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Wise Reasoning in the Face of Everyday Life Challenges

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Abstract

How stable vs. dynamic is wisdom in daily life? We conducted a daily diary study of wise reasoning (WR) by recording people's reflections on daily challenges in terms of three facets: intellectual humility, self-transcendence, and consideration of others' perspectives/compromise. We observed substantial and systematic intraindividual variability in WR, with wiser reasoning in the social versus nonsocial contexts. State-level WR variability was potent in predicting a bigger-picture construal of the event, more positive (vs. negative) emotions, greater emotional complexity, lower emotional reactivity, less thought suppression, and more reappraisal and forgiveness. In contrast, on the trait level, we observed only a few associations to emotional complexity and reappraisal. We discuss implications for conceptualization and measurement of wisdom-related thought.

Keywords

wisdom, state vs. trait, reasoning, emotion regulation, forgiveness

> In contemporary empirical science, wisdom has come to be regarded as a trait that is ascribed to persons making wise decisions. (Birren & Svensson, 2005, p. 15)

Wisdom has recently enjoyed lots of attention, with myriads of popular science books attempting to provide insight into this cherished quality. Indeed, philosophers have long suggested that wisdom is conducive to good life (Aristotle, 1953; Kekes, 1995; Tiberius, 2008), promoting adaptive reflection on dilemma endemic to social life. Consider such daily challenges as a conflict with one's partner or a colleague at work. The ability to reflect wisely on them may attenuate the adverse impact of such challenges and promote well-being (Grossmann, Na, Varnum, Kitayama, & Nisbett, 2013).

Surprisingly, little is known about the nature of wisdom-related thought in daily life (Staudinger & Glück, 2011). The above quote suggests a trait-like account—that is, wisdom is a stable individual characteristic with substantial test–retest consistency (Ardelt, 2003; Webster, 2007). Conversely, emerging experimental work (Grossmann & Kross, 2014; Kross & Grossmann, 2012; Staudinger & Baltes, 1996) suggests that wisdom includes a dynamic component—that it, it is highly variable and subject to situational contingencies. In the present article, we bridge these perspectives with the help of the *density-distribution* approach (Fleeson & Noftle, 2012) to explore intraindividual and situational variability in wisdom-related thought about challenges of daily life. We also test how trait- and state-wisdom–related thought relate to socioemotional tendencies, including construal, emotional intensity, complexity, emotion regulation, and forgiveness.

Defining Wisdom-Related Thought

In lay views, wisdom is associated with such individual characteristics as the ability to be observant, to see things within a larger context, flexibility, consideration of various opinions in a situation, self-reflection, and thoughtfulness (e.g., Holliday & Chandler, 1986). Consistent with such views, psychological wisdom scholars have proposed to examine aspects of context-sensitive reasoning, promoting flexible navigation of uncertainties (Baltes & Kunzmann, 2004; Baltes & Smith, 2008; Baltes & Staudinger, 2000; Grossmann et al., 2013). Such uncertainties often originate from conflict between various intrapersonal, interpersonal, and/or extrapersonal (e.g., group level) interests in people's lives (Sternberg, 1998). A balance between these conflicting interests can be achieved through greater application of wisdom-related reasoning (wise reasoning [WR] from here on), including intellectual humility, self-transcendence, and concern for different perspectives and compromise (Basseches, 1980; Clayton, 1982; Kramer, 1989; Orwoll & Perlmutter, 1990).

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Baltes and colleagues outlined WR as "understanding of the socially and contextually intertwined nature of human life, including its finitude, cultural conditioning, and incompleteness; and knowledge about oneself and the limits of one's knowledge" (Baltes & Staudinger, 2000, p. 124). Theoretically, the notion of WR is conceptually distinct from abstract cognitive abilities (Grossmann, Sahdra, & Ciarrochi, 2016; Grossmann et al., 2010; Sternberg, 1998). The latter constructs build on symbolic rules and procedures and do not depend on the context of the situation (cf. propositional logic; Inhelder & Piaget, 1958) and are, therefore, insensitive to the nonalignment between various interests in people's lives (Sternberg, 1998). Indeed, wiser reasoning about interpersonal dilemmas tend to be distinct from cognitive abilities, rationality and the Big Five personality traits (Grossmann et al., 2013; Staudinger, Lopez, & Baltes, 1997), and positively related to well-being, whereas domain-general cognitive abilities are not (Grossmann et al., 2013).

Models of Wisdom in Daily Life

Some philosophers have viewed wisdom as a stable individual characteristic (i.e., a trait), suggesting that virtues attributed to wisdom proceed from "firm and unchangeable character" (Aristotle, 1953, pp. 1105a27–1105b1). Others, including historical exemplars of wisdom such as Buddha, Confucius, or Gandhi, have suggested that wisdom is variable across situations and emphasized the role of teaching wisdom and its practice throughout one's life span (Brown, 1938; Gandhi & Attenborough, 1982; Humphreys, 1961; Lin, 1994).

The distinction between stable and situationally variable perspectives on wisdom has a parallel in the person–situation debate in psychology (Fleeson & Noftle, 2008). Nowadays, personality psychologists agree that both stable traits and intraindividual variability across situations are essential for understanding the nature of personality (Funder, 2008). To integrate stable and variable aspects of personality in the same model, Fleeson (2001) proposed a *density-distribution* account–that is, traits should be conceived as frequency distributions of their corresponding *states*. Personality states may reflect individual behavior in a given moment rather in general. Accumulating over time and across situations, a person's distribution of states indicates the typical frequency with which the individual is at each level of the state. Representing personality traits as the Big Five via density distributions of person's states provided insights into both the consistency of averaged behavior and the relatively low consistency of particular behaviors across situations (e.g., Bleidorn, 2009; Fleeson, 2007; Heller, Komar, & Lee, 2007; John, Naumann, & Soto, 2008; McCabe & Fleeson, 2012).

Trait versus situationally variable perspectives also have implications for the nomological network of wisdom. A longstanding notion in philosophy is that wisdom promotes a good life (Aristotle, 1953; Baltes & Staudinger, 2000; Kekes, 1995). This suggests that the nomological network of WR may include positive relationships to affective well-being (i.e., more positive/less negative affect; Grossmann et al., 2013) and factors conducive to well-being. Such factors might include appreciation of the complexity of emotional experiences (Labouvie-Vief, 1982; Quoidbach et al., 2014), adaptive emotion regulation (more reappraisal and less maladaptive thought suppression; Aldao, Nolen-Hoeksema, & Schweizer, 2010), a focus on the big picture meaning (Labroo & Patrick, 2009), and forgiveness (i.e., an emotion-focused coping strategy in interpersonal relationships; McCullough, 2000; Taylor, Bates, & Webster, 2011; Worthington & Scherer, 2004). The trait-perspective assumes that individuals high in WR also report greater well-being and show tendencies promoting such well-being *on average*. In contrast, the situationally variable perspective assumes that such relationships also (or even primarily) emerges in the context of specific situations: *If* the person shows wiser reasoning above his or her average, *then* he or she is also more likely to report greater emotion regulation, report less negative affect, and so on.

Methodological Considerations and Prior Empirical Research

A large number of studies have implicitly assumed that wisdom is invariable across situations: Researchers have asked people to evaluate themselves with help of abstract self-description statements that tap into seemingly trait-like, temporally stable descriptors (e.g., I am thoughtful, reflective, cooperative; Ardelt, 2003; N. Park & Peterson, 2008; Webster, 2003, for a review, see Glück et al., 2013).

Researchers have also relied on laboratory-based examination of WR in response to specific situations such as social conflicts or dilemmas (Baltes & Smith, 2008; Grossmann & Kross, 2014; Grossmann et al., 2010, 2013; Staudinger & Glück, 2011). Such situation-focused methods have provided initial insights into individual and situational factors promoting WR (Kross & Grossmann, 2012; Kunzmann & Baltes, 2003; Staudinger & Baltes, 1996). For instance, Staudinger and Baltes (1996) compared participants' verbal responses to a social dilemma. Participants were either instructed to think about a hypothetical problem on their own or to consider what other persons whose opinion they value might say about this dilemma. Participants in the others' opinions condition showed wiser reasoning than participants in the think-alone condition. In other studies, participants reflecting on a hypothetical transgression concerning close friends show a greater inclination to reason wisely than participants assigned to reflect on a comparable social conflict involving the self, and instructions to adopt an observer vantage point when reflecting on a hypothetical personal situation heightened one's recognition of intellectual humility and consideration of others' perspectives (Grossmann & Kross, 2014; Kross & Grossmann, 2012).

Prior research has been limited in its ability to provide clear insights about the nature of wisdom in daily life. Studies that adopted the trait-like approach focused on abstract self-descriptions. Such abstract assessments require retrieval and consideration of a wide range of memories, which may not

be available (Dunning, Heath, & Suls, 2004; Kihlstrom, Eich, Sandbrand, & Tobias, 2000), resulting in a bias toward highly memorable, but rarely typical experiences (Schwarz, Kahneman, & Xu, 2009). Moreover, when memorable experiences are not readily available, abstract self-assessments can be subject to impression management and involuntary self-deception (Paulhus & Vazire, 2007; Vazire & Carlson, 2010). Reliability and validity concerns like these (Redzanowski & Glück, 2013; Taylor et al., 2011; Zacher, McKenna, & Rooney, 2012) are of particular relevance when measuring wisdom because the central pillars of the construct concern intellectual humility and the absence of bias (Staudinger & Glück, 2011).

In contrast, many studies that have employed context-sensitive methods have relied on content-analytic techniques that grounded narrative analyses in the contingencies of specific scenarios, limiting direct comparability across scenarios. Moreover, this work was based on between-group comparisons, making it impossible to draw inferences about intraindividual variability in WR across a range of situations. Finally, most published studies that adopted the context-sensitive method have focused on the hypothetical dilemmas, limiting their inferences in how WR would naturally unfold in the context of daily life.

Research Overview

We aimed to examine the intraindividual variability of WR in the face of challenges people encounter in everyday life. To this end, we employed a combination of a 9-day daily diary with the event-reconstruction method (Schwarz et al., 2009), which enabled us to attenuate memory–recall biases by focusing on specific challenges people encounter in their lives. To ensure some comparability of responses across situations, we deliberately restricted events to interpersonal problems and hassles, following previous experimental work (e.g., Baltes & Staudinger, 2000; Grossmann et al., 2013; Grossmann & Kross, 2014).

First, we examined the consistency of responses at the distributional level, comparing the association between means and variances of wisdom-related tendencies across odd and even days of the diary. Next, we examined intraindividual variability, testing how situational contingencies influence WR. Finally, we explored the utility of the density-distribution approach by comparing the relationship between wisdom-related traits (i.e., aggregates across time and situations) and states (i.e., momentary behaviors) vis-à-vis the hypothesized nomological network of WR. To this end, we examined trait- and state-level relationships to positive and negative affect, emotional complexity, emotion regulation, "big picture" versus concrete construal and interpersonal forgiveness.

Method

Recruitment and Participants

We advertised the study through flyers and newspaper ads in the local communities around Berlin, Germany. Advertisements indicated that the study involved several research sessions and noted that they would be paid 50€ for their participation in a laboratory session and a diary session a month after that. Assuming a typical correlation of .21 for personality psychology (Fraley & Marks, 2007), we targeted 176 participants for $\alpha = .05$ and $\beta = .20$ for the initial session. Selection was targeted on participants who had little knowledge of psychological research. Subsequently, 160 of these individuals participated in a daily diary in return for 25 €. One participant dropped out after filling out the first diary and seven other participants misunderstood the instructions (i.e., did not write about specific events), yielding a final sample of 152 adults[1] (see Table 1).

Table 1. Demographic and Diary Episode Statistics.

Demographics/Diary Episode Statistics	*M* (*SD*/Range), %
Age	26.82 (6.56/27)
Gender, % female	48.70
Level of education	
Hauptschule/lower secondary	2.20
Realschule/intermediate secondary	13.00
Abitur/upper secondary school	54.30
College university diploma	29.00
Postgraduate degree	1.40
Have children	13.20
N completed episodes (whole sample)	1201
M completed episodes (per person)	4.90 (2.58/8)
"Where were you during the episode?"	
At home	42
At work/school	20.30
Somewhere else	38.10
Presence of others during the episode	
Alone	24.98
Family/friends	57.62
Work colleagues/customers/boss	17.40
Incidents involving a conflict/dispute	80.02

Notes. Six participants accidentally filled out an extra diary day.

Procedure and Materials

The 9-day diary occurred a month after the completion of an in-lab session, which included an experimental procedure. Preliminary results indicated that the experimental procedure did not affect any of the diary variables, $|ts| < 1.26$, *ns*. During the pre-diary session, participants provided their demographics (see Table 1) and completed a set of individual difference measures. Over 83% of participants completed at minumum 1-diary week.

Every morning, participants received an e-mail link to their diary. To minimize recall bias (Schwarz et al., 2009), we guided participants to select a specific negative experience from a previous day and to reconstruct concrete circumstances of this experience, including the circumstances of the incident, the time, location, presence of other people, and activities they were involved in (see Table 1). Next, standardized instructions guided participants to reflect on their feelings and thoughts,

Table 2. Wise Reasoning Items.

Facets and Items	Scale End Points	*n*	*M* (*SD*)	*Skew*
Intellectual humility				
1. For better understanding of the incident, it is important for me to have more information and knowledge about the circumstances of the incident	1 = *strongly disagree*, 7 = *strongly agree*	1,201	2.72 (2.01)	.83
2. Recognition of uncertainty and future change based on 2 items				
P: The consequences of the incident will be positive for me	1 = *very unlikely*; 7 = *very likely*	1201	2.91 (1.88)	.65
N: The consequences of the incident will be negative for me		1201	3.52 (1.95)	.17
Self-transcendence				
1. As you thought about the incident, did you feel more like an involved participant (i.e., you saw the incident reply in your own eye) or rather as a distanced observer (i.e., an observer who saw himself/herself act in a situation)?	1 = *predom. insider vantage point*; 7 = *predom. outsider vantage point*	1,201	3.02 (1.98)	.65
2. As you thought about the incident, did you feel immersed into the experience or rather distanced from the experience?	1 = *immersed* versus 7 = *distanced*	1,201	3.21 (1.96)	.49
3. As you thought about the incident, did you do it from a "me-perspective" or rather from a third-person perspective?	1 = *me-perspective*; 7= *3rd-person perspective*	1,201	2.61 (1.8)	.99
Recognition of others' perspectives and compromise				
1. As I think about the incident, I understand the pro and contra points of different positions	1 = *strongly disagree*, 7 = *strongly agree*	242	3.86 (2.08)	.05
2. I am now better able to see the incident from the perspective of the other involved people and to understand their behavior	1 = *strongly disagree*, 7 = *strongly agree*	242	3.47 (1.89)	.27
3. When I reason about incidents like this one, I am generally ready to put aside my interests for the benefit of my relationship with the involved person	1 = *strongly disagree*, 7 = *strongly agree*	242	3.69 (1.86)	.06

Note. *n* = number of diary observations. See Supplemental Table 1 for original wording in German.

taking as much time as they needed. Finally, participants reported on their thoughts and feelings during the reflection on the incident, including multiple aspects of WR, their subjective construal of the experience, emotional intensity and complexity, and forgiveness. Based on the event-reconstruction information, an independent rater screened diary entries for procedural errors, eliminating five repeat episodes.

Individual differences. The pre-diary session included a German version of Rosenberg's 10-item Self-Esteem Scale ($\alpha = .86$; Roth, Decker, Herzberg, & Brähler, 2008) and a German version of the revised version of the Ten-Item Personality Inventory Scale (TIPI-r; Denissen, Geenen, Selfhout, & van Aken, 2008), capturing each Big Five dimension with a single, bipolar item.

WR. Following the event reconstruction phase, participants reported the extent to which they utilized aspects of WR (Grossmann & Kross, 2014; Grossmann et al., 2010, 2013). As Table 2 indicates, we modeled questions for most facets of reasoning on a 1–7 scale, tapping into *intellectual humility* and *self-transcendence.* As a second metric of *intellectual humility*, we assessed the recognition of uncertainty when predicting future change, operationalized through the degree of ambivalence ($[P + N]/2 - |P - N|$; Thompson, Zanna, & Griffin, 1995) in predictions of negative versus positive consequences of the event, measured via the agreement with the statements: "The consequences of the incident will be negative for me" and "The consequences of the incident will be positive for me." Participants who indicated that the incident involved a conflict with someone else also reported the extent to which they *considered others' perspectives* and reasoned about the possibility of a compromise. As Table 2 indicates, most of the items were skewed toward a "nonwise" end of the scale, suggesting little evidence of socially desirable responding.

Nomological network correlates. We assessed affective, cognitive, and social factors previously characterized as promoting well-being (e.g., Baltes & Staudinger, 2000; Grossmann et al., 2013; Taylor et al., 2011; Worthington & Scherer, 2004).

Construal. We assessed whether participants tried to construe the event in terms of the bigger picture meaning or construed it concretely by examining participants' agreement on a scale (1 = *big picture* to 7 = *concrete details*) with the statement "As you reflected on the event, did you try to see the big picture or did you rather attend to the concrete details of the event?"

Emotional intensity. To assess the emotional intensity of participants' difficult social events, we asked them to indicate on a scale (1 = *not at all*, 5 = *very much*) the extent to which they experienced seven positive (self-confident, happy, interested, convivial, relaxed, proud, and secure; $\alpha = .74$) and nine negative emotions (sad, depressed, tense, angry, bored, insecure, unhappy, ashamed, and guilty; $\alpha = .75$). We calculated mean positive and negative intensity scores.

Emotional complexity. To calculate emotional complexity, we followed prior research (Grossmann, Huynh, & Ellsworth, 2015; Quoidbach et al., 2014), quantifying the richness and evenness of participants' emotional experiences in their

Table 3. Model Fit Comparison.

Model	$\chi^2(df)$	p	AIC	BIC	CFI	TLI	RMSEA [90% CI]
1. One factor	155.184 (20)	<.001	2,6383.83	2,6506.01	.925	.895	.075 [.064, .086]
2. Three independent factors	51.450 (20)	<.001	2,6280.09	2,6402.27	.983	.976	.036 [.024, .049]
3. One second-order factor based on three factors	31.683 (17)	.016	2,6266.33	2,6403.78	.992	.987	.027 [.011, .041]
4. One second-order factor based on three factors with residual Correlations	22.615 (16)	.124	2,6259.26	2,6401.8	.996	.994	.019 [.0001, .035]

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval.

difficult social events based on Shannon's entropy formula—$\sum_{i=1}^{s}(p_i \times \ln p_i)$. In this formula, s reflects the number of emotions, representing the richness (i.e., how many emotions are experienced), whereas p_i reflects the proportion of s made up of the ith emotion, representing the evenness (i.e., the extent to which a specific emotion is experienced, relative to other experienced emotions). Note that the equation captures in a single index both how many of the 16 emotions a participant experienced (richness), respectively, and the relative abundance of the different emotions that make up a person's emotional experience (evenness). Higher scores indicate greater diversity in emotional states, which we use as a proxy measure for emotional complexity.

Emotion regulation. The tendency to suppress the thoughts surrounding an emotional experience has been linked with maladaptive styles of emotion regulation, whereas the tendency to reappraise events in ways that promotes insight and closure has been linked with adaptive emotion regulation (for a review, see Aldao et al., 2010). We explored the relationship between these emotion regulation strategies and WR. We assessed thought suppression by examining participants' agreement on a scale (1 = *strongly disagree,* 7 = *strongly agree*) with the statement "I tried to suppress my thoughts about the incident." As in prior work (Ayduk & Kross, 2010; Grossmann & Kross, 2010), we operationalized reappraisal as an average across the following 3 items using the same rating scale: "As I thought about my experience during the study, I had a realization that caused me to think differently about the experience," "As I thought about my experience during the study, I had a realization that led me to experience a sense of closure," and "Thinking about my experience during the experiment led me to have a clearer and more coherent understanding of this experience" ($\alpha = .78$).

Postreflection reactivity. Based on earlier work (Ayduk & Kross, 2010), we operationalized postreflection reactivity as average of 3 items ($\alpha = .86$): "Thinking about the event still makes me feel upset (e.g., rejected, angry, hurt, or sad)," "The event still unsettles me," "As I think about the event now, my emotions and physical reactions to the conflict are still intense" (on a scale from 1 = *strongly disagree* to 7 = *strongly agree*).

Forgiveness. Before reflecting on the incident, participants indicated if the hassle was self- versus other-inflicted (1 = *self-inflicted* to 7 = *other-inflicted*). Participants received a forgiveness questionnaire if the hassle was other-inflicted (score ≥ 5; 48.4%). Participants completed 6 state-forgiveness items (Fincham, Beach, & Davila, 2004; McCullough, Root, & Cohen, 2006), reflecting benevolence (2 items, e.g., "It is easy for me to show a similarly positive attitude toward this person as before the incident"), avoidance (2 items, e.g., "I want to withdraw myself from this person"), and revenge (2 items, e.g., "I wanted to pay him back"). We pooled all items in the same direction, with higher scores indicating greater forgiveness and collapsed them into a single index ($\alpha = .63$).

Results

Model Fit of WR

Using *lavaan* (Rosseel, 2012) in *R*, we compared fit of three models of the WR construct. Model 1 included one first-order latent factor, with wisdom-related items as separate indicators. Model 2 assumed three independent factors: intellectual humility, self-transcendence, and perspectives/compromise. Finally, Model 3 assumed that the three first-order factors feed into the second-order latent factor of WR. As Table 3 indicates, Model 3 had a significantly better fit than the other two models, $\chi^2_{\text{Model 3 vs. Model 1}}(3) = 19.77$, $p < .001$, $\chi^2_{\text{Model 3 vs. Model 2}}(3) = 123.5$, $p < .0001$. Modification indices suggested a model fit increment by correlating self-transcendence residuals (see Figure 1). To account for missing data, we used multiple imputation package *Amelia* (Honaker, King, & Blackwell, 2011), simultaneously performing factor analysis on 30 imputed data sets and using the factor scores of the first-order facets and the second-order factor of WR from Model 4, weighted across 30 data sets, for subsequent analyses.

Intraindividual Stability Versus Variability

We explored intraindividual stability in the first- and second-order latent factors of WR. Average zero-order correlation between scores across diary days was small, r_{WR}=.20, $r_{\text{humility}} = .16$, $r_{\text{self-transcendence}} = .33$, $r_{\text{perspectives/compromise}} = .06$, suggesting a modest day-to-day stability in the construct. When examining how the mean scores on the odd days of the diary correlate with the respective aggregates on the even days, we observed a substantial positive association between aggregated scores on different days, r_{WR} ($n = 152$) = .48,

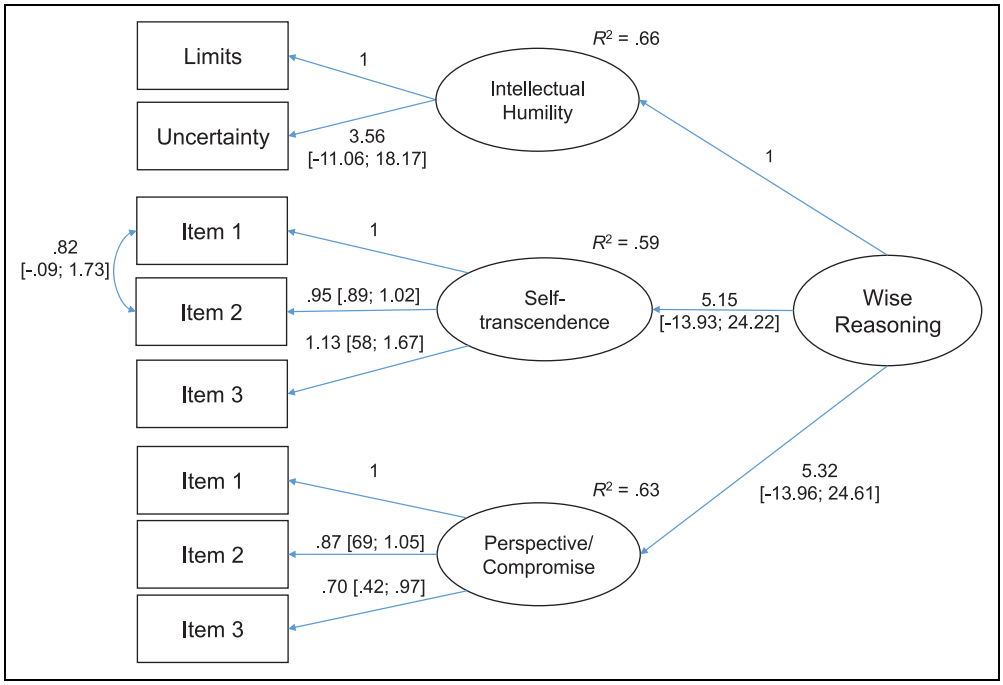

Figure 1. Structural model of wise reasoning in daily life. Estimates represent unstandardized coefficients with 95% confidence intervals in parentheses.

$p < .001$, $r_{humility}$ $(n = 152) = .40$, $p < .001$, $r_{self\text{-}transcendence}$ $(n = 152) = .66$, $p < .001$, with an exception of the perspectives/compromise facet, $r_{perspectives/compromise}$ $(n = 152) = .13$, $p = .10$. When looking at the variance (within-person *SD*), examining intraindividual variance on the odd and even days of the diary produced a significant degree of intraindividual consistency for self-transcendence, $r(n = 145) = .39$, $p < .001$ but little consistency for other components, $r_{perspectives/compromise}$ $(n = 145) = .14$, $p = .09$, $r_{humility}$ $(n = 145) = .03$, r_{WR} $(n = 145) = -10$, *ns*. Overall, the consistency of both intraindividual distribution parameters (means or variances) of wisdom-related thought appears comparable in magnitude to personality constructs (Fleeson & Noftle, 2012), particularly for humility and self-transcendence facets.

Additionally, we compared the between-person variance in density distributions of diary means to variations from one's diary mean (i.e., within-person vs. between-person *SD*). As Figure 2 indicates, we observed a wider range of responses when examining the within-person variance within each person's distribution ($SD_{WR} = .13$, $SD_{humility} = .16$, $SD_{self\text{-}transcendence} = 1.04$, $SD_{perspectives/compromise} = 1.17$) compared to the between-person variance between the individual mean levels of these distributions ($SD_{WR} = .09$, $SD_{humility} = .10$, $SD_{self\text{-}transcendence} = .89$, $SD_{perspectives/compromise} = .55$).

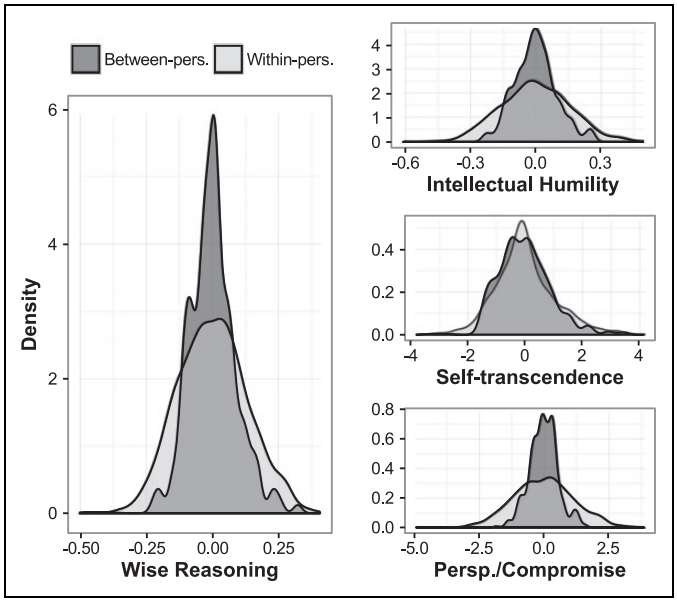

Figure 2. Density distribution of wisdom-related thought. Wise reasoning indicates estimates of the second-order latent factor.

Individual Differences and Contextual Effects

We used *lme4* (Bates, Maechler, Bolker, & Walker, 2015) and *lmerTest* (Kuznetsova, Brockhoff, & Bojesen Christensen, 2016) to perform multilevel analyses with diary responses nested within individuals, bootstrapping (500 simulations) 95% confidence interval [CI] estimates.

None of the individual differences were significantly associated with WR or its individual facets, *t*s < 1.49, *ns*. Among the demographics, only age was associated with wiser reasoning in daily life, $B = .004$, $SE = .002$, $t(df = 132) = 1.97$, $p = .051$, 95% CI [.0003, .007], driven by humility, $B = .005$, $SE = .002$, $t(df = 132) = 2.15$, $p = .033$, 95% CI [.0006, .009], and self-

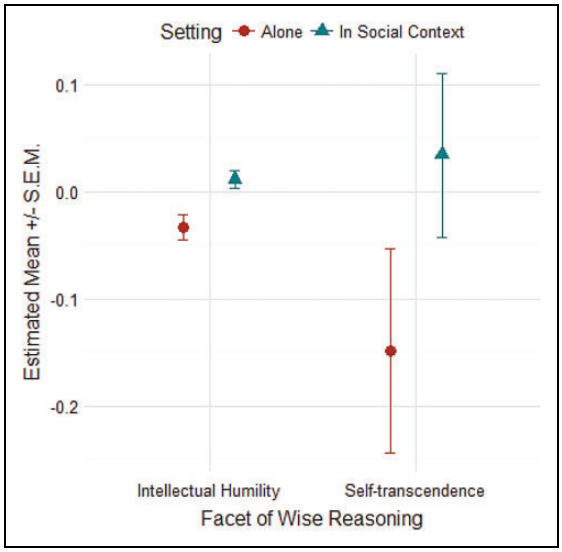

Figure 3. Effects of setting (alone vs. at work or with family/friends) on z scores of intellectual humility and self-transcendence. Estimated means ± standard error from the multilevel model, nesting repeated diary scores within participants.

transcendence, $B = .037$, $SE = .020$, $t(df = 132) = 1.89$, $p = .062$, 95% CI [−.002, .080], but not perspectives/compromise, $B = .012$, $SE = .011$, $t(df = 132) = 1.00$, *ns*.

Next, we explored whether cross-situational variability in WR could be predicted by contextual factors. A series of multilevel analyses exploring how WR varies as a function of participation in the diary study (mean-centered linear and quadratic effect of diary iteration, i.e., a value of 1 for the first day, 2 for the second day, etc.). Results revealed a positive effect of writing a diary for self-transcendence, $B = .030$, $SE = .014$, $t(df = 1{,}074) = 2.19$, $p = .029$, 95% CI [.004, .055], extending prior research on American samples (J. Park, Ayduk, & Kross, 2016). Diary progression marginally impacted the second-order factor, $B = .003$, $SE = .002$, $t(df = 1{,}086) = 1.73$, $p = .083$, 95% CI [−.0003, .007], and did not significantly impact other facets of WR, $|t|$s < 1.20, *ns*. We did not observe significant quadratic effects of diary iteration, $|t|$s < 1.54, *ns*.

Further, because we assessed intellectual humility and self-transcendence across social versus nonsocial settings, we explored whether these facets of WR systematically vary as a function of the setting. As Figure 3 indicates, participants reported greater intellectual humility, $B = .045$, $SE = .012$, $t(df = 1{,}147.1) = 3.78$, $p = .0002$, 95% CI [.019, .068], and self-transcendence in social as compared to nonsocial settings, $B = .182$, $SE = .079$, $t(df = 1{,}110.6) = 2.31$, $p = .021$, 95% CI [.011, .328].

WR and Cognitive and Socioaffective Correlates

Finally, we explored how within- and between-person variability in WR relates to socioemotional responding to challenges. Following recommendations for diary analyses (Bolger, Davis, & Rafaeli, 2003), for each measure, we simultaneously entered between- and within-person scores of WR as predictors (centered at the grand-mean and within-person mean, respectively). As results in Table 4 indicate, when people reported wiser reasoning than their average tendency—that is, within-person effects—they were significantly less likely to construe the situation in terms of the concrete details (vs. the bigger picture) and were more likely to report more intense positive emotions and less intense negative emotions. They were also more likely to show greater emotional complexity, a more adaptive pattern of emotion regulation (more reappraisal and less suppression), and a greater tendency to forgive. These effects were particularly pronounced for the intellectual humility and self-transcendence.

In contrast, the only significant associations between between-person variability in WR and the various indicators of the nomological network concerned greater emotional complexity and a greater tendency to reappraise the situation, and a significant relation to concrete versus bigger picture construal for the self-transcendence. In other words, whereas seven of eight indicators were significantly related to WR in the predicted direction on the within-person level, we observed only 2/8 associations on the between-person level. Similarly, when examining individual facets, we observed 18/24 associations in the predicted direction on the within-person level and 5/24 significant associations on the between-person level.

Discussion

To date, research on wisdom-related thought has mainly concerned hypothetical in-lab situations (Grossmann & Kross, 2014; Kross & Grossmann, 2012; Kunzmann & Baltes, 2003; Staudinger & Baltes, 1996) or has employed single-shot trait self-assessments of personal attributes (Ardelt, 2003; Webster, 2007). Little has been known about the nature of wisdom in everyday life. The present findings start to fill this void by testing the intraindividual variability in WR (including intellectual humility, self-transcendence, consideration of others' perspectives, and compromise) about challenges people encounter in their lives.

The results from the diary support the idea that WR can be meaningfully described as distributions of wise behaviors that are contingent on situational properties. Specifically, people showed fluctuations in their reports of WR in the face of challenges of everyday life, with very modest day-to-day within-person consistency and substantial within-person variability. These fluctuations were systematic, with greater intellectual humility and self-transcendence in social versus nonsocial situations and greater self-transcendence over the course of writing a diary. At the same time, people's average tendency to reason wisely turned out to include a stable individual difference component (Fleeson, 2001).

Furthermore, we observed a greater number of state- (as compared to trait-) level associations between WR and its nomological network. These associations included focus on the bigger picture, more complex emotional representation, less reactivity to adverse events, adaptive emotion regulation, and greater forgiveness. Notably, the associations between WR on the one hand and affective intensity, reactivity, and

Table 4. Effects of Wise Reasoning on Construal, Affect, and Forgiveness.

		Within-Person Effects				Between-Person Effects			
Wise Reasoning		*B* (*SE*)	|*t*| (*df*)	*P*	95% CI	*B* (*SE*)	|*t*| (*df*)	*p*	95% CI
Second-order latent score	Concrete construal	−0.752 (0.373)	2.019 (1,046.6)	.044	[−1.510, −0.007]	−1.698 (0.954)	1.780 (159.9)	.077	−[3.759, 0.056]
	Positive emotional intensity	0.431 (0.145)	2.980 (1,046.5)	.003	[0.162, 0.719]	0.172 (0.396)	0.433 (159.8)	*ns*	—
	Negative emotional intensity	−0.225 (0.137)	1.643 (1,044.3)	.101	[−0.481, 0.034]	−0.042 (0.407)	0.102 (157.4)	*ns*	—
	Emotional complexity	0.146 (0.038)	3.876 (1,045)	.0001	[0.071, 0.218]	0.306 (0.123)	2.479 (150.6)	.014	[0.059, 0.546]
	Postreflection reactivity	−1.857 (0.333)	5.577 (1,051.8)	<.0001	[−2.472, −1.192]	−0.611 (0.850)	0.718 (159.4)	*ns*	—
	Thought suppression	−1.227 (0.303)	4.043 (1,049.1)	<.0001	[−1.814, −0.669]	0.180 (0.822)	0.219 (156.6)	*ns*	—
	Reappraisal	1.204 (0.255)	4.723 (1,045)	<.0001	[0.703, 1.659]	3.263 (0.897)	3.638 (152)	.0004	[1.262, 4.931]
	Forgiveness	3.572 (0.611)	5.850 (179.77)	<.0001	[2.409, 4.735]	0.482 (1.216)	0.396 (109.31)	*ns*	—
Intellectual humility facet	Concrete construal	−0.508 (0.308)	1.653 (1,046.4)	.099	[−1.156, 0.131]	−1.087 (0.861)	1.262 (159.8)	*ns*	—
	Pos. emo. intensity	0.401 (0.119)	3.363 (1,046)	.0008	[0.183, 0.628]	0.541 (0.353)	1.533 (159.4)	*ns*	—
	Neg. emo. intensity	−0.287 (0.113)	2.541 (1,044.5)	.011	[−0.513, −0.057]	0.110 (0.366)	0.302 (157.6)	*ns*	—
	Emo. complexity	0.109 (0.031)	3.507 (1,056)	.0005	[0.048, 0.171]	0.390 (0.109)	3.594 (152)	.0004	[0.173, 0.605]
	Postrefl ection reactivity	−1.394 (0.275)	5.068 (1,052)	<.0001	[−1.988, −0.905]	−0.237 (0.765)	0.309 (159.9)	*ns*	—
	Thought suppression	−0.941 (0.250)	3.760 (1,049.1)	.0002	[−1.421, −0.438]	0.355 (0.738)	0.481 (156.8)	*ns*	—
	Reappraisal	0.903 (0.210)	4.293 (1,046)	<.0001	[0.502, 1.302]	3.193 (0.799)	3.994 (152.5)	.0001	[1.662, 4.725]
	Forgiveness	2.350 (0.515)	4.559 (175.93)	<.0001	[1.306, 3.455]	0.472 (1.078)	0.438 (104.9)	*ns*	—
Self-transcendence facet	Concrete construal	−0.171 (0.047)	3.665 (1,045.6)	.0003	[−0.259, −0.092]	−0.179 (0.094)	1.907 (156.8)	.058	[−0.353, −0.003]
	Pos. emo. intensity	0.059 (0.018)	3.277 (1047)	.001	[0.022, 0.092]	0.012 (0.039)	0.314 (157)	*ns*	—
	Neg. emo. intensity	−0.043 (0.017)	2.494 (1,044.2)	.013	[−0.078, −0.012]	−0.037 (0.040)	0.913 (154.5)	*ns*	—
	Emo. complexity	0.013 (0.005)	2.703 (1,045)	.007	[0.004, 0.023]	0.025 (0.012)	2.075 (104.5)	.040	[0.001, 0.050]
	Postreflection reactivity	−0.240 (0.042)	5.760 (1,051.7)	<.0001	[−0.333, −0.154]	−0.083 (0.084)	0.996 (156.2)	*ns*	—
	Thought suppression	−0.161 (0.038)	4.220 (1,049)	<.0001	[−0.229, −0.089]	0.0002 (0.081)	0.003 (153.7)	*ns*	—
	Reappraisal	0.052 (0.032)	1.600 (1,046)	110	[−0.009, 0.110]	0.260 (0.090)	2.89 (150.1)	.004	[0.086, 0.423]
	Forgiveness	0.203 (0.078)	2.588 (177.85)	.010	[0.042, 0.373]	−0.029 (0.126)	0.234 (105.6)	*ns*	—
Perspectives/compromise facet	Concrete construal	−0.005 (0.042)	0.109 (1,046)	*ns*	—	–0.205 (0.152)	1.348 (161.4)	*ns*	—
	Positive emotional Intensity	0.017 (0.016)	1.025 (1,047.3)	*ns*	—	−0.050 (0.063)	0.789 (162.2)	*ns*	—
	Negative emotional intensity	0.008 (0.015)	0.546 (1,044)	*ns*	—	0.041 (0.064)	0.633 (159)	*ns*	—
	Emotional complexity	0.014 (0.004)	3.266 (1,045)	.001	[0.005, 0.049]	0.015 (0.020)	0.755 (152.5)	*ns*	—
	Postreflection reactivity	−0.121 (0.038)	3.203 (1,051.9)	.001	[−0.194, −0.054]	−0.061 (0.135)	0.454 (161.2)	*ns*	—
	Thought suppression	−0.076 (0.034)	2.228 (1,049.1)	.026	[−0.140, −0.011]	0.018 (0.130)	0.135 (158.2)	*ns*	—
	Reappraisal	0.151 (0.029)	5.294 (1,046)	<.0001	[0.094, 0.204]	0.370 (0.145)	2.548 (153.8)	.012	[0.085. 0.658]
	Forgiveness	0.462 (0.070)	6.645 (177.27)	<.0001	[0.319, 0.582]	0.187 (0.189)	0.987 (102.69)	*ns*	—

Note. Following prior research (Quoidbach et al., 2014), emotional complexity analyses included mean-level positive and negative emotions as covariates. As in prior work (Grossmann et al., 2015; Quoidbach et al., 2014), both scores were highly positively related to emotional complexity, $31.81 < ts \leq 35.95$, $ps < .0001$. 95% confidence interval (CI)—bootstrapped CIs with 500 simulations. We simulated CIs for effects with $p < .12$.

forgiveness on the other hand were only evident on the within-person (rather than between-person) level of analysis. These observations would have likely remained undetected if one were to examine general tendencies without considering the within-person variability in WR.

Results from the present research have several implications. This work extends the density-distribution approach to understanding individual differences (Fleeson, 2001) to the domain of psychological wisdom research. Simultaneously, insights from the present research suggest that a fuller picture of a psychological wisdom construct in everyday life involves consideration of cross-situational variability in WR, that is, its dynamic component (Staudinger & Glück, 2011), in addition to individual differences.

One further implication is that measuring wisdom via one-shot state measures says little about underlying traits. Our research indicates that within-person variance in wisdom is larger than between-person variance, suggesting that the distributions of WR about interpersonal challenges of any two persons overlap. Therefore, according to the density distribution approach to personality (Fleeson & Noftle, 2008), measuring wisdom-related thought only once seems inadequate for assessing reliable individual differences in wisdom. To assess trait-level WR, one would require an average across multiple state-level observations. Drawing from the insights about the average interday reliability we observed ($r = .20$), one can also estimate how many such observations are needed to obtain a reliable estimate. Specifically, based on the Spearman–Brown prediction formula, one would require at least nine repeated observations to get an estimate of a general wisdom-related tendency that would be considered reliable according to the current conventions ($\alpha = .70$).

Moreover, a greater number of within-person (vs. between-person) effects of WR suggests that a dynamic view of wisdom may be advantageous when exploring its relationship to cognitive and socioemotional correlates. Such insight has practical implications for teaching individuals to capitalize on their "wise situations," such as social situations that enable people to recognize their limits of knowledge or see events from an observer perspective. It dovetails with the recent shifts in views on malleability of other human characteristics that have long been regarded as fixed, such as intelligence, which are now seen as greatly influenced by sociocultural (Nisbett et al., 2012) and motivational factors (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, Mangels, & Good, 2004).

Before concluding, a few caveats are in order. Following prior studies (Baltes & Smith, 2008; Baltes & Staudinger, 2000; Grossmann & Kross, 2014; Grossmann et al., 2010, 2012; Kross & Grossmann, 2012), our diary focused on WR about challenging situations. By zeroing-in on negatively colored challenges, our diary method constrained the variance in types of recalled situations. Although there was still a great deal of variability in types of incidents people recalled (see Table 1), it is possible that the focus on the negatively colored challenges somewhat restricted the range of possible responses. Therefore, the intraindividual reliability estimates of WR in the present research may be deflated. Moreover, WR may also be meaningful in cases other than those involving (interpersonal) challenges. Future work can explore these questions by using multiple methods (e.g., diary and experience sampling) and by sampling a wider range of situations.

Conclusion

Over 2,000 years ago, Aristotle (1953) has described wisdom as a cardinal virtue (also see Aquinas, Albertus, Houser, & Philip, 2004). Some behavioral scientists have interpreted this statement as meaning that wisdom is a stable disposition (cf. Doris, 2002), inferring that it might be sufficient to assess wisdom-related tendencies via single-shot measure of behavior (e.g., in the laboratory) or via generalized trait self-evaluations (Ardelt, 2003; N. Park & Peterson, 2008; Webster, 2003). In contrast, results from the present article indicate that some of the central characteristics of wisdom discussed by psychological scientists, including intellectual humility, self-transcendent viewpoint, and recognition of the bigger issue at hand, have a dynamic component, understanding of which would be essential for a fuller picture on wisdom in everyday life.

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Note

1. Our sample included romantic couples (85%). The majority of the incidents did not involve one's partner (65%), and less than 2% mentioned their partner when describing the event. Therefore and because we did not have a priori hypotheses concerning partner effects, we did not test how partner's reasoning affects participants' reasoning. All reported results hold when accounting for dyadic interdependence (see supplemental analyses).

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