.57, 0.73]	0.58 [0.51, 0.65]	0.50 [0.41, 0.58]	0.50 [0.42, 0.58]	–				

(continued on next page)

Table 3 (continued)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.				
19. NA iSD	-0.18 [-0.27, 0.01]	-0.32 [-0.41, -0.23]	-0.29 [-0.39, -0.18]	-0.29 [-0.37, -0.20]	-0.29 [-0.37, -0.20]	-0.26 [-0.33, -0.18]	-0.28 [-0.37, -0.18]	-0.22 [-0.31, -0.13]	0.61 [0.53, 0.68]	-0.19 [-0.28, -0.09]	0.54 [0.47, 0.60]	-0.34 [-0.41, -0.26]	0.49 [0.41, 0.57]	0.27 [0.16, 0.37]	0.29 [0.18, 0.38]	0.22 [0.11, 0.32]	0.24 [0.14, 0.33]	0.30 [0.20, 0.39]	-	-	-	-	-			
20. Enthusiasm iSD	-0.13 [-0.21, 0.01]	-0.11 [-0.11, 0.13]	-0.06 [-0.06, 0.17]	0.07 [-0.05, 0.19]	0.09 [-0.03, 0.21]	0.05 [-0.07, 0.17]	0.05 [-0.07, 0.17]	0.15 [0.02, 0.30]	0.13 [0.01, 0.25]	0.18 [0.05, 0.33]	0.06 [-0.05, 0.17]	0.06 [-0.05, 0.17]	0.08 [-0.02, 0.19]	0.45 [0.33, 0.53]	0.41 [0.29, 0.51]	0.37 [0.25, 0.46]	0.40 [0.27, 0.50]	0.67 [0.58, 0.73]	0.22 [0.09, 0.34]	-	-	-	-	-		
21. Irritable iSD	-0.18 [-0.29, -0.06]	-0.32 [-0.41, -0.24]	-0.30 [-0.38, -0.21]	-0.35 [-0.43, -0.25]	-0.31 [-0.41, -0.21]	-0.33 [-0.41, -0.23]	-0.33 [-0.41, -0.23]	-0.26 [-0.35, -0.14]	0.50 [0.42, 0.58]	-0.28 [-0.38, -0.18]	0.67 [0.61, 0.73]	-0.34 [-0.42, -0.26]	0.40 [0.31, 0.47]	0.29 [0.20, 0.38]	0.34 [0.24, 0.42]	0.20 [0.10, 0.31]	0.28 [0.19, 0.37]	0.30 [0.21, 0.39]	0.70 [0.65, 0.75]	0.24 [0.11, 0.35]	-	-	-	-	-	
22. Peaceful iSD	-0.21 [-0.21, 0.01]	-0.19 [-0.19, 0.06]	-0.13 [-0.13, 0.10]	-0.19 [-0.19, 0.05]	-0.04 [-0.16, 0.09]	-0.08 [-0.19, 0.04]	-0.09 [-0.20, 0.03]	-0.09 [-0.20, 0.03]	0.16 [0.03, 0.27]	-0.01 [-0.15, 0.13]	0.15 [0.02, 0.26]	-0.01 [-0.12, 0.10]	0.12 [0.02, 0.21]	0.38 [0.27, 0.48]	0.34 [0.23, 0.44]	0.37 [0.27, 0.47]	0.45 [0.35, 0.54]	0.39 [0.30, 0.49]	0.26 [0.15, 0.36]	0.35 [0.23, 0.47]	0.35 [0.23, 0.47]	0.27 [0.16, 0.38]	-	-	-	
23. Sad iSD	-0.09 [-0.18, 0.09]	-0.32 [-0.15, -0.23]	-0.33 [-0.43, -0.24]	-0.29 [-0.37, -0.20]	-0.26 [-0.36, -0.17]	-0.26 [-0.36, -0.17]	-0.27 [-0.36, -0.18]	-0.21 [-0.30, -0.13]	0.58 [0.50, 0.66]	-0.21 [-0.29, -0.11]	0.53 [0.45, 0.59]	-0.32 [-0.40, -0.23]	0.67 [0.60, 0.73]	0.23 [0.12, 0.33]	0.26 [0.16, 0.36]	0.26 [0.16, 0.36]	0.23 [0.13, 0.33]	0.23 [0.13, 0.33]	0.29 [0.18, 0.39]	0.67 [0.61, 0.72]	0.24 [0.11, 0.36]	0.56 [0.48, 0.64]	0.31 [0.20, 0.41]	-	-	-

3.4. Between-person predictors of sense of purpose variability

The next set of analyses addressed whether dispositional sense of purpose or age predicted sense of purpose variability. Regarding dispositional sense of purpose and the purpose *iMs*, there were strong positive associations between dispositional sense of purpose and the average daily sense of purpose composite (see Table 3). Furthermore, dispositional sense of purpose was not associated with variability in the sense of purpose composite. When accounting for the purpose *iM*, there still was not an association between dispositional sense of purpose and the purpose *iSD* ( $r = 0.01$ ,  $[-0.10, 0.11]$ ). Finally, based on multiple regression analyses displayed in Table 4, higher dispositional purpose did not predict sense of purpose variability.

As seen in Table 3, age was positively associated with the *iM* for the sense of purpose composite, the purposeful item, and the engagement item, but was not associated with the life goals item. Additionally, higher age was associated with slightly less variability for the engagement item, but it was not associated with the *iSD* for the sense of purpose composite, the purposeful item, or the life goals item. When partialling out the *iM* of the sense of purpose composite, there was also no association between age and the sense of purpose *iSD* ( $r = -0.06$   $[-0.16, 0.05]$ ). Finally, a series of multiple regressions were conducted to evaluate whether age linearly and/or curvilinearly predicted sense of purpose variability when excluding and including an individual's sense of purpose *iM* (see Table 5). The findings were consistent across the different sense of purpose *iSD*, so we will describe the sense of purpose composite for parsimony. Age did not predict greater daily sense of purpose variability regardless of whether the sense of purpose *iM* was included or the quadratic term. Furthermore, there was no quadratic effect of age on sense of purpose variability, and the *iM* for sense of purpose did not predict sense of purpose variability. Thus, age was not associated with sense of purpose variability, and the lack of association between age and variability was consistent across the adult lifespan.

4. Discussion

The current study considered whether and for whom sense of purpose varies within an individual. First, within-person variability was consistently higher for individual sense of purpose items than for the sense of purpose composite. Second, the distribution of variability in sense of purpose was similar to positive and negative affect, and people who were more variable in sense of purpose also reported experiencing greater variability in affect. These associations were stronger for sense of purpose and positive affect than negative affect. Third, neither age nor dispositional sense of purpose predicted within-person variability in the individual items or in the sense of purpose composite. In sum, these findings provide advances to our understanding of how sense of purpose fluctuates at the daily level, and we expand on these points below regarding implications for measurement.

4.1. Considering differences in item content

Sense of purpose items may evidence more within-person variability because certain components of sense of purpose may fluctuate more than others. Namely, the amount of within-person variability exhibited in sense of purpose could depend on whether the items assessing it emphasizes purposeful thoughts, feelings, or behaviors. For instance, people may be relatively stable in the perception that their lives are purposeful even though they may be fluctuating in their feelings of purposefulness. This speculation aligns with theoretical frameworks on changing purpose that emphasize feeling purposeful is likely the most ephemeral element of experiencing purpose (Hill et al., 2023).

It is worth noting that the activities and behaviors one can engage with on a given day may not fully be in their control. Thus, more behavioral components of sense of purpose may show greater within-person variability than affective or cognitive indicators, because

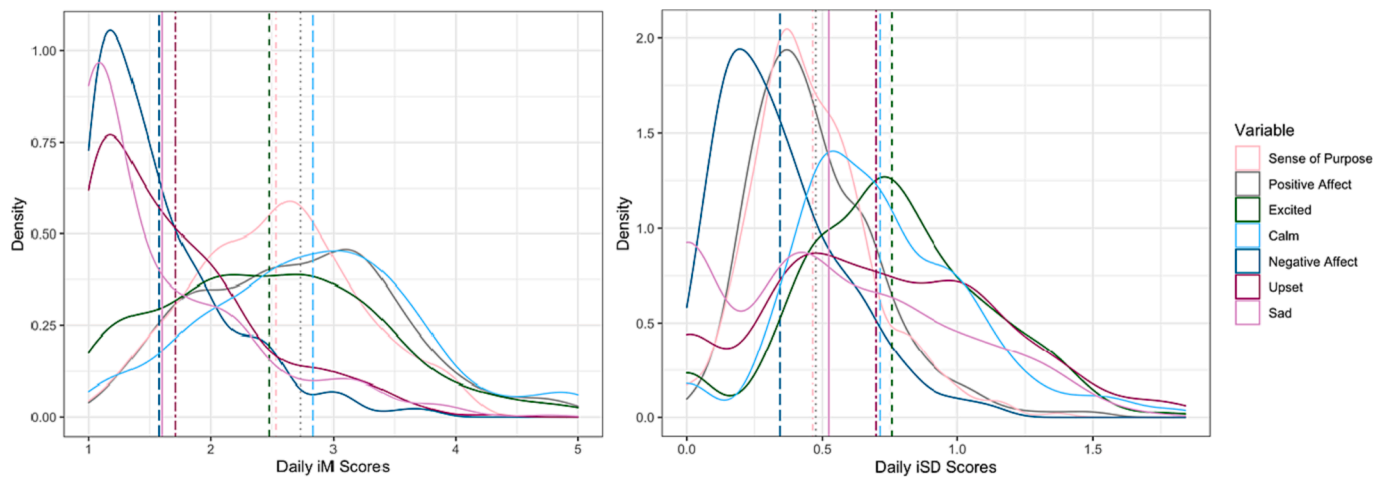


Fig. 2. Distributions of iM and iSD for Daily Sense of Purpose and Affect Composites and Individual Items with Vertical Lines Representing Mean Scores for Respective Variable.

**Table 4**  
Centered Dispositional Sense of Purpose Predicting iSD for Daily Sense of Purpose Composites and Items with and without Accounting for Respective iM with 95% Confidence Intervals [in Brackets].

	Ryff (1989) Measure		Scheier et al. (2006) Measure	
<b>Predicting Sense of Purpose iSD</b>				
Intercept	0.46 [0.44, 0.49]	0.46 [0.44, 0.49]	0.46 [0.44, 0.49]	0.49 [0.44, 0.49]
Dispositional Purpose	-0.01 [-0.03, 0.02]	-0.004 [-0.03, 0.02]	0.00 [-0.02, 0.02]	0.01 [-0.02, 0.03]
Sense of Purpose iM	-	-0.01 [-0.04, 0.02]	-	-0.01 [-0.04, 0.01]
<b>Predicting Purposefulness iSD</b>				
Intercept	0.56 [0.53, 0.59]	0.56 [0.53, 0.59]	0.56 [0.53, 0.59]	0.56 [0.51, 0.80]
Dispositional Purpose	-0.02 [-0.05, 0.01]	0.00 [-0.03, 0.03]	-0.01 [-0.04, 0.02]	0.01 [-0.02, 0.05]
Purposefulness iM	-	-0.04 [-0.07, -0.001]	-	-0.04 [-0.08, -0.01]
<b>Predicting Life Goals iSD</b>				
Intercept	0.57 [0.54, 0.60]	0.57 [0.54, 0.60]	0.57 [0.54, 0.60]	0.56 [0.41, 0.70]
Dispositional Purpose	-0.03 [-0.06, 0.003]	-0.04 [-0.07, 0.003]	0.00 [-0.03, 0.03]	0.00 [-0.04, 0.04]
Life Goals iM	-	0.02 [-0.01, 0.06]	-	0.01 [-0.03, 0.04]
<b>Predicting Activity Engagement iSD</b>				
Intercept	0.60 [0.58, 0.63]	0.60 [0.58, 0.63]	0.60 [0.57, 0.63]	0.60 [0.57, 0.63]
Dispositional Purpose	-0.02 [-0.04, 0.01]	-0.01 [-0.04, 0.02]	0.01 [-0.02, 0.04]	0.02 [-0.01, 0.06]
Activity Engagement iM	-	-0.02 [-0.05, 0.01]	-	-0.03 [-0.06, 0.002]

personal thoughts and feelings are more controllable. As such, future research would benefit from measuring sense of purpose with all three items used in the current study to ensure a more holistic representation

of the affective, behavioral, and cognitive components of this construct in daily life. Additionally, future research should test these predictions by examining whether behavioral indicators of purpose are more or less variable based on the feasibility of enacting purposeful behaviors, and if such actions are supported by the environment (see Burrow et al., 2021).

#### 4.2. Associations between average levels and variability

Next, it is worth noting that correlations between average level and variability for sense of purpose were generally more consistent with findings for positive affect than negative affect. Namely, sense of purpose levels were unassociated with within-person variability in purpose over days. This divergence may reflect the differences in the meaning of variability in the two affect constructs. Negative affect variability is often considered maladaptive given its associations with negative mental, physical, and psychiatric outcomes (Brose et al., 2012; Jenkins et al., 2018; Ringwald & Wright, 2022). Meanwhile, implications for greater variability in positive affect is more mixed (Charles & Pasupathi, 2003; Gruber et al., 2013; Rast et al., 2012; Hedeker et al., 2008; Hisler et al., 2020; Leger et al., 2019). These fluctuations may represent the changes of a positive emotion being present then absent, not the replacement of a positive emotion with a negative one. While low levels of dispositional sense of purpose are tied to concerning clinical symptomatology (Heisel & Flett, 2004; Irving et al., 2017; Kim et al., 2013), low levels of state purposefulness may represent an absence of feeling purposeful, not a presence of feeling purposeless, a rising distinction in the purpose literature (Pfund et al., in press).

When considering the connection between average sense of purpose and sense of purpose variability, past research on personality traits emphasizes how one's trait levels plays a role in the situations into which an individual selects (Buss, 1987; Matz & Harari, 2021; Scarr, 1996), as well as how an individual perceives the situations before them (Rauthmann et al., 2014). This work highlights a couple reasons why one may anticipate that a higher dispositional sense of purpose would predict less sense of purpose variability. First, research on traits and situation selection would suggest that purposeful people are more likely to select into environments that would continue to bolster their sense of purpose. Second, research on traits and situation perception would indicate that people with a higher sense of purpose may also perceive the situations they are in as more purposeful. As such, people who are dispositionally more purposeful would, in turn, experience less variability in short-term sense of purpose because of where they choose to be and how they perceive where they are. However, average daily purpose was not associated with generally scoring more steadily on daily purpose. These findings may suggest having higher trait-level sense of purpose



**Table 5**

Linear and Quadratic Age Predicting Individual Standard Deviations (iSD) for Daily Sense of Purpose with and without Accounting for Respective Daily Averages (iM) with 95% Confidence Intervals [in Brackets].

	Model 1	Model 2	Model 3
<b>Predicting Sense of Purpose iSD</b>			
Intercept	0.46 [0.44, 0.49]	0.48 [0.44, 0.49]	0.48 [0.45, 0.51]
Linear Age	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]
Sense of Purpose iM	–	–	–0.01 [–0.03, 0.02]
Quadratic Age	–	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]
<b>Predicting Purposefulness iSD</b>			
Intercept	0.56 [0.53, 0.60]	0.58 [0.52, 0.61]	0.58 [0.54, 0.62]
Linear Age	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]
Purposefulness iM	–	–	–0.03 [–0.06, 0.00]
Quadratic Age	–	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]
<b>Predicting Life Goals iSD</b>			
Intercept	0.56 [0.53, 0.60]	0.57 [0.54, 0.60]	0.57 [0.52, 0.61]
Linear Age	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]
Life Goals iM	–	–	0.01 [–0.02, 0.04]
Quadratic Age	–	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]
<b>Predicting Engagement iSD</b>			
Intercept	0.60 [0.57, 0.63]	0.63 [0.59, 0.66]	0.63 [0.59, 0.66]
Linear Age	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]
Engagement iM	–	–	–0.01 [–0.04, 0.02]
Quadratic Age	–	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]

does not buffer the influences one's daily life may have on their experiences of state-level sense of purpose.

#### 4.3. A lifespan developmental perspective on sense of purpose variability

The final aspect of this study focused on whether age predicted daily sense of purpose and its variability. Sense of purpose typically increases during younger adulthood, reaches its peak in middle-aged adulthood, and decreases during older adulthood (Ko et al., 2016; Mann et al., 2019). In the current study, age was positively associated with higher average levels of the sense of purpose composite, purposeful item, and activity engagement item, but age was not associated with the life goals item. While these positive associations seem to run counter to past findings, it is important to note that the oldest participants in the current sample were 74, and mean-level declines in age may occur even later on in older adulthood (Hedberg et al., 2011). Furthermore, age was not associated with either dispositional sense of purpose measure.

Past longitudinal research has found a quadratic association between age and rank order stability in sense of purpose, wherein individuals' sense of purpose level were more likely to change relative to their same age peers toward the beginning and the end of the adult lifespan (Mann et al., 2019). However, past work has typically found greater within-person variability in adolescent relative to older adult samples (e.g., Pfund et al., 2022; Ratner et al., 2023). In the current study though, implementing a micro-longitudinal approach to stability, findings were mixed regarding whether age may play a role in within-person variability in sense of purpose. Age was not associated with greater variability in the sense of purpose composite or individual items. Thus, these

findings would suggest that variability in daily reports on how purposeful one feels, the extent to which one feels that they made progress toward their life goals, and how much one feels that they engaged in personally meaningful activities did not differ depending on where one is in the adult lifespan.

Given that age may be a poor proxy for understanding when and why variability occurs, future research may wish to consider how developmental experiences and new roles that could lead to changes in daily life, and, in turn, greater sense of purpose variability. For instance, past work has suggested that correlates of daily purpose may differ for those in different working statuses (Pfund et al., 2022). While this research did not focus on variability specifically, the findings highlight the importance of considering differences in roles when evaluating sense of purpose in a daily context. Focusing on the before and after of life transitions, whether that be starting university, having a child, or retiring, may be a better method of understanding who and why people exhibit sense of purpose variability.

#### 4.4. Limitations and future directions

These findings are worth considering in the context of study limitations. First, the current study only assessed sense of purpose at the daily level. To better understand the short-term fluctuations in sense of purpose, future research would benefit from evaluating it in shorter time metrics as well. Second, the number of measurement occasions influences the amount of variability an individual exhibits, and the accuracy of these within-person measurements (Estabrook, Grimm, & Bowles, 2013). Future research should utilize a larger number of measurement occasions for better assurance in the accuracy of participants' iSDs. Third, the data were collected during the COVID-19 pandemic, and the participants in the current sample were majority white and all residing in the United States. Both concerns limit the generalizability of the current findings.

Despite these limitations, this project sets the foundation for two exciting research opportunities pertaining to within-person sense of purpose variability. First, understanding the short-term processes of a construct can aid in our comprehension of long-term change (Bleidorn et al., 2020). Future research would benefit from combining longitudinal and intensive longitudinal methodology to investigate whether patterns in within-person processes predict later long-term sense of purpose trajectories. Using measurement burst designs allows for the exploration of whether individuals are personally consistent in how much or how little within-person variability in sense of purpose they are exhibiting over time. These methods would also allow us to evaluate if people who are experiencing greater within-person variability are showing trait-level change in sense of purpose over time as well. These steps would help elucidate whether short-term sense of purpose variability does, in fact, precede long-term change.

Second, future research can capitalize on knowing when sense of purpose varies and what catalyzes that variability to help bolster sense of purpose. Some interventions have focused on increasing psychological well-being more broadly by attending educational courses and engaging in at home practices focused on promoting life engagement and overcoming negative events (Friedman et al., 2017; Friedman et al., 2019). However, these studies did not include control groups to account for the unique effects of experiencing the intervention itself. Other studies have manipulated sense of purpose in the short-term changes via brief writing interventions (Burrow & Hill, 2013; Burrow et al., 2016). These efforts were successful in momentarily changing sense of purpose. However, future research should evaluate the effectiveness of interventions for long-term change in this construct, building from past suggestion that the likelihood of state variability leading to trait changes becomes greater when paired with reflection and repetition (Quintus et al., 2021; Wrzus & Roberts, 2017).

#### 4.5. Conclusion

The current study advances our understanding of how to measure and capture short-term processes in sense of purpose. Paired with past work (e.g., Kashdan & McKnight, 2013; Kiang, 2012; Machell et al., 2015; Ratner et al., 2023), evidence continues to mount for significant short-term variability in sense of purpose. Opportunities abound for future research to build from these findings on variability, both with respect to how to aid in the maintenance or enhancement of sense of purpose, and for getting a better grasp on why these fluctuations are occurring.

#### 5. Author Note

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#### CRediT authorship contribution statement

**Gabrielle N. Pfund:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. **Anthony L. Burrow:** Conceptualization, Methodology, Supervision, Writing – review & editing. **Patrick L. Hill:** Conceptualization, Funding acquisition, Methodology, Supervision, Writing – review & editing.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Data availability

Data will be made available on request.

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