UC Berkeley
UC Berkeley Previously Published Works

Title
Understanding Short-Term Variability in Life Satisfaction: The Individual Differences in Evaluating Life Satisfaction (IDELS) Model

Permalink
https://escholarship.org/uc/item/6756s57x

Journal
Journal of Personality and Social Psychology, 119(1)

ISSN
0022-3514

Authors
Willroth, Emily C
John, Oliver P
Biesanz, Jeremy C
et al.

Publication Date
2020-07-01

DOI
10.1037/pspp0000261

Peer reviewed

Understanding Short-Term Variability in Life Satisfaction: The Individual Differences in Evaluating Life Satisfaction (IDELS) Model

Emily C. Willroth, Oliver P. John, Jeremy C. Biesanz, and Iris B. Mauss

Understanding Short-Term Variability in Life Satisfaction: The Individual Differences in Evaluating Life Satisfaction (IDELS) Model

Emily C. Willroth and Oliver P. John
University of California, Berkeley

Jeremy C. Biesanz
University of British Columbia

Iris B. Mauss
University of California, Berkeley

Daily life is full of emotional ups and downs. In contrast, the objective conditions of our lives usually remain relatively stable from day to day. The degree to which emotional ups and downs influence life satisfaction—which *prima facie* should be relatively stable—remains a puzzle. In the present article, we propose the Individual Differences in Evaluating Life Satisfaction (IDELS) model to address this puzzle. The IDELS model posits that people differ in the processes by which they evaluate their life satisfaction: Some people's life satisfaction is more strongly associated with their current emotions (i.e., "emotion globalizing") whereas other people maintain a filter between their life satisfaction and current emotions. These individual differences should have important implications for the degree of short-term variability in life satisfaction and, in turn, for psychological health. In 3 diverse samples of women (total $N = 536$), we assessed life satisfaction and emotions daily or multiple times per day for 2 weeks. We tested 4 hypotheses derived from the IDELS model. First, participants differed substantially in the degree of short-term variability in life satisfaction, and these individual differences were moderately stable. Second, participants differed substantially in emotion globalizing, and these individual differences were moderately stable. Third, higher emotion globalizing predicted greater short-term variability in life satisfaction. Fourth, greater short-term variability in life satisfaction was associated with a maladaptive profile of greater neuroticism and worse psychological health. We discuss implications for life satisfaction theory and measurement.

Keywords: within-person variability, life satisfaction, psychological health, subjective well-being

Daily life is full of emotional ups and downs. In contrast, the objective conditions of our lives usually remain relatively stable from day to day. The degree to which transient emotional ups and downs influence life satisfaction—which *prima facie* should be relatively stable—remains a puzzle. An enjoyable outing with friends may be followed by a long and frustrating commute home. How do these transient ups and downs relate to people's global

sense of how good their life is? We argue that individuals differ in the relationship between their transient feelings and their life satisfaction. For some people, momentary ups and downs are tightly linked with life satisfaction. For these people, feelings of joy and excitement during an outing with friends lead to a life satisfaction boost (e.g., "My life is great! It's so full of joy and excitement"). Later, their boredom and frustration while sitting in traffic leads to a life satisfaction dip (e.g., "My life is terrible! It's nothing but frustration and boredom"). In contrast, other people maintain a filter between their life satisfaction and current emotions and, as a result, have relatively stable life satisfaction. In the present article, we propose the Individual Differences in Evaluating Life Satisfaction (IDELS) model to explain these phenomena (see Table 1 for model propositions and hypotheses derived from the model).

Propositions 1 and 2 of the IDELS model integrate the existing literature on how people evaluate life satisfaction. These propositions describe the processes (Proposition 1) and sources of information (Proposition 2) people use to evaluate their life satisfaction. Proposition 3 of the IDELS model extends this understanding by suggesting that people differ substantially and reliably in these processes and in reliance on these information sources. We begin by explicating the three propositions that underlie our model and by deriving four hypotheses. Then, we review existing empirical evidence that speaks to these hypotheses. Finally, we provide an empirical test of these hypotheses in three female samples.

Emily C. Willroth and Oliver P. John, Department of Psychology, University of California, Berkeley; Jeremy C. Biesanz, Department of Psychology, University of British Columbia; Iris B. Mauss, Department of Psychology, University of California, Berkeley.

Correspondence concerning this article should be addressed to Emily C. Willroth, Department of Psychology, University of California, Berkeley, 2121 Berkeley Way West, Berkeley, CA 94710. E-mail: ecwillroth@berkeley.edu

Table 1

Individual Differences in Evaluating Life Satisfaction Model

Model propositions
Proposition 1: People evaluate their life satisfaction using a combination of constructivist (i.e., constructed from temporarily accessible information) and direct-retrieval (i.e., retrieved directly from memory) processes.
Proposition 2: Current emotions serve as sources of information about one's life satisfaction.
Proposition 3: Individuals differ substantially and reliably in the weighing of current emotions relative to more stable sources of information when evaluating their life satisfaction.

Model hypotheses
Hypothesis 1: Individual differences in short-term variability in life satisfaction should be substantial and moderately stable across time.
Hypothesis 2: Individual differences in the strength of the association between life satisfaction and current emotions (i.e., emotion globalizing) should be substantial and moderately stable across time.
Hypothesis 3: Greater emotion globalizing should be associated with greater short-term variability in life satisfaction.
Hypothesis 4: Greater short-term variability in life satisfaction should be associated with a maladaptive profile of greater neuroticism and worse psychological health.

The IDELS Model

How do people evaluate their life satisfaction? A large body of research has sought to answer this question. This research has produced important insights into the processes by which people, in general and on average, evaluate their life satisfaction (see Robinson & Klein, 2018, for a review). Pioneering contributions specify two heuristic processes. Constructivist models suggest that people do not have a stable concept of life satisfaction; instead, they rely on temporarily accessible pieces of information, such as current emotions, to evaluate their life satisfaction (e.g., Schwarz & Clore, 1983; Schwarz & Strack, 1999). In contrast, direct-retrieval models argue that people directly retrieve their life satisfaction from memory in the same way that they retrieve other stable, chronically accessible pieces of information about the self, such as food preferences (e.g., Eid & Diener, 2004; Fazio, 1995; Schimmack, Diener, & Oishi, 2002).

Recent empirical evidence largely does not support a purely constructivist model (see Yap et al., 2017). Indeed, up to 50% of individual differences in life satisfaction are genetically determined (Lykken & Tellegen, 1996) and life satisfaction has retest correlations of .50 across 5–12 years (Costa et al., 1987; Fujita & Diener, 2005); constructivist models cannot account for this stability. However, some evidence is also at odds with direct-retrieval models. Approximately 30% of the variance in life satisfaction cannot be explained by stable individual differences or long-lasting changes in life satisfaction (Lucas & Donnellan, 2007) and up to 18% of the variance in life satisfaction varies from day to day (Heller, Watson, & Ilies, 2004); direct-retrieval models cannot account for this variability. Are we to conclude that both models are wrong? Instead, Proposition 1 of the IDELS model integrates these two models and posits that both are partially right but to different degrees for different people: People evaluate their life satisfaction using a combination of constructivist and direct-retrieval processes.

What types of information feed into life satisfaction evaluation? One key source of information that has received much theoretical and empirical attention is people's current emotions. Positive emotions serve as a signal that one's life is going well, and negative emotions serve as a signal that one's life is not going well. Indeed, people who report consistently higher levels of positive emotions have higher life satisfaction and people who report consistently higher levels of negative emotions have lower life satisfaction (Diener, Suh, Lucas, & Smith, 1999). Furthermore, qualitative evidence (Gadermann & Zumbo, 2007; Ross, Eyman, & Kishchuk, 1986) suggests that current emotions also influence life satisfaction. Thus, Proposition 2 of the IDELS model posits that current positive and negative emotions serve as sources of information about one's life satisfaction, at least for some people.

Empirical evidence suggests that on average, the association between current emotions and global life satisfaction in daily life is small (Eid & Diener, 2004; Jayawickreme, Tsukayama, & Kashdan, 2017). The third proposition of the IDELS model provides an explanation for this small average effect. Proposition 3 posits that individuals differ substantially and reliably in the weighing of current emotions relative to more stable sources of information when evaluating their life satisfaction. Some people rely more heavily on current emotions, whereas others discount or ignore current emotions. We refer to these differences as individual differences in *emotion globalizing*.

Imagine two women who are moderately satisfied with their lives. Both enjoy an outing with friends and both experience the same level of joy about this event. Woman A becomes more satisfied with her life in response to the positive emotions she is experiencing. We call the experience of Woman A positive emotion globalizing (i.e., a stronger association between life satisfaction and current positive emotions). Likewise, if Woman A experienced frustration and boredom in response to the long commute home, she may become dissatisfied with her life and we would call this negative emotion globalizing (i.e., a stronger association between life satisfaction and current negative emotions). In contrast, Woman B (a low emotion globalizer) remains equally satisfied with her life in both situations.

In summary, Propositions 1 and 2 of the IDELS model describe the processes that people use to evaluate their life satisfaction, and Proposition 3 offers new insights about how individuals differ in the processes by which they evaluate their life satisfaction.

Four Hypotheses Derived From the IDELS Model

Four testable hypotheses follow from the IDELS model (see Table 1). These four hypotheses were preregistered for the two

undergraduate samples used in the present research (see Table 2 for descriptions of preregistrations). First, individual differences in short-term (day-to-day and within-day) variability in life satisfaction should be substantial (Hypothesis 1). More specifically, we hypothesized that short-term variability in life satisfaction would account for at least 10% of the total variance in life satisfaction. Constructivist processes should lead to greater short-term variability whereas direct-retrieval processes should lead to less short-term variability. Thus, if individuals differ in the relative contribution of these two processes, they should also differ in their degree of

Table 2

Relationships Between Analyses and Preregistrations

OSF identifier	OSF name	Corresponding sample in paper
923nt	Intraindividual variability in life satisfaction	U.S. undergraduate sample
e64tp	Intraindividual variability in life satisfaction: Experience sampling Sample 1	Canadian undergraduate sample Group 1[a]
yrp9j	Intraindividual variability in life satisfaction: Experience sampling Sample 2	Canadian undergraduate sample Group 2[a]

Analysis in paper	Preregistration	Changes to the preregistration
Hypothesis 1		
Degree of short-term variability in life satisfaction	923nt Hypothesis 1; yrp9j and e64tp Hypothesis 1	
Range and temporal stability of short-term variability in life satisfaction	923nt Hypothesis 1; yrp9j and e64tp Hypothesis 2	Split-half correlations in the U.S. undergraduate sample and the Canadian undergraduate sample were appropriately corrected using the Spearman Brown prophecy formula. No correction was preregistered.
Discriminant validity of short-term variability in life satisfaction	not preregistered	N/A
Hypothesis 2		
Individual differences (model comparison)	e64tp Hypothesis 5	
Temporal stability	e64tp Hypothesis 6	Split-half correlations in the Canadian Undergraduate sample were appropriately corrected using the Spearman Brown Prophecy Formula. No correction was preregistered.
Hypothesis 3		
Emotion globalizing and short-term variability in life satisfaction	923nt Hypothesis 4; e64tp Hypothesis 7	In line with a reviewer's suggestion, we estimated the association between emotion globalizing and short-term variability in life satisfaction within a statistically more complex and appropriate single multi-level model, rather than using the simpler two-step approach specified in our preregistration.
Daily events and short-term variability in life satisfaction	not preregistered	N/A
Hypothesis 4		
Pearson's correlations between short-term variability in life satisfaction and neuroticism in reconstituted samples	yrp9j and e64tp Hypothesis 3	
Partial correlations between short-term variability in life satisfaction and neuroticism, partialing out mean life satisfaction	923nt secondary analyses; yrp9j and e64tp Hypothesis 3	
Pearson's correlations between short-term variability in life satisfaction and psychological health in reconstituted samples	yrp9j and e64tp Hypothesis 4	
Partial correlations between short-term variability in life satisfaction and psychological health, partialing out mean life satisfaction	923nt Hypothesis 2	
Multiple regression predicting psychological health from short-term variability in life satisfaction short-term variability in emotions, mean life satisfaction, and mean emotions	923nt Hypothesis 3	In addition to the preregistered analyses, we followed a reviewer's suggestion to also report results from multiple regressions predicting psychological health from short-term variability in life satisfaction and short-term variability in emotions in the reconstituted samples (without controlling for mean life satisfaction or mean emotions).

[a] We preregistered that we would combine Canadian undergraduate sample Group 1 and Group 2 for the main analyses.

short-term variability in life satisfaction. Moreover, these individual differences should be moderately stable across time. Specifically, we predicted that retest correlations of short-term variability in satisfaction with life would be greater than .40 across two consecutive measurement bursts and across two measurement bursts separated by two months.

Second, if individuals differ in the relative weighing of current emotions when evaluating their life satisfaction, individual differences in the strength of the association between life satisfaction and current emotions (i.e., emotion globalizing) should be substantial (Hypothesis 2). Some people's current emotions should be completely unassociated with their life satisfaction (lower emotion globalizing), whereas other people's current emotions should be strongly linked to their life satisfaction (higher emotion globalizing). Like other judgment styles (e.g., Blais, Thompson, & Baranski, 2005; Handley, Newstead, & Wright, 2000), these individual differences in emotion globalizing should be moderately stable across time. Specifically, we predicted that retest correlations of emotion globalizing would be greater than .40 across two consecutive measurement bursts.[1]

Third, greater emotion globalizing should predict greater short-term variability in life satisfaction (Hypothesis 3). Emotions are highly variable from moment to moment and day to day. If people's life satisfaction covaries with their variable emotional experiences, their life satisfaction should vary as well. Thus, high emotion globalizers should have relatively greater short-term variability in life satisfaction compared to low emotion globalizers.

Finally, we hypothesized that greater short-term variability in life satisfaction should be associated with a maladaptive profile of greater neuroticism and worse psychological health (Hypothesis 4). Neuroticism has been associated with greater emotional reactivity (Gross, Sutton, & Ketelaar, 1998). It follows that people higher in neuroticism may react more strongly to their own emotional experiences when making life satisfaction judgments and thus, will demonstrate greater short-term variability in life satisfaction. Moreover, previous research has shown that greater short-term variability in emotions is associated with worse psychological health (Houben, Van Den Noortgate, & Kuppens, 2015). Thus, we predicted that short-term variability in life satisfaction would also be associated with worse psychological health.

Is the IDELS Model Consistent With Existing Empirical Evidence?

Empirical Evidence Regarding Hypothesis 1

Although life satisfaction is generally thought of as relatively stable (Anusic & Schimmack, 2016; Eid & Diener, 2004), initial evidence suggests that it is comprised of both stable and variable components. For example, when assessed yearly for 7 to 12 years, approximately two thirds of the variance in life satisfaction was accounted for by stable and autoregressive components, and one third of the variance in life satisfaction was accounted for by an occasion-specific variability component (Lucas & Donnellan, 2007). Although this study indicates variability in life satisfaction is sizable, it does not directly assess short-term variability because life satisfaction was measured yearly rather than at a short-term interval. We are only aware of two studies that directly assessed

short-term variability in global life satisfaction by measuring life satisfaction daily or weekly. One study found that day-to-day variability in life satisfaction accounted for 18% of the total variance in life satisfaction (Heller et al., 2004) and the other study found that week-to-week variability in life satisfaction accounted for 9% of the total variance in life satisfaction (Jayawickreme et al., 2017). Taken together, these findings suggest that a modest, but potentially meaningful, portion of the variance in life satisfaction varies in the short term (i.e., from one day to the next and possibly within a single day). Yet, this short-term component of life satisfaction variability has received very little empirical attention. Further research is needed to better quantify the magnitude of short-term variability in life satisfaction from day to day and within a single day. Furthermore, the range and temporal stability of individual differences in short-term variability in life satisfaction has yet to be investigated.

Empirical Evidence Regarding Hypothesis 2

A handful of studies have examined individual differences in the influence of nonemotional sources of information on daily satisfaction (i.e., satisfaction with that day; Diener et al., 1999; Oishi, Diener, Choi, Kim-Prieto, & Choi, 2007) and daily well-being (i.e., positive emotions, negative emotions, and happiness; Howell, Ksendzova, Nestingen, Yerahian, & Iyer, 2017). For example, domain satisfaction (e.g., satisfaction in social and achievement domains) was associated with daily life satisfaction only for individuals with values congruent with those domains. Similarly, the strength of the association between physical pleasure and daily satisfaction was stronger for high sensation seekers compared to low sensation seekers (Oishi, Schimmack, & Diener, 2001). These findings are consistent with the notion that individuals differ in predictable ways in the information they use to evaluate their life satisfaction. We are only aware of one study that has directly examined individual differences in the association between life satisfaction and current emotions (Diener, Fujita, Tay, & Biswas-Diener, 2012). Diener and colleagues (2012) found that people with lower meaning in life showed a stronger association between their life satisfaction and emotions.

No previous research has examined the association between emotion globalizing and short-term variability in life satisfaction (Hypothesis 3).

Empirical Evidence Regarding Hypothesis 4

Existing research indirectly supports a link between greater neuroticism and greater short-term variability in life satisfaction. Neuroticism has been associated with greater variability in emotions (Eid & Diener, 1999; Murray, Allen, & Trinder, 2002) and increased emotional reactivity (Gross et al., 1998). Moreover, the mental preoccupations (e.g., rumination) and over reactivity associated with neuroticism have been theorized to result in mental noise (Robinson & Tamir, 2005). It is plausible that people who are high in neuroticism react more strongly to their own emotional responses. In turn, increased mental noise may make it more difficult to evaluate their life satisfaction holistically.

---

[1] The retest correlation of emotion globalizing was only examined in the Canadian undergraduate sample, which included two consecutive measurement bursts.

Finally, indirect empirical evidence is consistent with an association between greater short-term variability in life satisfaction and worse psychological health. A meta-analysis found a negative association between short-term variability in *emotions* and psychological health (Houben et al., 2015). Short-term variability in life satisfaction (compared to short-term variability in emotions; e.g., Gruber, Kogan, Quoidbach, & Mauss, 2013) should have at least as strong negative associations with psychological health given the global nature of life satisfaction. That is, emotions are short-lived and context-specific. Thus, some degree of short-term variability in emotions should be expected. Life satisfaction, on the other hand, is a more global sense of the overall quality of one's life. Thus, short-term variability in life satisfaction may be indicative of maladaptive functioning. In fact, year-to-year variability in life satisfaction has been associated with higher mortality (Boehm, Winning, Segerstrom, & Kubzansky, 2015). Taken together, these findings provide indirect empirical support for the hypothesis that short-term variability in life satisfaction is associated with worse psychological health; however, this hypothesis has not been directly tested.

The Present Research

In three samples, we tested four hypotheses derived from the IDELS model. First, individual differences in short-term variability in life satisfaction should be substantial and moderately stable across time (Hypothesis 1). Second, individual differences in emotion globalizing should be substantial and moderately stable across time (Hypothesis 2). Third, greater emotion globalizing should be associated with greater short-term variability in life satisfaction (Hypothesis 3). Fourth, greater short-term variability in life satisfaction should be associated with a maladaptive profile of greater neuroticism and worse psychological health (Hypothesis 4).

The present research has several key features and strengths. First, we assessed global life satisfaction judgments made on a daily basis rather than state life satisfaction judgments. Global life satisfaction judgments are judgments of one's satisfaction with one's life as a whole. In contrast, state satisfaction judgments are judgments about one's satisfaction with a discrete time period (e.g., a specific day). In the present research, we focused on global life satisfaction judgments made daily or multiple times per day. Accordingly, participants rated unmodified items from the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), with one exception. In the Canadian undergraduate sample Group 2, participants rated "I am satisfied with my life" with regard to "how you felt during the last 20 minutes."

Second, we used daily diaries and experience sampling methods to examine emotion globalizing and short-term variability in life satisfaction as they unfold in daily life. Our study is among the first to quantify and examine the characteristics of short-term variability in life satisfaction at the day-to-day and within-day levels. We also examined the stability of short-term variability in life satisfaction across a range of measurement points (8, 14, and 70) and time lags (across two measurement bursts that were either consecutive or separated by two months). First, in a conservative test, we assessed short-term variability in life satisfaction across a relatively small number of diary days (i.e., 8). Then, we assessed short-term variability in life satisfaction again two months later across 8 diary days. Because of the relatively small number of

measurement occasions and the 2-month time lag between the two sets of diaries, we expected the retest correlations to be positive and statistically significant but relatively small. Second, in a less conservative test, we estimated the temporal stability of short-term variability in life satisfaction in two additional samples across 14 and 70 consecutive measurement occasions. Here, we expected retest correlations to be larger, because of (a) the increased number of measurement occasions and (b) the absence of a time lag between measurement bursts.

A third key strength of the present research is that we compared the influence of current emotions on life satisfaction to a key alternative source of temporarily accessible information: the impact of daily events. Specifically, we examined associations between short-term variability in life satisfaction and mean impact of daily positive and negative events, short-term variability in the impact of daily events, and the strength of the association between the impact of daily events and life satisfaction. This allowed us to examine the discriminant validity of emotion globalizing compared to another potential source of individual differences in the information that people use to evaluate their life satisfaction.

Fourth, we ruled out key potential confounds. In the models predicting short-term variability in life satisfaction from emotion globalizing, we controlled for mean life satisfaction, mean emotions, and short-term variability in emotions. In the models examining associations between short-term variability in life satisfaction, neuroticism, and psychological health, we controlled for mean life satisfaction and short-term variability in emotions.

Fifth, to establish the replicability and generalizability of our findings, we tested our hypotheses in three female samples (see Table 3 for sample characteristics): a U.S. community adult sample, a U.S. undergraduate sample, and a Canadian undergraduate sample (total $N = 536$). The inclusion of these three samples allowed us to test the generalizability of our findings across the adult life span (18 to 73 years old), in both community and undergraduate populations, in both the United States and Canada, using both daily diary and experience-sampling approaches.

Finally, analyses and hypotheses for the two undergraduate samples were preregistered on osf.io (https://osf.io/923nt; https://osf.io/yrp9j; https://osf.io/e64tp).[2] Two separate preregistrations were created for Canadian Undergraduate Group 1 and Group 2, because they differed somewhat in their study designs. Data and code to recreate the results in the present article are publicly available on osf.io (https://osf.io/HWV63/). Taken together, our methods provided strong tests of four preregistered hypotheses across three large female samples that were diverse in terms of age and ethnicity.

Method: Elements Common Across Hypothesis Tests

Informed consent was obtained from participants, and their rights were protected in accordance with APA standards. All

---

[2] Data collection and cleaning for the U.S. community adult sample took place prior to the beginning of the present project, and analyses for this sample were not preregistered. Analyses were conducted in the U.S. community adult sample before preregistrations were submitted for the two Undergraduate samples. Data for the Canadian undergraduate sample were previously collected and cleaned by Jeremy C. Biesanz, but the preregistrations were written by Emily C. Willroth, Jeremy C. Biesanz, and Iris B. Mauss before accessing the Canadian Undergraduate data.

Table 3
Sample Characteristics and Descriptive Statistics

Variable	Community adults (U.S.)	Undergraduates (U.S.)	Undergraduates (Canada)
Sample characteristics			
Final sample size	130	184	222
M (*SD*) age in years	47 (17)	19 (2)	21 (3)
European heritage	56% (*n* = 74)	26% (*n* = 44)	33% (*n* = 74)
Asian heritage	25% (*n* = 33)	41% (*n* = 69)	50% (*n* = 112)
M (*SD*)			
Mean life satisfaction	4.72 (1.37)	4.68 (1.23)	4.97 (1.08)
STV in life satisfaction	.58 (.30)	.68 (.27)	.78 (.36)
STV in positive emotion	1.01 (.29)	1.29 (.33)	1.03 (.33)[a]
STV in negative emotion	.85 (.49)	1.34 (.39)	1.07 (.35)[a]
Internal consistency			
Mean life satisfaction	.97 (.91)	.94 (.83)	.93 (.81)
STV in life satisfaction	.75 (.50)	.74 (.49)	.88 (.71)
STV in positive emotion	.64 (.23)	.76 (.38)	.92 (.80)[a]
STV in negative emotion	.87 (.52)	.82 (.43)	.84 (.58)[a]
Retest correlations			
Mean life satisfaction	.90	.92	.89
STV in life satisfaction	.43	.63	.74
STV in positive emotion	.54	.61	.81[a]
STV in negative emotion	.48	.69	.77[a]

Note. STV = short-term variability. Two measures of internal consistency are presented. Cronbach's alpha is shown first. Because the composite variables differed in the number of items used to compute them, mean inter-item correlations are also shown in parentheses. Retest correlations are shown across two measurement bursts separated by two months in the U.S. community sample. Because the two undergraduate samples only included one wave of data collection, corrected retest correlations using the Spearman Brown prophecy formula are shown from two consecutive measurement bursts in the undergraduate samples.
[a] STV in emotion was assessed only in Group 2 of the Canadian undergraduate sample (*n* = 108)

procedures were approved by institutional ethics committees. The U.S. Community Adult sample was approved by the UC Berkeley Committee for Protection of Human Subjects (Berkeley Friendship, Emotion, and Wellness Study, protocol #2014–10-6844). The U.S. Undergraduate sample was approved by the UC Berkeley Committee for Protection of Human Subjects (Emotions and Cognitive Performance Study, protocol #2016–02-8400). The Canadian Undergraduate sample was approved by the University of British Columbia Behavioral Research Ethics Board (Development of Personality Agreement Across Time, protocol #H0580731; Experience Sampling, protocol #H12-01047). For previous uses of the U.S. Community Adults sample, see Ford, Lam, John, & Mauss, 2018. There is no conceptual overlap between that and the present article, and they do not use any overlapping variables, besides basic demographic information. For previous uses of the Canadian Undergraduate data, see Magee, Buchtel, Human, Murray, & Biesanz, 2018 and Magee & Biesanz, 2019. Both papers used *mean* levels (not variability) of some of the same life satisfaction variables to assess state well-being and adjustment. In contrast, in the present article we used these items to calculate short-term variability in life satisfaction. Magee et al. (2018) has conceptual overlap with the present article but the article examined short-term variability in Big Five personality traits (not in life satisfaction).

Statistical Power and Sampling Considerations

We considered two criteria when setting goals for our sample size. First, all three sample sizes were consistent with best-practice recommendations for daily diary studies (two weeks of daily data for a minimum of 100 participants; Nezlek, 2012). Second, we aimed for 80% power to detect medium associations ($r = .20$; Funder & Ozer, 2019) between (a) emotion globalizing and short-term variability in life satisfaction and (b) short-term variability in life satisfaction, neuroticism, and psychological health. Power analyses computed using the pwr() package in R indicated a minimum sample size of 193 participants was needed to achieve this goal. After data exclusions, all three samples exceeded the minimum sample size required to meet the first criterion. The U.S. Community Adult sample ($N = 130$, power = 63%) and the U.S. Undergraduate sample ($N = 184$, power = 78%) were slightly under the minimum sample size required to meet the second criterion, and the Canadian Undergraduate sample somewhat exceeded the minimum sample size required to meet the second criterion ($N = 222$, power = 85%).

We collected the U.S. Community Adult sample as part of a larger study on emotions, adjustment to stressful live events, and well-being outcomes, such as depression. A recent meta-analysis showed that the association between short-term variability in emotions and psychological health outcomes is smaller in studies with a higher proportion of men (Houben et al., 2015). Not surprisingly, then, the majority of research on short-term variability in emotions (Houben et al., 2015) has been conducted in majority-female samples. Thus, studies that include both men and women need to address these gender differences by including enough men and women. In our first sample, we focused on women to maximize statistical power. We then preregistered plans to replicate and

extend upon these findings not only in women, but also in men. However, we underestimated the preponderance of women in the undergraduate participant pool and were unable to collect data from a sufficient number of male participants.[3] However, because these analyses are underpowered, we consider them preliminary in nature, and only report the results of primary analyses conducted on women in the U.S. undergraduate sample in the main text. To further replicate and extend upon findings from the two U.S. female samples, we preregistered that we would only include women in the Canadian undergraduate sample. In the General Discussion section, we discuss the need for future research that examines these processes in samples of men.

Participants

See Table 3 for sample characteristics. Eligibility for the U.S. community adult sample (starting $N = 160$ female participants) was limited to English-speaking women who had experienced a stressful life event (i.e., getting a divorce or losing one's job) within the past 6 months and who did not have a history or current diagnosis of dementia, bipolar disorder, schizophrenia, substance use disorder, suicidal ideation, or suicide attempt. Participants were recruited via Craigslist, a parent network, announcements placed in university classes, and flyers placed around the city. The U.S. undergraduate sample (starting female $N = 212$) was recruited from an undergraduate participant pool in the psychology department at a large public university. The Canadian undergraduate sample (starting female $N = 224$) was recruited from the undergraduate population at large public university. The Canadian undergraduate sample was collected in two groups that differed in the software they used to fill out the daily surveys (see *Procedures*). Group was not a statistically significant moderator in any of our correlational models (interaction βs < .16, *p*s > .17). Thus, in accordance with our preregistration, we combined the two groups in the Canadian undergraduate sample.

Data Exclusions and Attrition Analyses

We preregistered four reasons for excluding data: (a) Participants who failed attention check(s; e.g., "Please select strongly agree") during the entrance questionnaire were excluded. (b) Data collected from diary days on which all attention checks (two per diary in the U.S. community adult sample and one per diary in the U.S. undergraduate sample) were failed were excluded. (c) Participants who provided fewer than six measurement occasions were excluded. This number was chosen to balance two competing goals: to maximize sample size on the one hand and to provide enough measurement occasions and a sufficient sampling of situations to reliably measure short-term variability in life satisfaction on the other hand. In the preregistration for the Canadian Undergraduate sample, a minimum of seven measurement occasions was specified. However, every participant in the Canadian undergraduate sample who completed at least six measurement occasions also completed at least seven measurement occasions. (d) Participants whose mean life satisfaction, short-term variability in life satisfaction, or psychological health scores were more than 3 standard deviations from the mean were excluded from primary analyses. All findings remained the same when outliers were included.

In the U.S. community adult sample, 28 participants were excluded for providing data on fewer than six measurement occasions, and two outliers were excluded (final $N = 130$). The entrance survey was part of a larger study and was completed in multiple sessions. Twelve attention checks were included and all participants passed at least 11 of those 12 attention checks, thus, no participants were excluded for failing entrance survey attention checks. In the U.S. undergraduate sample, participants who failed any attention checks during the entrance questionnaire were not invited to complete the diary phase of the study. Of those participants who completed both phases of the study, 23 participants were excluded for providing data on fewer than six measurement occasions and five outliers were excluded (final $N = 184$). In the Canadian undergraduate sample, one participant was excluded for providing data on fewer than six measurement occasions and one outlier was excluded (final $N = 222$).

We conducted attrition analyses to test whether participants who provided data on fewer than six measurement occasions differed from participants who provided data on six or more measurement occasions in mean life satisfaction, short-term variability in life satisfaction, or psychological health variables. In the U.S. community adult sample, participants who were excluded for completing fewer than six daily diaries ($n = 28$) did not significantly differ from participants who completed six or more daily diaries ($n = 132$) in short-term variability in life satisfaction (<6 observations = 0.50; > 6 observations = 0.59, $d = .27$, 95% confidence interval [CI][−.14, .68], $p = .25$) or z-scored psychological health (<6 observations = 0.18; > 6 observations = −0.04, $d = −0.26$, 95% CI [−.67, .15], $p = .22$). Participants in the U.S. community adult sample who were excluded for completing fewer than six diaries had higher mean life satisfaction than participants who completed six or more diaries: (<6 observations = 5.23; > 6 observations = 4.71, $d = −0.50$, 95% CI [−0.91, −0.08], $p = .03$). In the U.S. undergraduate sample, participants who were excluded for completing fewer than six daily diaries ($n = 23$) did not significantly differ from participants who completed six or more daily diaries ($n = 189$) in mean life satisfaction (<6 observations = 4.61; > 6 observations = 4.65, $d = .08$, 95% CI [−.35, .52], $p = .71$), short-term variability in life satisfaction (<6 observations = 0.73; >6 observations = 0.67, $d = −0.001$, 95% CI [−.43, .43], $p = .99$), or z-scored psychological health (<6 observations = 0.10; >6 observations = −0.04, $d = .21$, 95% CI [−.22, .65], $p = .34$). In the Canadian undergraduate sample, only one participant was excluded for completing fewer than six measurement occasions and thus, we did not carry out attrition analyses in this sample.

---

[3] The U.S. undergraduate sample included only 71 males. Thus, the following results are underpowered and should be interpreted with caution. In the U.S. undergraduate sample, we tested for interactions between short-term variability in life satisfaction and gender in predicting psychological health. First, we mean-centered short-term variability in life satisfaction and dummy-coded gender (0 = female, 1 = male). Next, we entered short-term variability in life satisfaction, gender, and their interaction into a multiple regression predicting psychological health. Mean life satisfaction was included as a covariate. The interaction between gender and short-term variability in life satisfaction was statistically significant ($β = .36$, $p < .001$), such that the negative relationship between short-term variability in life satisfaction and psychological health was present for women but not men.

Procedures

Participants in all three samples completed the study in two phases. In Phase 1, participants completed questionnaires about their personality, psychological health, and demographic characteristics. In Phase 2, participants completed daily surveys which included questions about their life satisfaction, current emotions, and the impact of daily events, from which our measures of emotion globalizing, short-term variability in life satisfaction, and control variables were derived. In the U.S. community adult sample, participants completed daily surveys at the end of the day for eight consecutive days. Two months later, participants completed additional daily surveys at the end of the day for eight consecutive days. The second wave of surveys was used to assess the temporal stability of short-term variability in life satisfaction. Daily surveys were completed online via a link that was emailed to participants at 6 p.m. each day, unless the participant requested paper copies ($n = 4$ participants). Participants who requested paper copies were instructed to fill them out at the end of each day and mail the completed set of diaries back to the researchers using a preaddressed, stamped envelope. In the U.S. undergraduate sample, participants completed daily surveys at the end of the day for 14 consecutive days. Participants were given the opportunity to make up for up to 7 missed diary days in the week immediately following the 14-day period. Daily surveys were completed online via a link that was emailed to participants at 6 p.m. each day. In the Canadian undergraduate sample, participants were prompted to complete surveys five times per day at random intervals between 10 a.m. and 10 p.m. with at least 2 hr in between prompts. Group 1 ($n = 114$) completed the surveys on palm pilots using the Experience Sampling Program (ESP 4.0; Barrett & Feldman Barrett, 2006) and Group 2 ($n = 108$) completed the surveys sent via text message on iPod touches. The mean number of diaries per person in the U.S. community adult sample after exclusions was 7.5 ($SD = 0.66$). The mean number of diaries per person in the U.S. undergraduate sample after exclusions was 12.53 ($SD = 2.19$). The mean number of experience sampling observations per person in the Canadian undergraduate sample after exclusions was 57.55 ($SD = 18.06$).

Participants in the U.S. community adult and Canadian undergraduate samples received monetary compensation for their time. Participants in the U.S. undergraduate sample received partial course credit for their time. Data from the U.S. community adult sample were collected from 2014–2016. Data from the U.S. undergraduate sample were collected from 2016 to 2017. Data from the Canadian undergraduate sample were collected from 2007 to 2008 and 2013 to 2014.

Measures

Short-term variability in life satisfaction and mean life satisfaction.   In all samples, participants were prompted to rate their *current* judgments of their *global* life satisfaction in each diary or experience-sampling survey. In the U.S. community adult sample and the U.S. undergraduate sample, participants received the prompt: "Currently . . ." and then rated three global life satisfaction items (e.g., "I am satisfied with my life"; "in most ways, my life is close to ideal"; "the conditions of my life are excellent") from the Satisfaction with Life Scale (Diener et al., 1985). In the Canadian undergraduate sample Group 1, partici-

pants simply rated the same three global life satisfaction items without a specific prompt. In the Canadian undergraduate sample Group 2, participants were instructed to rate the extent to which they agreed with the single global life satisfaction item ("I am satisfied with my life") with regard to "how you felt during the last 20 minutes."

Previous research on short-term variability measures has shown that increased measurement error due to a small number of measurement occasions (e.g., 7) can be offset by averaging across multiple variability scores (Eid & Diener, 1999). Thus, to compute short-term variability in life satisfaction, we first computed individual standard deviations across all surveys individually for each of the three life satisfaction items. Next, we computed the mean of these three variability scores to create a single short-term variability in life satisfaction composite. To compute mean life satisfaction, we first computed the mean of each life satisfaction item across all surveys individually for each of the three life satisfaction items. Next, we computed the mean of these three life satisfaction item scores to create a single mean life satisfaction composite.

Participants in Group 1 of the Canadian undergraduate sample responded to the complete five-item Satisfaction with Life Scale. Participants in Group 2 of the Canadian undergraduate sample only responded to a single life satisfaction item (i.e., "I am satisfied with my life"). We preregistered that we would use the same three life satisfaction items that were included in the two U.S. samples to compute short-term variability in life satisfaction and mean life satisfaction for Group 1, unless the means, standard deviations, or associations with other measures for the one- and three-item versions differed. A paired-sample t test in Group 1 showed no significant difference in mean levels between the one- and three-item short-term variability in life satisfaction scores, $t(113) = 1.17$, $p = .24$. The standard deviations were also similar (one-item $SD = 0.38$; three-item $SD = 0.33$). Finally, group was not a statistically significant moderator of any of the correlational tests, interaction $\beta s < .16$, $p s > .17$. Thus, we used three life satisfaction items to compute short-term variability in life satisfaction and mean life satisfaction for Group 1.

Short-term variability in emotion and mean emotion.   In each survey, participants were asked to rate the extent to which they were currently experiencing several positive and negative emotions. In the U.S. community adult sample, participants reported on their experience of seven positive emotions (i.e., indicate the extent to which you feel this way currently: amused, energetic, calm, happy, interested, excited, and content) and six negative emotions (anxious, lonely, sad, annoyed, angry, and distressed). In the U.S. undergraduate sample, participants reported on their experience of five positive emotions (i.e., indicate the extent to which you feel this way currently: proud, excited, happy, strong, and supported) and six negative emotions (anxious, lonely, sad, irritable, angry, and distressed). In the Canadian undergraduate sample, only participants in Group 2 reported on their current emotions. Participants were asked to rate the extent to which they experienced each of three positive emotions (happy, cheerful, and excited) and four negative emotions (sad, unhappy, angry, and anxious) in the last 20 min. Participants in the U.S. community adult and Canadian undergraduate samples responded on a 7-point scale from 1 (*disagree strongly*) to 7 (*agree strongly*). Participants in the U.S. undergraduate sample responded on a 5-point scale from 1 (*disagree strongly*) to 5 (*agree strongly*). To compare means and

variability composites across samples, item responses were re-scored in the U.S. undergraduate sample, such that 1 = 1, 2 = 2.5, 3 = 4, 4 = 5.5, and 5 = 7. Mean emotions and short-term variability in emotions were computed separately for positive and negative emotions following the same procedures reported above for short-term variability in life satisfaction and mean life satisfaction.

Short-term variability in the impact of daily events and mean impact of daily events. In the U.S. community adult sample, participants were asked in each daily diary to rate the extent to which the most positive event of the day and the most stressful event of the day would impact their life. Participants responded on a 7-point scale from 1 (*not at all*) to 7 (*extremely*). We computed mean impact of daily events and short-term variability in the impact of daily events for positive and negative events following the same procedures reported above for mean life satisfaction and short-term variability in life satisfaction.

Emotion globalizing. In the analyses for Hypothesis 2, we extracted individual slopes from random-intercept, random-slope multilevel models predicting life satisfaction from person-mean-centered current positive and negative emotions respectively. In the analyses for Hypothesis 3, emotion globalizing scores were estimated in the same manner, but slope estimates were not extracted.

Neuroticism. Neuroticism was assessed with the Big Five Inventory. In the U.S. community adult sample, we used the 12-item neuroticism scale from the new 60-item BFI-2 (Soto & John, 2017a). In the U.S. undergraduate sample, we used the six-item neuroticism scale from the 30-item BFI-2S short version (Soto & John, 2017b). Participants in the Canadian undergraduate sample completed the eight-item neuroticism scale from the original 44-item BFI-1 (see John & Srivastava, 1999).

Psychological health. In the two U.S. samples, psychological health was assessed with the Ryff Psychological Wellbeing Scale (Ryff & Keyes, 1995) and the Beck Depression Inventory (Beck, Steer, & Brown, 1996). Because we expected that short-term variability in life satisfaction would be associated with generally lower psychological health, we computed a psychological health composite from these two measures, which were correlated −.48 in the U.S. community adult sample and −.68 in the U.S. undergraduate sample. First, scores on both measures were z-scored. Next, we reverse scored z-scored depressive symptoms. Finally, we computed the mean of psychological wellbeing and reverse-scored depressive symptoms to produce a single psychological health composite. In the Canadian Undergraduate sample, we used the Rosenberg Trait Self Esteem Scale (Rosenberg, 1965) to assess another aspect of functioning that is strongly associated with psychological health, trait self-esteem.

Accounting for Mean Levels of Life Satisfaction

One important consideration when assessing the correlates of short-term variability in life satisfaction is the statistical confound between variability and mean levels (Baird, Le, & Lucas, 2006). Scores near the midpoint of a scale have more room to vary relative to scores at the extreme ends of a scale. In the case of life satisfaction, people with very high or very low life satisfaction will tend to have low short-term variability in life satisfaction, whereas people with moderate life satisfaction can have low or high short-

term variability in life satisfaction. Furthermore, mean life satisfaction is a positive and common characteristic and thus its distribution is negatively skewed (i.e., many more people have very high life satisfaction scores than very low life satisfaction scores). Together, these two distributional characteristics (low variability at the extremes of the scale and more people with high means) result in an artifactual negative correlation between mean levels and short-term variability in life satisfaction regardless of whether or not the underlying psychological constructs are related.

We preregistered two ways of addressing this statistical confound between mean life satisfaction and short-term variability in life satisfaction. The first approach deals with the confound using a modern bootstrapping technique. This approach aims to provide an unbiased estimate of the true size of the association between short-term variability in life satisfaction and its correlates. In this approach, a bootstrapping procedure is used to reconstitute each sample so that median life satisfaction would be at the midpoint of the scale (4 on a scale from 1 to 7; e.g., John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994). We created 1,000 random samples from each of our existing samples. Each of these 1,000 samples included all participants below the midpoint in life satisfaction and an equal, random sample of participants above the midpoint in life satisfaction. Because the resulting samples were no longer skewed, the artifactual association between mean life satisfaction and short-term variability in life satisfaction was no longer present. We report the mean simple correlation between short-term variability in life satisfaction and neuroticism and psychological health from each set of 1,000 samples. We calculated statistical significance based on the 95% confidence interval around these estimates.

The second approach uses partial correlations of short-term variability in life satisfaction with neuroticism and psychological health, removing all the variance shared between variability and mean levels of life satisfaction. This approach is much more conservative because mean life satisfaction is strongly correlated with both short-term variability in life satisfaction and the psychological health variables. However, from a pure prediction perspective, this approach tests the incremental predictive value of short-term variability above and beyond mean levels. This is important because recent research has suggested that short-term variability in affect may add little to the prediction of psychological well-being above and beyond mean affect (Dejonckheere et al., 2019).

Hypothesis 1: Individual Differences in Short-Term Variability in Life Satisfaction Should Be Substantial and Moderately Stable Across Time

In our first hypothesis test, we tested the prediction that women should differ in the degree of short-term variability in life satisfaction and these individual differences should be moderately stable across time. More specifically, we hypothesized that short-term variability in life satisfaction would account for at least 10% of the total variance in life satisfaction; that some women's life satisfaction would be perfectly stable and other women's life satisfaction would be highly variable; and that retest correlations of short-term variability in life satisfaction would be greater than .40 across two consecutive measurement bursts and across two measurement bursts separated by two months.

Hypothesis 1 Method

All analyses were conducted in R Version 3.3.0. In the two U.S. samples, life satisfaction was measured once per day for 8 days and 14 days, respectively. In the Canadian undergraduate sample, life satisfaction was measured five times per day for 14 days. Thus, one contribution of the present research was to compare variability in life satisfaction from day to day to variability in life satisfaction within a single day.

To examine the temporal stability of short-term variability in life satisfaction, we computed retest correlations of the two measurement bursts separated by two months in the U.S. community adult sample. In the U.S. undergraduate sample, we assessed split-half reliability of two consecutive measurement bursts. In the Canadian undergraduate sample, we assessed split-half reliability between the first half of measurement occasions and the second half of measurement occasions. Split-half reliability underestimates stability because it compares two measures that are each computed from half of the total number of measurement occasions. To correct for this, we used the Spearman Brown prophecy formula to estimate retest correlations using the complete set of measurement occasions. See the section *Method: Elements Common Across Hypothesis Tests* for more detail and measures.

Hypothesis 1 Results

Degree of short-term variability in life satisfaction. To examine the total amount of short-term variability in life satisfaction, we compared the between-person variance in life satisfaction (differences between people in their average level of life satisfaction) to the within-person variance (differences in life satisfaction within people across measurement occasions) in an intercept-only multilevel model predicting life satisfaction. In the U.S. community adult sample, 12.5% of the total variance in life satisfaction occurred at the within-person level and the remaining 87.5% occurred at the between-person level. Next, we replicated this finding in the U.S. Undergraduate sample. In the U.S. undergraduate sample, 18.4% of the total variance in life satisfaction occurred at the within-person level and the remaining 81.6% occurred at the between-person level. Because life satisfaction ratings made once per day require participants to mentally aggregate across potential within-day variability, we expected less short-term variability in life satisfaction in the two U.S. samples (in which life satisfaction was assessed daily) compared to the Canadian Undergraduate sample (in which life satisfaction was assessed five times per day). Consistent with this prediction, in the Canadian Undergraduate sample, 34.8% of the total variance in life satisfaction occurred at the within-person level and the remaining 65.2% occurred at the between-person level.

To provide a more direct test of this possibility, we computed mean daily life satisfaction scores for participants in the Canadian undergraduate sample. Next, we calculated the within-person variability between days. When computed between days, 24.3% of the total variance in life satisfaction occurred at the within-person level. This day-to-day variability estimate is closer to the day-to-day variability estimates from the two U.S. samples (12.6% and 18.4%), again suggesting that life satisfaction ratings are less variable when measured at the end of the day compared to several times per day. In sum, day-to-day and within-day variance in life

satisfaction accounted for between 12.6% and 34.8% of the total variance in life satisfaction.

Table 3 presents descriptive statistics of short-term variability in life satisfaction relative to short-term variability in positive and negative emotions. On average, life satisfaction was less variable than emotions. Across the three samples, mean short-term variability in life satisfaction (weighted based on *N*) was .72 (*SD* = .33), mean short-term variability in positive emotions (weighted based on *N*) was 1.14 (*SD* = .33), and mean short-term variability in negative emotions (weighted based on *N*) was 1.14 (*SD* = .41).

Range and temporal stability of short-term variability in life satisfaction. Next, we examined the range and temporal stability of short-term variability in life satisfaction. Individuals differed greatly in the degree of short-term variability in life satisfaction (see Figure 1 for frequency distributions of short-term variability measures), with 1.49% of individuals demonstrating perfectly stable life satisfaction (i.e., individual standard deviations of 0) and others demonstrating extreme short-term variability (i.e., up to an individual standard deviation of 1.84 on a 7-point scale).

Retest correlations of short-term variability in life satisfaction were .43 across two measurement bursts separated by two months in the U.S. community adult sample. Corrected retest correlations (using the Spearman Brown prophecy formula) across two consecutive measurement bursts were .63 in the U.S. undergraduate sample and .74 in the Canadian undergraduate sample.

Discriminant validity of short-term variability in life satisfaction. To examine discriminant validity of short-term variability in life satisfaction, we examined Pearson's correlations between short-term variability in life satisfaction, short-term variability in positive emotions, short-term variability in negative emotions, and short-term variability in the impact of daily positive and negative events. In the two U.S. samples, short-term variability in life satisfaction was moderately associated with short-term variability in positive emotions (U.S. community: $r = .23$, $p = .008$, 95% CI [.06, .39]; U.S. undergraduate: $r = .29$, $p < .001$, 95% CI [.15, .42]) and short-term variability in negative emotions (U.S. community: $r = .35$, $p < .001$, 95% CI [.18, .49]; U.S. undergraduate: $r = .33$, $p < .001$, 95% CI [.19, .45]). Correlations between short-term variability in life satisfaction and short-term variability in positive and negative emotions were much larger in the Canadian undergraduate sample (positive emotions: $r = .78$, $p < .001$, 95% CI [.69, .84]; negative emotions: $r = .74$, $p < .001$, 95% CI [.64, .81]). Short-term variability in life satisfaction was not significantly correlated with short-term variability in the impact of daily positive events ($r = .09$, $p = .28$, 95% CI [−.07, .26]) or negative events ($r = .09$, $p = .29$; 95% CI [−.08, .26]).

Hypothesis 1 Discussion

Results were consistent with Hypothesis 1. Women substantially differed in their degree of short-term variability in life satisfaction, ranging from perfectly stable to highly variable. These individual differences were moderately stable across two consecutive measurement bursts and across two measurement bursts separated by two months. The temporal stability of short-term variability in life satisfaction indicates that it is a meaningful individual difference and is not due solely to measurement error or random fluctuations.
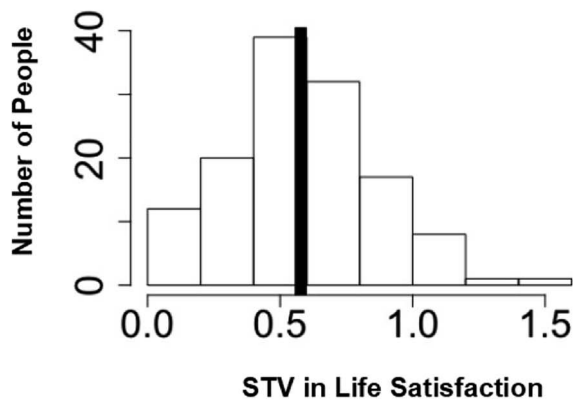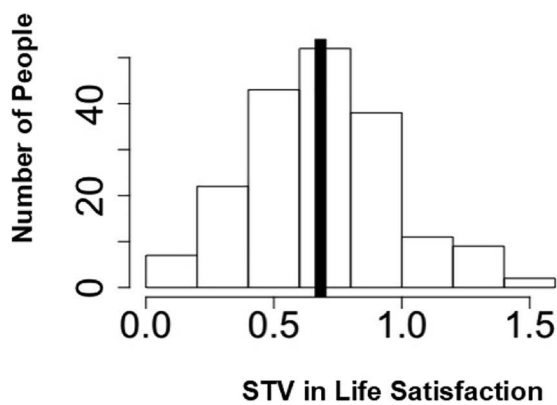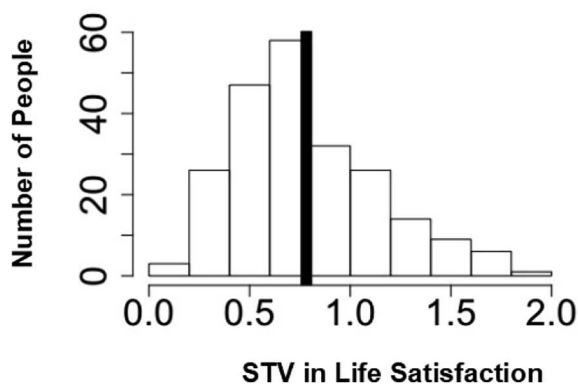
US Community Adults (*N* = 130)

US Undergraduates (*N* = 184)

Canadian Undergraduates (*N* = 222)

Figure 1. Frequency distributions of short-term variability in life satisfaction. Short-term variability in life satisfaction is presented as within-person standard deviations. Bold vertical lines indicate mean short-term variability in life satisfaction. STV = short-term variability.

Moreover, results suggest that short-term variability in life satisfaction is distinct from other types of short-term variability. The relatively stronger associations between short-term variability in life satisfaction and short-term variability in emotions in the Canadian undergraduate sample compared to the two U.S. samples may be explained by the more frequent sampling rate in the Canadian undergraduate sample. Previous research has shown that the strength of the association between variables is dependent on the timescale in which they are measured (Jacobson, Chow, & Newman, 2018). Thus, it is possible that short-term variability in life satisfaction and short-term variability in emotions are more strongly related on shorter timescales compared to longer timescales (within-day compared to between-day). Participants may have also been more fatigued in this sample due to the larger number of surveys per day. Inattention and fatigue may have resulted in participants making less fine-grained distinctions between similar items (e.g., life satisfaction and emotions).

Hypothesis 2: Individual Differences in Emotion Globalizing Should Be Substantial and Moderately Stable Across Time

In our second hypothesis test, we tested the prediction that individuals should differ in emotion globalizing and that these individual differences should be moderately stable across time. Some people's current emotions should be completely unassociated with their life satisfaction (lower emotion globalizing), whereas other people's current emotions should be strongly linked to their life satisfaction (higher emotion globalizing). Moreover, we hypothesized that retest correlations of emotion globalizing would be greater than .40 across two consecutive measurement bursts.

Hypothesis 2 Method

All analyses were conducted in R Version 3.3.0. We examined the range and statistical significance of individual differences in emotion globalizing scores in the Canadian undergraduate sample (emotions were only assessed in Group 2 of the Canadian undergraduate sample; $N = 108$). At the suggestion of a reviewer, we focused on the Canadian undergraduate sample to test Hypothesis 2 because it was the only sample with enough measurement occasions ($M = 58$) to extract reliable point estimates of emotion globalizing for each participant. Positive emotion globalizing was operationalized as the within-person association between positive emotions and life satisfaction and negative emotion globalizing was operationalized as the within-person association between negative emotions and life satisfaction. Positive and negative emotion globalizing scores were calculated using individual slopes from multilevel models predicting daily life satisfaction from person-mean-centered daily positive emotions and person-mean-centered negative emotions respectively.

To examine whether individuals differed in the strength of the association between current emotions and life satisfaction, we used a likelihood ratio test to compare two sets of models. The first set of models included our predicted individual differences by modeling random slopes for the associations between current emotions and life satisfaction. Random slopes allow the association between current emotions and life satisfaction to differ between people.

These random-slope models should fit better than the models without random slopes, which estimate only fixed effects (i.e., one and the same effect for all individuals) for the associations between current emotions and life satisfaction.

Next, we assessed the temporal stability of individual differences in emotion globalizing. We computed split-half correlations between the first half of data collection and the last half of data collection. Like with short-term variability in life satisfaction, this approach underestimates stability because it compares two measures that are each computed from half of the total number of measurement occasions. To correct for this, we used the Spearman Brown prophecy formula to estimate retest correlations using the complete set of measurement occasions. See the section *Method: Elements Common Across Hypothesis Tests* for more detail and measures.

Hypothesis 2 Results

Consistent with our prediction, the random-slope models that accounted for individual differences in the strength of the associations between current emotions and life satisfaction fit better than the models that did not account for these individual differences, $\chi^2(1) > 305$, $ps < .0001$. This suggests that the strength of the association between current emotions and life satisfaction differed significantly between people. The fixed effect of positive emotions on life satisfaction was .57 ($\tau = .25$) and the fixed effect of negative emotions on life satisfaction was $-.55$ ($\tau = .28$). Here, tau (τ) is the random-effects standard deviation around the fixed effect.

Figure 2 depicts frequency distributions of emotion globalizing scores. Random effects were plotted using constrained Bayes estimates, which adjust empirical Bayes estimates of random effects to have the same standard deviation as the estimated random effects (see Ghosh, 1992). Consistent with our expectations, some people's current emotions were completely unassociated with their life satisfaction (lower emotion globalizing), whereas other people's current emotions were strongly linked to their life satisfaction (higher emotion globalizing). This wide distribution suggests that individual differences in emotion globalizing are quite large. The correlation between positive and negative emotion globalizing scores was .69.

To assess the temporal stability of emotion globalizing, we calculated the split-half reliability of positive and negative emotion globalizing between the first half of data collection and the last

half of data collection. Corrected retest correlations (using the Spearman Brown prophecy formula) were .58 for positive emotion globalizing and .63 for negative emotion globalizing.

Hypothesis 2 Discussion

Results were consistent with Hypothesis 2. Women systematically differed in the weighing of current emotions when evaluating their life satisfaction (i.e., emotion globalizing). Furthermore, the temporal stability of emotion globalizing scores suggests that emotion globalizing reflects a somewhat stable judgment style, at least across two consecutive measurement bursts. The strong correlation between positive emotion globalizing and negative emotion globalizing suggests that these may be two indicators of a single judgment style. However, in line with our preregistered analysis plan, we decided to keep positive and negative emotion globalizing separate in Hypothesis 3 to examine whether they have unique effects on short-term variability in life satisfaction.

These findings speak to questions regarding the degree to which current emotions are associated with life satisfaction. Existing research on this question has produced mixed results. On one hand, people report considering their emotions when evaluating their life satisfaction (Gadermann & Zumbo, 2007; Ross et al., 1986). On the other hand, current emotions have small and inconsistent effects on life satisfaction in daily life (Eid & Diener, 2004). The present findings reconcile these inconsistencies by suggesting that people systematically differ in the degree to which their life satisfaction is associated with their current emotions. For some individuals, current emotions have little to no influence on life satisfaction. For others, current emotions have a large influence on life satisfaction. These individual differences could result in small and inconsistent average effects, like those observed in previous research.

Hypothesis 3: Greater Emotion Globalizing Should Be Associated With Greater Short-Term Variability in Life Satisfaction

In our third hypothesis test, we tested the prediction that greater emotion globalizing should be associated with greater short-term variability in life satisfaction.[4] Specifically, we hypothesized that both positive and negative emotion globalizing would be statistically significant predictors of short-term variability in life satisfaction, controlling for mean emotions, mean life satisfaction, and short-term variability in emotions.

We also tested potential alternative drivers of short-term variability in life satisfaction: the impact of daily events (independent of participants' emotional responses to them), short-term variabil-
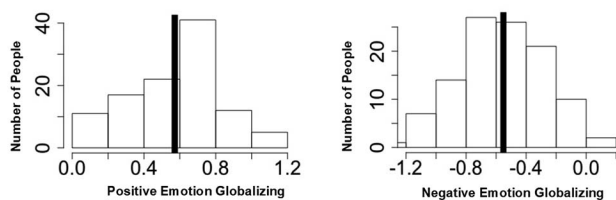

Figure 2. Frequency distributions of positive and negative emotion globalizing scores. Emotion globalizing scores are presented as constrained Bayes estimated random effects from multilevel models predicting life satisfaction from current positive emotions and current negative emotions, respectively. Bold vertical lines indicate fixed (average) coefficients.

---

[4] At first glance, Hypothesis 3 may seem to necessarily follow from Hypothesis 2, given that greater variability in life satisfaction (the outcome variable) allows for greater covariation between current emotions and life satisfaction. However, this is only the case if variability in current emotions (the predictor variable) and residual variance in life satisfaction (after accounting for current emotions) are both held constant. In other words, it is possible that greater emotion globalizing is associated with greater short-term variability in life satisfaction (consistent with Hypothesis 3) or that greater emotion globalizing is associated with less residual variance in life satisfaction but not necessarily greater short-term variability in life satisfaction (inconsistent with Hypothesis 3).

ity in the impact daily of events, and the strength of the association between the impact of daily events and life satisfaction. This allowed us to examine the discriminant validity of emotion globalizing compared to another potential source of individual differences in the information that people use to evaluate their life satisfaction.

Hypothesis 3 Method

Analyses were conducted in R Version 3.3.0 and, where noted, in Mplus Version 8.2. Unlike in the analyses to test Hypothesis 2, we did not extract individual point estimates of emotion globalizing for each participant in the analyses used to test Hypothesis 3. Instead, we estimated the association between emotion globalizing and short-term variability in life satisfaction using all of the available observations in a single multilevel model. Thus, all three samples were appropriate to test Hypothesis 3. The impact of positive and negative daily events were only assessed in the U.S. community adult sample. See the section *Method: Elements Common Across Hypothesis Tests* for more detail and measures.

Hypothesis 3 Results

Emotion globalizing and short-term variability in life satisfaction. We examined between-person associations between emotion globalizing (the within-person association between current emotions and life satisfaction) and short-term variability in life satisfaction in two separate multilevel models (one for positive emotion globalizing and one for negative emotion globalizing). All analyses were conducted in MPlus Version 8.2. In the model for positive emotion globalizing, mean positive emotions, mean life satisfaction, and short-term variability in positive emotion were included as covariates. In the model for negative emotion globalizing, mean negative emotions, mean life satisfaction, and short-term variability in negative emotion were included as covariates.

Across all three samples, positive emotion globalizing was a unique predictor of short-term variability in life satisfaction, above

and beyond mean life satisfaction, mean positive emotions, and short-term variability in positive emotion, with betas of .88 in the U.S. community adult, .54 in the U.S. undergraduate sample, and .51 in the Canadian undergraduate sample (see Table 4 for *p* values and 95% CIs). The average standardized coefficient was .64 (weighted based on *N*). Standardized coefficients were estimated using the equation: $\beta = b^* \tau/SD(y)$, where b is the unstandardized coefficient, τ is the standard deviation around the fixed effect for emotion globalizing, and $SD(y)$ is the standard deviation of short-term variability in life satisfaction.

Across all three samples, negative emotion globalizing was a unique predictor of short-term variability life satisfaction, above and beyond mean life satisfaction, mean negative emotions, and short-term variability in negative emotion, with betas of −.81 in the U.S. community adult sample, −.53 in the U.S. undergraduate sample, and −.54 in the Canadian undergraduate sample (see Table 4 for *p* values and 95% CIs). The average standardized coefficient was −.62 (weighted based on *N*). The association between negative emotion globalizing and short-term variability in life satisfaction was negative because more negative values reflect greater negative emotion globalizing.

We also examined whether both positive and negative emotion globalizing were uniquely associated with short-term variability in life satisfaction, controlling for each other. Positive and negative emotion globalizing were both entered as predictors of short-term variability in life satisfaction in multilevel models, controlling for mean life satisfaction, mean positive and negative emotion, and short-term variability in positive and negative emotions. Both positive and negative emotion globalizing uniquely predicted short-term variability in life satisfaction in all three models: U.S. community adult sample: positive emotion globalizing, $\beta = .60$, $p < .01$, 95% CI [.16, 1.04], and negative emotion globalizing, $\beta = −.63$, $p < .001$, 95% CI [−.94, −.32]; U.S. undergraduate sample; positive emotion globalizing, $\beta = .37$, $p < .001$, 95% CI [.18, .57], and negative emotion globalizing, $\beta = −.37$, $p = .001$, 95% CI [−.58, −.15]; Canadian undergraduate sample: positive emotion globalizing, $\beta = .45$, $p < .001$, 95% CI [.37, .54], and

Table 4

Multilevel Models Predicting Short-Term Variability in Life Satisfaction From Emotion Globalizing

Model	Community (U.S.; n = 130)			Undergraduates (U.S.; n = 184)			Undergraduates (Canada; n = 108)		
	β	p	95% CI	β	p	95% CI	β	p	95% CI
A. Predicting STV in life satisfaction from positive emotion globalizing									
Positive emotion globalizing	.88	<.001	[.44, 1.39]	.54	<.001	[.33, .74]	.51	<.001	[.43, .59]
Mean life satisfaction	−.27	<.001	[−.40, −.13]	−.28	<.001	[−.42, −.14]	−.36	<.001	[−.48, −.23]
Mean positive emotion	−.02	.80	[−.16, .13]	.00	.97	[−.13, .14]	.24	<.001	[.12, .36]
STV in positive emotion	.22	.001	[.09, .35]	.34	<.001	[.23, .46]	.68	<.001	[.62, .75]
B. Predicting STV in life satisfaction from negative emotion globalizing									
Negative emotion globalizing	−.81	<.001	[−1.12, −.54]	−.53	<.001	[−.75, −.31]	−.54	<.001	[−.64, −.43]
Mean life satisfaction	−.26	<.001	[−.40, −.12]	−.26	<.001	[−.39, −.14]	−.13	.04	[−.25, −.01]
Mean negative emotion	−.11	.26	[−.32, .09]	.02	.80	[−.13, .17]	.02	.75	[−.10, .14]
STV in negative emotion	.28	.01	[.06, .49]	.25	.001	[.11, .40]	.61	<.001	[.52, .70]

Note. CI = confidence interval; STV = short-term variability. A: Results of multilevel models predicting short-term variability in life satisfaction from positive emotion globalizing, mean positive emotion, mean life satisfaction, and short-term variability in positive emotion. B: Results of multilevel models predicting short-term variability in life satisfaction from negative emotion globalizing, mean negative emotion, mean life satisfaction, and short-term variability in negative emotion.

negative emotion globalizing, $\beta = -0.29$, $p < .001$, 95% CI [$-.39$, $-.20$].

The impact of daily events and short-term variability in life satisfaction. Partial correlations (partialing out mean life satisfaction) between short-term variability in life satisfaction and the impact of daily events were all small and statistically nonsignificant. Specifically, short-term variability in life satisfaction was not significantly associated with mean impact of daily positive events ($r_{partial} = -.01$, $p = .94$, 95% CI [$-.18$, .17]), with mean impact of daily negative events ($r_{partial} = .16$, $p = .08$, 95% CI [$-.02$, .32]), with short-term variability in the impact of daily positive events ($r_{partial} = .14$, $p = .13$, 95% CI [$-.04$, .30]), and with short-term variability in the impact of daily negative events ($r_{partial} = .09$, $p = .32$, 95% CI [$-.09$, .26]).

To examine whether individuals differed in the strength of the association between the impact of daily events and life satisfaction, we used a likelihood ratio test to compare two models. This approach is identical to the one used to test for individual differences in emotion globalizing (see *Hypothesis 2 Methods* for more details). The random-slope model that modeled individual differences in the strength of the association between the impact of the most positive event of the day and life satisfaction did not fit better than the model that did not account for these individual differences, $\chi^2(1) = 0.05$, $p = .49$. Likewise, the random-slope model that modeled individual differences in the strength of the association between the impact of the most stressful event of the day and life satisfaction did not fit better than the model that did not account for these individual differences, $\chi^2(1) = 2.56$, $p = .14$. This suggests that the strength of the association between the impact of daily events and life satisfaction did not significantly differ between people.

Hypothesis 3 Discussion

Results were consistent with Hypothesis 3. Greater positive and negative emotion globalizing were associated with greater short-term variability in life satisfaction, above and beyond mean life satisfaction, mean emotions, and short-term variability in emotions. Both positive and negative emotion globalizing were unique drivers of short-term variability in life satisfaction.

In contrast, the impact of daily events, short-term variability in the impact daily events, and the strength of the association between the impact of daily events and life satisfaction were not significantly associated with individual differences in short-term variability in life satisfaction. Moreover, the confidence intervals for these effects did not overlap with the confidence intervals for the associations between emotion globalizing and short-term variability in life satisfaction. These findings provide initial evidence that the events people experience in their daily life, per se, do not directly predict short-term variability in life satisfaction. Rather, individual differences in people's emotional responses to daily events predict short-term variability in life satisfaction (i.e., emotion globalizing). However, the impact of daily events was only assessed in the U.S. community adult sample, which had the smallest sample size and the fewest observations per participant. Thus, the lack of observed associations could have been driven by lower power or the relative unreliability of the measure of the impact of daily events. Replication in larger samples with more

measurement occasions is needed to better understand the role of daily events in predicting short-term variability in life satisfaction.

In sum, the present results support the idea that individual differences in the processes by which people evaluate their life satisfaction, and in particular the degree to which they consider their current emotions (emotion globalizing), predict individual differences in the short-term variability of their life satisfaction.

Hypothesis 4: Greater Short-Term Variability in Life Satisfaction Should Be Associated With Greater Neuroticism and Worse Psychological Health

In our fourth hypothesis test, we tested the predictions that greater short-term variability in life satisfaction should be associated with greater neuroticism and worse psychological health. Given the global nature of life satisfaction, we expected that short-term variability in life satisfaction may be indicative of maladaptive functioning. Specifically, we predicted that short-term variability in life satisfaction would be a statistically significant predictor of greater neuroticism and worse psychological health, even when the statistical confound between mean levels and variability in life satisfaction was addressed.

Hypothesis 4 Method

All analyses were conducted in R Version 3.3.0. We examined associations between short-term variability in life satisfaction, neuroticism, and psychological health accounting for the statistical confound between mean levels and variability in life satisfaction (see the section *Method: Elements Common Across Hypothesis Tests* for more details).

Hypothesis 4 Results

Table 5 presents the associations between short-term variability in life satisfaction, neuroticism, and psychological health; p values and 95% CIs can be found there.

Neuroticism. Greater short-term variability in life satisfaction was associated with greater neuroticism in all three samples. The bootstrapped correlations in the reconstituted samples were .26 in the U.S. community adult sample, .26 in the U.S. undergraduate sample, and .27 in the Canadian undergraduate sample. The effect sizes were medium (Funder & Ozer, 2019) and highly consistent across samples. As expected, partial correlations in the full sample were somewhat smaller but still positive: .20 in the U.S. community adult sample, .14 in the U.S. undergraduate sample, .12 in the Canadian undergraduate sample.

Psychological health. Short-term variability in life satisfaction was negatively associated with psychological health in all three samples. The bootstrapped correlations in the reconstituted samples were $-.28$ in the U.S. community adult sample, $-.22$ in the U.S. undergraduate sample, and $-.37$ in the Canadian undergraduate sample. The effect sizes ranged from medium to large (Funder & Ozer, 2019) and were somewhat consistent across samples. As expected, partial correlations in the full sample were somewhat smaller, but still negative: $-.22$ in the U.S. community adult sample, $-.13$ in the U.S. undergraduate sample, $-.23$ in the Canadian undergraduate sample.

Table 5

Associations Between Short-Term Variability in Life Satisfaction, Neuroticism, and Psychological Health, Adjusting for Mean Life Satisfaction

Variable	Community adults (U.S.)	Undergraduates (U.S.)	Undergraduates (Canadian)
N_{full} ($N_{reconstituted}$)	130 (78)	184 (112)	222 (80)
Neuroticism			
Correlation in reconstituted sample	.26 [.16, .35]*	.26 [.17, .34]*	.26 [.15, .39]*
Partial correlation	.20 [.03, .36]*	.14 [−.001, .28]	.12 [−.01, .25]
Psychological health			
Correlation in reconstituted sample	−.29 [−.37, −.19]*	−.22 [−.28, −.14]*	−.37 [−.47, −.28]*
Partial correlation	−.22 [−.38, −.05]*	−.13 [−.27, .02]	−.23 [−.35, −.10]*

Note. Psychological health was assessed as a composite of lower depressive symptoms and higher psychological well-being in the two U.S. samples and as trait self-esteem in the Canadian Undergraduate sample. Reconstituted correlations are mean bootstrapped Pearson's correlations (rs) in reconstituted samples. Each reconstituted sample included an equal number of participants above and below the midpoint in life satisfaction. The reconstituted N is the sample size in each of the 1,000 bootstrapped samples. Partial correlations (rs) are correlations between short-term variability in life satisfaction, neuroticism, and psychological health. 95% confidence intervals are shown in brackets.
* $p < .05$.

In a third approach suggested by a reviewer, we examined the unique effect of short-term variability in life satisfaction on psychological health in the reconstituted samples, above and beyond short-term variability in positive and negative emotions. Short-term variability in life satisfaction uniquely predicted poorer psychological health in both U.S. samples; U.S. community: bootstrapped r in the reconstituted sample = −.21, $p < .001$, 95% CI [−.30, −.11]; U.S. undergraduate: (bootstrapped r in the reconstituted sample = −.16, $p = .001$, 95% CI [−.24, −.07]). In the Canadian undergraduate sample, short-term variability in life satisfaction was not significantly associated with self-esteem, when controlling for short-term variability in positive and negative emotions (bootstrapped r in the reconstituted sample = −.10, $p = .28$, 95% CI [−.34, .17]).

In our preregistration for the U.S. undergraduate sample, we also predicted that short-term variability in life satisfaction would be associated with psychological health above and beyond mean life satisfaction, mean emotions, and short-term variability in emotion in multiple regression analyses. None of the short-term variability measures (i.e., short-term variability in life satisfaction, positive emotion, or negative emotion) had a unique effect on psychological health (βs < |.08|, ps > .28) above and beyond the other predictors in this model. The lack of unique effects of the short-term variability measures on psychological health is in part due to the moderate intercorrelations between all three mean level control variables and psychological health (.29 < |rs| < .53).

Hypothesis 4 Discussion

Results were mostly consistent with Hypothesis 4. Greater short-term variability in life satisfaction was associated with greater neuroticism and worse psychological health in all three reconstituted samples. These findings are consistent with the notion that greater short-term variability is indicative of maladaptive functioning and may be the downstream result of a hyper-reactive judgment style.

The association between short-term variability in life satisfaction and neuroticism is consistent with previous research that

neuroticism is associated with greater emotional reactivity to film clips (Gross et al., 1998). People who are higher in neuroticism may also be more reactive to the highs and lows of daily life and to their own emotions. In turn, this greater reactivity may result in greater short-term variability in life satisfaction (Patterson & Newman, 1993). Neuroticism may also be associated with the degree of coherence among well-being components. Recently, Cowan (2019) found that neuroticism moderated the within-person association between subjective well-being and psychological well-being, such that the two components were more strongly linked for individuals higher in neuroticism. Here, neuroticism may be associated with a stronger link between life satisfaction and current emotions (emotion globalizing), which in turn predicts greater short-term variability in life satisfaction.

The association between short-term variability in life satisfaction and psychological health is consistent with previous research that has shown associations between greater short-term variability in emotions and worse psychological health (Houben et al., 2015). Moreover, the association between short-term variability in emotions and psychological health was present above and beyond short-term variability in emotions in two out of three samples. The absence of a unique effect of short-term variability in life satisfaction in the Canadian undergraduate sample may be due in part to the larger correlations between short-term variability in life satisfaction and short-term variability in emotions in this sample.

General Discussion

In the present article, we proposed the IDELS model. Three propositions underlie this model. Proposition 1 posits that people evaluate their life satisfaction using a combination of constructivist (i.e., constructed from temporarily accessible information) and direct-retrieval (i.e., retrieved directly from memory) processes. Proposition 2 posits that current emotions serve as a source of information about one's life satisfaction. Proposition 3 posits that individuals differ substantially and reliably in the weighing of current emotions relative to more stable sources of information when evaluating their life satisfaction.

We provided a strong test of four preregistered hypotheses derived from the IDELS model in three female samples. Results were largely consistent with all four hypotheses. First, individuals differed substantially in degree of short-term variability in life satisfaction and these individual differences were moderately stable across two consecutive measurement bursts and across two measurement bursts separated by two months. Second, individuals differed substantially in emotion globalizing and these individual differences were moderately stable across two consecutive measurement bursts. Third, individual differences in emotion globalizing predicted individual differences in short-term variability in life satisfaction. Fourth, greater short-term variability in life satisfaction was associated with greater neuroticism and worse psychological health. Results were consistent across three samples that differed in terms of demographic make-up (e.g., undergraduate and community participants in the United States and Canada) and multiple aspects of the measurement approach (e.g., daily diaries and experience sampling). Taken together, these findings provide support for all four hypotheses and are consistent with the IDELS model.

Implications for Theory

The present research makes several contributions to theoretical models of life satisfaction. First, the present research is among the first to provide a systematic examination of short-term variability in life satisfaction—variability that occurs from day to day or within days. Previous research has largely focused on changes in life satisfaction across years (Anusic & Schimmack, 2016; Eid & Diener, 2004). The present findings are not at odds with the long-term stability of life satisfaction. Instead, our findings suggest that the long-term stability of life satisfaction is accompanied by a modest but meaningful amount of short-term variability. When measured daily or multiple times per day, up to one third of the total variance in life satisfaction occurred at the within-person level.

We are only aware of two other studies that examined short-term variability in global life satisfaction (Heller et al., 2004; Jayawickreme et al., 2017). Results from these studies were largely consistent with the present findings: short-term variability in life satisfaction was sizable but less than short-term variability in emotions. A handful of other studies have examined short-term variability in subjective wellbeing (a composite of life satisfaction and positive and negative emotions; e.g., Bostic & Ptacek, 2001; Gadermann & Zumbo, 2007). These studies also found considerable short-term variability in subjective wellbeing; however, it is difficult to draw conclusions specifically about life satisfaction from them.

The present findings also increase our understanding of the processes by which women evaluate their life satisfaction. In a recent review of how people evaluate their life satisfaction, existing models of life satisfaction were organized into three categories: constructivist models, direct-retrieval models, and integrative models (Robinson & Klein, 2018). Constructivist models posit that individuals do not have a clear sense of life satisfaction and thus construct their life satisfaction from temporarily accessible information, such as their current emotions (e.g., Schwarz & Strack, 1999). Direct-retrieval models posit that individuals have a stable concept of life satisfaction that they directly retrieve this informa-

tion from memory in the same way that they retrieve other stable, chronically accessible pieces of information about the self, such as food preferences (e.g., Schimmack & Oishi, 2005). According to direct-retrieval models, current emotions should have little to no influence on life satisfaction. The IDELS model integrates and extends upon these models. Specifically, the IDELS model theorizes that people combine constructivist and direct-retrieval processes when they evaluate their life satisfaction, and that individuals systematically differ in the degree to which they rely on each process. According to the IDELS model, some people have a more stable sense of life satisfaction that they directly retrieve from memory (i.e., lower emotion globalizing). Other people's sense of life satisfaction is relatively less clear (i.e., higher emotion globalizing). In sum, the IDELS model suggests that both constructivist and direct retrieval models are partially correct, but to different degrees for different people.

Both constructivist and direct-retrieval models suggest that people evaluate their life satisfaction heuristically. In contrast, integrative models of life satisfaction theorize that people evaluate their life satisfaction systematically (e.g., Campbell, Converse, & Rodgers, 1976). According to integrative models, people consider each of several life domains, compare their progress in each domain to internal and external standards, and average across these calculations. We primarily focused on constructivist and direct-retrieval models, because the IDELS model speaks most strongly to these types of models. However, the IDELS model shares some features in common with integrative models. For example, both models suggest that people consult multiple pieces of information when evaluating their life satisfaction. However, we argue that it is unlikely that people engage in complex mental calculations like those suggested by integrative models. Nonetheless, the present findings do not rule out the possibility of more systematic processes. We examined two key pieces of information (i.e., current emotions and the impact of daily events), but it is possible that people consider a variety of information sources when evaluating their life satisfaction. Indeed, an engine model of well-being suggests that a variety of inputs (e.g., wealth and health) lead to emotional and cognitive responses (e.g., life satisfaction evaluations), which in turn lead to important well-being outcomes (Jayawickreme, Forgeard, & Seligman, 2012).

Implications for Measurement

The present research contributes to our understanding of the reliability and validity of short-term variability measures. Because measures of short-term variability are more complex than measures of mean level or central tendency, they have larger standard errors (Biesanz, West, & Kwok, 2003). Indeed, previous research has shown that measures of variability are less reliable than measures of mean level (Estabrook, Grimm, & Bowles, 2012; Wang & Grimm, 2012).

Moreover, recent research has shown that theoretically meaningful measures of short-term variability are related to theoretically nonmeaningful measures of short-term variability (e.g., variability in the ratings of neutral objects), calling into question the discriminant validity of measures of short-term variability (Baird, Lucas, & Donnellan, 2017). This finding may also suggest that response styles (e.g., acquiescence bias and extreme response bias) unduly influence within-person variability measures (Baird et al.,

2017). Future research should consider including both true-keyed and reverse-keyed items when assessing within-person variability (e.g., Margolis, Schwitzgebel, Ozer, & Lyubomirsky, 2018) to account for these response styles. In the present research, data collection took place before the publication of a new measure of life satisfaction (Margolis et al., 2018) that fit these criteria.

In the present research, we found that measures of short-term variability in life satisfaction and in emotions demonstrated high internal consistency across three life satisfaction items and across several emotion terms. Moreover, retest correlations across two consecutive measurement bursts and across two measurement bursts separated by two months were always positive, significant, and larger than .40. In terms of convergent validity, short-term variability in life satisfaction was associated with conceptually relevant variability measures (i.e., short-term variability in emotions). In contrast, short-term variability in life satisfaction was not associated with less relevant measures of short-term variability (i.e., short-term variability in the impact of daily events), providing some evidence of discriminant validity. In sum, short-term variability in life satisfaction and emotions demonstrated acceptable reliability and validity, though less than that of mean life satisfaction and mean emotions.

In addition to general questions about the reliability and validity of short-term variability measures, we addressed the decision that researchers must make when deciding on the number of measurements per day. Should researchers studying within-person variability use daily diary or experience-sampling approaches? What trade-offs should they consider in terms of reliability and validity? Previous research has shown that short-term variability in emotions becomes more reliable with the inclusion of more measurement occasions (Eid & Diener, 1999; Estabrook et al., 2012). Unfortunately, it is costly to collect data from large samples of participants for several weeks of daily diaries and, worse, participant compliance is likely to be compromised. Instead of increasing the number of study days, researchers may choose to increase the number of measurements per day using experience-sampling approaches. Increasing the number of measurements per day also comes at a cost, though. Imagine a researcher took this idea to the extreme and asked participants to complete 50 surveys in a single day. This may appear to be a time-efficient method to collect a large number of observations and highly reliable measures. However, these gains in efficiency and reliability would likely be offset by problems with discriminant validity. If participants are asked to complete surveys too frequently, they are more likely to become bored and fatigued and, in turn, make less fine-grained distinctions among similar items and constructs (e.g., life satisfaction and emotions).

So, what should researchers do when choosing a measurement approach for studies of short-term variability? In the present research, we addressed this question by examining the reliability and validity of short-term variability in life satisfaction and emotions using both daily diaries and experience sampling. Consistent with our expectations, there appeared to be a trade-off in terms of reliability and validity when increasing the number of measurements per day. Short-term variability was more temporally stable when a larger number of measurements was obtained. Specifically, temporal stability reached high levels (i.e., estimated retest correlations = .74–.81), similar to retest correlations of Big Five traits, in the Canadian undergraduate sample, which used 70 measure-

ment occasions. Temporal stability was second-highest in the U.S. undergraduate sample (i.e., estimated retest correlations = .61–.69), which used 14 measurement occasions. Based on the high levels of stability obtained in the U.S. undergraduate sample, two weeks of daily diaries seems to be sufficient for obtaining reliable measures of short-term variability. Temporal stability was lowest in the U.S. community sample (i.e., retest correlations = .43 - .54), which used 8 measurement occasions and had a 2-month time lag in between measurement bursts.

In terms of validity, correlations among the different types of short-term variability (i.e., in life satisfaction, in positive emotions, and in negative emotions) were highest in the Canadian Undergraduate sample compared to the other two samples. In other words, participants may have made less fine-grained distinctions between similar items and constructs, perhaps due to fatigue or inattention. Thus, increasing the number of measurement occasions per day from one to five appeared to improve the temporal stability of the short-term variability measures but this improvement came at the expense of the discriminant validity of the measures.

Open Questions and Future Directions

Although the present research contributes to the literature on life satisfaction in key ways, several open questions remain. For example, what are the sources of individual differences in emotion globalizing? One possibility is that low versus high emotion globalizers differ in the ways that they think and feel about their own emotional experiences. For example, emotional acceptance (i.e., nonjudgmental acceptance of one's own emotions; Ford et al., 2018) may lessen the influence of current emotions on life satisfaction. Similarly, reappraisal (i.e., changing the way one thinks about an emotional situation; Gross & John, 2003) may also be associated with lower emotion globalizing. People who habitually engage in reappraisal may be better able to recognize the transient nature of emotions, lessening the impact of emotions on their life satisfaction. Emotion globalizing may also be related to processes of positive and negative overgeneralization (Carver, Voie, Kuhl, & Ganellen, 1988; Eisner, Johnson, & Carver, 2008), in which positive and negative events and emotions are generalized to broader aspects of life. Future research should seek to directly test the association between emotion globalizing and these types of responses to one's own emotions.

The present research did not examine more stable sources of information that people may use to evaluate their life satisfaction. What types of information do low emotion globalizers think about when they evaluate their life satisfaction? Based on the observed relationships with psychological health, we argue that these individuals are likely taking a more rational approach to evaluating their life satisfaction. For example, these individuals may evaluate their life satisfaction based on the gestalt quality of their life, which is relatively stable from day to day and within a single day. Some low emotion globalizers may also use other variable sources of information besides current emotions. However, on average, low emotion globalizers had lower short-term variability in life satisfaction. This suggests that at the group level, low emotion globalizers likely relied less on variable information sources and more on stable information sources when evaluating their life

satisfaction. Future research should seek to directly test these and other possibilities.

Several open questions remain regarding the association between short-term variability in life satisfaction and psychological health. This association was assessed cross-sectionally in the present research, and thus does not allow causal inferences. However, we believe that the association between short-term variability in life satisfaction and psychological health is likely bidirectional. On the one hand, lower psychological health has been associated with lower self-concept clarity and lack of insight (Campbell, 1990; Ghaemi & Pope, 1994). This lack of clarity may in turn lead to an unclear sense of life satisfaction. In the absence of a clear sense of life satisfaction, individuals may rely more on temporarily accessible information, such as their current emotions, to evaluate their life satisfaction, yielding greater short-term variability in life satisfaction. Conversely, greater short-term variability in life satisfaction may lead to worse psychological health by diminishing the signal value of life satisfaction. Low life satisfaction serves as a signal that one should take action to improve their quality of life. In contrast, high life satisfaction serves as a signal that one's life is going well and no further action is needed. When someone has high short-term variability in life satisfaction, this signal system becomes dysfunctional, which may be detrimental for psychological health. Future research should use longitudinal and cross-lagged designs to test this bidirectional model.

Another open question concerns the nature of repeated assessments of global life satisfaction judgments. Although we aimed to assess judgments of global life satisfaction rather than judgments of state satisfaction, we cannot completely account for the possibility that some participants might have misinterpreted the life satisfaction items as assessing state satisfaction due to the number and frequency of measurement occasions. Future work should seek to better understand how people interpret global and state life satisfaction items.

Finally, the present findings were limited to all-female samples. The use of female samples reduced within-sample variability, which increased our statistical power, but also limits the generalizability of our findings. In its general form, the IDELS model should hold across genders. Both men and women likely differ in the processes and information sources that they use to evaluate their life satisfaction. However, men and women may differ in key aspects of the model. For example, there may be gender differences in mean levels of emotion globalizing or in the association between short-term variability in life satisfaction and psychological health. Indeed, previous research has shown that the association between short-term variability in emotions and psychological health is attenuated in samples with larger proportions of men (Houben et al., 2015). Thus, future research should attempt to replicate the current findings in men.

Conclusion

The IDELS model provides new insight into the processes people use to evaluate their life satisfaction. The present findings suggest that women differ in predictable and temporally stable ways in the processes by which they evaluate their life satisfaction. Some women's life satisfaction ebbs and flows with moment-to-moment fluctuations in their emotions. Other women's life satisfaction is insulated from these emotional ups and downs and

remains relatively stable. These differing judgment styles are associated with individual differences in the degree of short-term variability in life satisfaction. A stronger link between life satisfaction and current emotions is associated with greater short-term variability in life satisfaction. Furthermore, the degree of short-term variability in life satisfaction has important implications for psychological health. Greater short-term variability in life satisfaction appears to be indicative of maladaptive functioning, characterized by greater neuroticism and worse psychological health. These findings have important implications for life satisfaction theory and measurement, as well as for understanding links between life satisfaction and psychological health.

References

Anusic, I., & Schimmack, U. (2016). Stability and change of personality traits, self-esteem, and well-being: Introducing the meta-analytic stability and change model of retest correlations. *Journal of Personality and Social Psychology, 110,* 766–781. http://dx.doi.org/10.1037/pspp0000066

Baird, B. M., Le, K., & Lucas, R. E. (2006). On the nature of intraindividual personality variability: Reliability, validity, and associations with well-being. *Journal of Personality and Social Psychology, 90,* 512–527. http://dx.doi.org/10.1037/0022-3514.90.3.512

Baird, B. M., Lucas, R. E., & Donnellan, M. B. (2017). The role of response styles in the assessment of intraindividual personality variability. *Journal of Research in Personality, 69,* 170–179. http://dx.doi.org/10.1016/j.jrp.2016.06.015

Barrett, D. J., & Feldman Barrett, L. (2006). ESP, the experience-sampling program Version 4.0 [Computer Software and Manual]. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.694.5813&rep=rep1&type=pdf

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.

Biesanz, J. C., West, S. G., & Kwok, O. M. (2003). Personality over time: Methodological approaches to the study of short-term and long-term development and change. *Journal of Personality, 71,* 905–942. http://dx.doi.org/10.1111/1467-6494.7106002

Blais, A. R., Thompson, M. M., & Baranski, J. V. (2005). Individual differences in decision processing and confidence judgments in comparative judgment tasks: The role of cognitive styles. *Personality and Individual Differences, 38,* 1701–1713. http://dx.doi.org/10.1016/j.paid.2004.11.004

Boehm, J. K., Winning, A., Segerstrom, S., & Kubzansky, L. D. (2015). Variability modifies life satisfaction's association with mortality risk in older adults. *Psychological Science, 26,* 1063–1070. http://dx.doi.org/10.1177/0956797615581491

Bostic, T. J., & Ptacek, J. T. (2001). Personality factors and the short-term variability in subjective well-being. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being, 2,* 355–373. http://dx.doi.org/10.1023/A:1013929030931

Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. New York, NY: Russell Sage Foundation.

Campbell, J. D. (1990). Self-esteem and clarity of the self-concept. *Journal of Personality and Social Psychology, 59,* 538–549. http://dx.doi.org/10.1037/0022-3514.59.3.538

Carver, C. S., Voie, L. L., Kuhl, J., & Ganellen, R. J. (1988). Cognitive concomitants of depression: A further examination of the roles of generalization, high standards, and self-criticism. *Journal of Social and Clinical Psychology, 7,* 350–365. http://dx.doi.org/10.1521/jscp.1988.7.4.350

Costa, P. T., Jr., Zonderman, A. B., McCrae, R. R., Cornoni-Huntley, J., Locke, B. Z., & Barbano, H. E. (1987). Longitudinal analyses of psy-

chological well-being in a national sample: Stability of mean levels. *Journal of Gerontology, 42,* 50–55. http://dx.doi.org/10.1093/geronj/42.1.50

Cowan, H. R. (2019). Can a good life be unsatisfying? Within-person dynamics of life satisfaction and psychological well-being in late midlife. *Psychological Science, 30,* 697–710. http://dx.doi.org/10.1177/0956797619831981

Dejonckheere, E., Mestdagh, M., Houben, M., Rutten, I., Sels, L., Kuppens, P., & Tuerlinckx, F. (2019). Complex affect dynamics add limited information to the prediction of psychological well-being. *Nature Human Behaviour, 3,* 478–491. http://dx.doi.org/10.1038/s41562-019-0555-0

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49,* 71–75. http://dx.doi.org/10.1207/s15327752jpa4901_13

Diener, E., Fujita, F., Tay, L., & Biswas-Diener, R. (2012). Purpose, mood, and pleasure in predicting satisfaction judgments. *Social Indicators Research, 105,* 333–341. http://dx.doi.org/10.1007/s11205-011-9787-8

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125,* 276–302. http://dx.doi.org/10.1037/0033-2909.125.2.276

Eid, M., & Diener, E. (1999). Intraindividual variability in affect: Reliability, validity, and personality correlates. *Journal of Personality and Social Psychology, 76,* 662–676. http://dx.doi.org/10.1037/0022-3514.76.4.662

Eid, M., & Diener, E. (2004). Global judgments of subjective well-being: Situational variability and long-term stability. *Social Indicators Research, 65,* 245–277. http://dx.doi.org/10.1023/B:SOCI.0000003801.89195.bc

Eisner, L. R., Johnson, S. L., & Carver, C. S. (2008). Cognitive responses to failure and success relate uniquely to bipolar depression versus mania. *Journal of Abnormal Psychology, 117,* 154–163. http://dx.doi.org/10.1037/0021-843X.117.1.154

Estabrook, R., Grimm, K. J., & Bowles, R. P. (2012). A Monte Carlo simulation study of the reliability of intraindividual variability. *Psychology and Aging, 27,* 560–576. http://dx.doi.org/10.1037/a0026669

Fazio, R. H. (1995). Attitudes as object-evaluation associations: Determinants, consequences, and correlates of attitude accessibility. *Attitude strength. Antecedents and Consequences, 4,* 247–282.

Ford, B. Q., Lam, P., John, O. P., & Mauss, I. B. (2018). The psychological health benefits of accepting negative emotions and thoughts: Laboratory, diary, and longitudinal evidence. *Journal of Personality and Social Psychology.* Advance online publication. http://dx.doi.org/10.1037/pspp0000157

Fujita, F., & Diener, E. (2005). Life satisfaction set point: Stability and change. *Journal of Personality and Social Psychology, 88,* 158–164. http://dx.doi.org/10.1037/0022-3514.88.1.158

Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science, 2,* 156–168. http://dx.doi.org/10.1177/2515245919847202

Gadermann, A. M., & Zumbo, B. D. (2007). Investigating the intra-individual variability and trajectories of subjective well-being. *Social Indicators Research, 81,* 1–33. http://dx.doi.org/10.1007/s11205-006-0015-x

Ghaemi, S. N., & Pope, H. G., Jr. (1994). Lack of insight in psychotic and affective disorders: A review of empirical studies. *Harvard Review of Psychiatry, 2,* 22–33. http://dx.doi.org/10.3109/10673229409017110

Ghosh, M. (1992). Constrained Bayes estimation with applications. *Journal of the American Statistical Association, 87,* 533–540. http://dx.doi.org/10.1080/01621459.1992.10475236

Gross, J. J., & John, O. P. (1998). Mapping the domain of expressivity: Multimethod evidence for a hierarchical model. *Journal of Personality*

and Social Psychology, 74, 170–191. http://dx.doi.org/10.1037/0022-3514.74.1.170

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85,* 348–362. http://dx.doi.org/10.1037/0022-3514.85.2.348

Gross, J. J., Sutton, S. K., & Ketelaar, T. (1998). Relations between affect and personality: Support for the affect-level and affective-reactivity views. *Personality and Social Psychology Bulletin, 24,* 279–288. http://dx.doi.org/10.1177/0146167298243005

Gruber, J., Kogan, A., Quoidbach, J., & Mauss, I. B. (2013). Happiness is best kept stable: Positive emotion variability is associated with poorer psychological health. *Emotion, 13,* 1–6. http://dx.doi.org/10.1037/a0030262

Handley, S. J., Newstead, S. E., & Wright, H. (2000). Rational and experiential thinking: A study of the REI. *International Perspectives on Individual Differences, 1,* 97–113.

Heller, D., Watson, D., & Ilies, R. (2004). The role of person versus situation in life satisfaction: A critical examination. *Psychological Bulletin, 130,* 574–600. http://dx.doi.org/10.1037/0033-2909.130.4.574

Houben, M., Van Den Noortgate, W., & Kuppens, P. (2015). The relation between short-term emotion dynamics and psychological well-being: A meta-analysis. *Psychological Bulletin, 141,* 901–930. http://dx.doi.org/10.1037/a0038822

Howell, R. T., Ksendzova, M., Nestingen, E., Yerahian, C., & Iyer, R. (2017). Your personality on a good day: How trait and state personality predict daily well-being. *Journal of Research in Personality, 69,* 250–263. http://dx.doi.org/10.1016/j.jrp.2016.08.001

Jacobson, N. C., Chow, S. M., & Newman, M. G. (2018). The Differential Time-Varying Effect Model (DTVEM): A tool for diagnosing and modeling time lags in intensive longitudinal data. *Behavior Research Methods, 51,* 295–315.

Jayawickreme, E., Forgeard, M. J., & Seligman, M. E. (2012). The engine of well-being. *Review of General Psychology, 16,* 327–342. http://dx.doi.org/10.1037/a0027990

Jayawickreme, E., Tsukayama, E., & Kashdan, T. B. (2017). Examining the within-person effect of affect on daily satisfaction. *Journal of Research in Personality, 71,* 27–32. http://dx.doi.org/10.1016/j.jrp.2017.08.008

John, O. P., Caspi, A., Robins, R. W., Moffitt, T. E., & Stouthamer-Loeber, M. (1994). The "Little Five": Exploring the nomological network of the five-factor model of personality in adolescent boys. *Child Development, 65,* 160–178. http://dx.doi.org/10.2307/1131373

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102–138). New York, NY: Guilford Press.

Lucas, R. E., & Donnellan, M. B. (2007). How stable is happiness? Using the STARTS model to estimate the stability of life satisfaction. *Journal of Research in Personality, 41,* 1091–1098. http://dx.doi.org/10.1016/j.jrp.2006.11.005

Lykken, D., & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Science, 7,* 186–189. http://dx.doi.org/10.1111/j.1467-9280.1996.tb00355.x

Magee, C., & Biesanz, J. C. (2019). Toward understanding the relationship between personality and well-being states and traits. *Journal of Personality, 87,* 276–294.

Magee, C., Buchtel, E. E., Human, L. J., Murray, D. R., & Biesanz, J. C. (2018). Is personality variability associated with adjustment? *Journal of Research in Personality, 72,* 22–43. http://dx.doi.org/10.1016/j.jrp.2016.08.005

Margolis, S., Schwitzgebel, E., Ozer, D. J., & Lyubomirsky, S. (2018). A new measure of life satisfaction: The Riverside Life Satisfaction Scale.

Journal of Personality Assessment. Advance online publication. http://dx.doi.org/10.1080/00223891.2018.1464457

Murray, G., Allen, N. B., & Trinder, J. (2002). Longitudinal investigation of mood variability and the FFM: Neuroticism predicts variability in extended states of positive and negative affect. *Personality and Individual Differences, 33,* 1217–1228. http://dx.doi.org/10.1016/S0191-8869(01)00217-3

Nezlek, J. B. (2012). *Diary methods for social and personality psychology.* London, UK: Sage. http://dx.doi.org/10.4135/9781446287903

Oishi, S., Diener, E., Choi, D. W., Kim-Prieto, C., & Choi, I. (2007). The dynamics of daily events and well-being across cultures: When less is more. *Journal of Personality and Social Psychology, 93,* 685–698. http://dx.doi.org/10.1037/0022-3514.93.4.685

Oishi, S., Schimmack, U., & Diener, E. (2001). Pleasures and subjective well-being. *European Journal of Personality, 15,* 153–167. http://dx.doi.org/10.1002/per.406

Patterson, C. M., & Newman, J. P. (1993). Reflectivity and learning from aversive events: Toward a psychological mechanism for the syndromes of disinhibition. *Psychological Review, 100,* 716–736. http://dx.doi.org/10.1037/0033-295X.100.4.716

Robinson, M. D., & Klein, R. J. (2018). What do subjective well-being judgments mean? Sources and distinctions, processes and mechanisms. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being.* Salt Lake City, UT: DEF Publishers.

Robinson, M. D., & Tamir, M. (2005). Neuroticism as mental noise: A relation between neuroticism and reaction time standard deviations. *Journal of Personality and Social Psychology, 89,* 107–114. http://dx.doi.org/10.1037/0022-3514.89.1.107

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press. http://dx.doi.org/10.1515/9781400876136

Ross, M., Eyman, A., & Kishchuk, N. (1986). Determinants of subjective well-being. In J. M. Olson, C. P. Herman, & M. P. Zanna (Eds.), *Relative deprivation and social comparison: The Ontario Symposium* (Vol. 4, pp. 79–93). Hillsdale, NJ: Erlbaum.

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69,* 719–727. http://dx.doi.org/10.1037/0022-3514.69.4.719

Schimmack, U., Diener, E., & Oishi, S. (2002). Life-satisfaction is a momentary judgment and a stable personality characteristic: The use of chronically accessible and stable sources. *Journal of Personality, 70,* 345–384. http://dx.doi.org/10.1111/1467-6494.05008

Schimmack, U., & Oishi, S. (2005). The influence of chronically and temporarily accessible information on life satisfaction judgments. *Journal of Personality and Social Psychology, 89,* 395–406. http://dx.doi.org/10.1037/0022-3514.89.3.395

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45,* 513–523. http://dx.doi.org/10.1037/0022-3514.45.3.513

Schwarz, N., & Strack, F. (1999). Reports of subjective well-being: Judgmental processes and their methodological implications. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being. The Foundations of Hedonic Psychology* (pp. 61–84). New York, NY: Russell Sage Foundation.

Soto, C. J., & John, O. P. (2017a). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology, 113,* 117–143. http://dx.doi.org/10.1037/pspp0000096

Soto, C. J., & John, O. P. (2017b). Short and extra-short forms of the Big Five Inventory–2: The BFI-2-S and BFI-2-XS. *Journal of Research in Personality, 68,* 69–81. http://dx.doi.org/10.1016/j.jrp.2017.02.004

Wang, L. P., & Grimm, K. J. (2012). Investigating reliabilities of intraindividual variability indictors. *Multivariate Behavioral Research, 47,* 771–802. http://dx.doi.org/10.1080/00273171.2012.715842

Yap, S. C. Y., Wortman, J., Anusic, I., Baker, S. G., Scherer, L. D., Donnellan, M. B., & Lucas, R. E. (2017). The effect of mood on judgments of subjective well-being: Nine tests of the judgment model. *Journal of Personality and Social Psychology, 113,* 939–961. http://dx.doi.org/10.1037/pspp0000115