Beyond trait models of self-criticism and self-compassion: Variability over domains and the search for signatures☆

David C. Zuroff*, Kayleigh-Ann Clegg, Shelby L. Levine, Nicola Hermanto, Benjamin F. Armstrong III, Ben Haward, Sorin Thode

Department of Psychology, McGill University, Canada

ARTICLE INFO

ABSTRACT

Research on risk and resilience variables such as self-criticism and self-compassion typically assumes that they are broad traits reflecting highly cross-situationally consistent dispositions. However, contemporary personality science conceptualizes contextual variability as a universal feature of personality characteristics, complementary to but not inconsistent with central tendencies, or traits (Fleeson & Jayawickreme 2015; Moskowitz & Fournier 2015). We adopted the person × situation interaction model of personality, distinguishing person differences in mean levels, normative effects of situations, and person × situation interactions, termed *signatures*. However, rather than sampling external situations, we modified measures of self-criticism, self-reassurance, and self-compassion to assess them in eight domains of the self. Study 1 estimated person, domain, and person × domain variance components in four young adult samples. Differences between persons (traits) accounted for considerable variance, ranging from 29% (self-compassion) to 46.5% (self-reassurance), and domain differences accounted for relatively small variance components. Signatures accounted for substantial additional variance, ranging from 13.7% (self-compassion) to 26% (self-criticism). In Study 2, multilevel modeling demonstrated that person, domain, and signatures were each significantly related to domain-specific negative and positive affect. These findings highlight the importance of expanding risk and resilience studies beyond traits to include normative domain effects and person-specific signatures.

1. Introduction

Personality traits that confer risk or resilience for psychopathology and, more broadly, maladjustment have received considerable attention in recent years. This article focuses on two such traits, self-criticism (Blatt, 2004) and self-compassion (Gilbert, 2014; Neff, 2003a), which have been proposed to be *transdiagnostic* risk or resilience factors (e.g., Egan et al., 2011; Shahar, 2015; Westphal et al., 2016; Zelkowitz & Cole, 2020). Research investigating risk and resilience traits has been surprisingly little influenced by personality science, in which the limitations of trait concepts have been central concerns since Mischel's (1968) influential critique. This article seeks to apply the insights of contemporary personality science, especially the person × situation interactionism perspective (Moskowitz & Fournier, 2015), to develop a more nuanced conceptualization of risk and resilience factors that recognizes both consistency and variability in people's self-criticism and self-compassion.

1.1. Self-criticism

Self-criticism has a remarkably wide range of negative correlates, including psychiatric conditions such as depression, social anxiety disorder, eating disorders, and borderline personality disorder (Blatt, 2004; Shahar, 2015). Self-criticism has also been associated with poorer psychosocial adjustment, including higher levels of negative affect, lower levels of positive affect, unsatisfactory interpersonal relationships, suicidality, non-suicidal self-injury, chronic pain, lower occupational success, lesser educational attainment, dissatisfaction with parenting, and lower subjective well-being (Shahar, 2015; Zuroff et al., 1994; Zuroff et al., 2005).

Two theoretical accounts of self-criticism have been widely influential, Blatt's integration of psychodynamic and cognitive development theory (e.g., Blatt, 2004; Blatt & Shichman, 1983; Blatt & Zuroff, 1992; Luyten & Blatt, 2013) and Gilbert's evolutionary theory (e.g., Gilbert, 1992; Gilbert et al., 2004). Blatt and Zuroff (1992, p. 528) described

highly self-critical individuals as engaging in "constant and harsh self-scrutiny and evaluation" and having "a chronic fear of being disapproved and criticized." The Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976) is widely used to assess Blatt's construct of self-criticism. Gilbert et al.'s (2004) Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS) distinguishes two forms of self-criticism, *Inadequate Self* (IS-SC) and *Hated Self*, with the former capturing a sense of personal inadequacy and a tendency to ruminate on past mistakes or failures, and the latter reflecting a more pathological desire to destroy aspects of the self. The self-criticism scale of the DEQ and the IS-SC of the FSCRS were highly correlated ($r = 0.75$) in Hermanto et al.'s (2016) sample of North American college students.

1.2. Self-compassion

The correlates of self-compassion in many ways mirror those of self-criticism. Self-compassion is negatively associated with symptoms of psychopathology such as depression, anxiety, stress, and disordered eating (Kelly et al., 2014; MacBeth & Gumley, 2012). Beyond its protective effect against psychopathology, self-compassion confers multiple benefits for well-being, including increased happiness, social connectedness, health-promoting behavior, and creativity (Barnard & Curry, 2011; Neff, 2003a; Terry et al., 2013), and interventions that increase self-compassion result in numerous positive psychosocial outcomes (Ferrari et al., 2019).

The most prominent theories of self-compassion are those of Neff (2003a) and Gilbert (Gilbert, 2014; Gilbert et al., 2004; Gilbert et al., 2017). Neff (2003a) described self-compassion as comprising three bipolar dimensions, each marked by two opposing qualities: being kind to oneself rather than critical, seeing one's troubles as a part of common humanity rather than as isolating, and being mindful of one's distress rather than avoiding or over-identifying with it. The Self-Compassion Scale (SCS; Neff, 2003b) reflects this conceptualization, with six subscales that can be combined to yield an overall self-compassion score.

Gilbert's evolutionary approach views self-compassion as a form of self-directed caring that depends on the social mentalities of care-seeking and caregiving (Hermanto & Zuroff, 2016). The FSCRS includes a self-reassurance scale that assesses the ability to be kind, caring, and supportive to oneself in the face of setbacks; this construct appears similar to the self-kindness component of self-compassion in Neff's conceptualization.

1.3. Person × situation interactionism

Research on self-criticism and self-compassion, as well as other putative risk and resilience factors such as perfectionism, rumination, and mindfulness, has seldom explicitly discussed what is meant by attributing a trait to an individual. Implicit in much of this research has been the assumption that these variables reflect highly temporally stable, highly cross-situationally consistent dispositions. A few studies have addressed temporal stability in self-criticism or perfectionism (e.g., Falconer et al., 2015; Rice & Aldea, 2006; Zuroff et al., 2016) and there have been some studies of domain-specific self-criticism or perfectionism (e.g., Duarte et al., 2019; Levine & Milyavskaya, 2018; Regev et al., 2012), but in general it has been assumed that highly self-compassionate individuals treat themselves compassionately on virtually all occasions and in virtually all contexts, and that highly self-critical individuals are similarly consistent in their self-criticism. This assumption reflects the view of traits critiqued by Mischel (1968) and is at odds with contemporary personality science (Fleeson & Jayawickreme, 2015; Fournier & Moskowitz, 2018; Moskowitz & Fournier, 2015), which has shown that personality differences in mean levels of behavior (i.e., traits) always co-exist with substantial intraindividual variability over occasions and contexts.

A particularly powerful way to conceptualize consistency and variability in behavior is the person × situation interactionism model

that gained prominence in response to Mischel's critique (e.g., Endler & Magnusson, 1976; Moskowitz & Fournier, 2015). If one imagines an array of observations of *N* people in *M* situations, and adopts ANOVA terminology, one can interpret the marginal means for persons as describing the person or trait effect, the marginal means for situations as describing the situation effect, and the residual cell means remaining after the removal of the person and situation effects as the interaction effect. The variance of those means can then respectively be described as the person, situation, and person × situation variance.

If one prefers to think visually, each individual's *M* situation scores can be imagined as a bar or line graph, resulting in a behavioral profile that illustrates the individual's variability over situations. Each person's profile will have a mean level, or trait. If one were then to subtract each individual's mean from their profile, one would obtain a set of person-centered profiles with means of 0.0 for each person. Similarly, one could construct a normative situation profile by taking the mean over all individuals within each situation, and that profile could be grand-mean centered so as to have a mean of 0.0 over all situations. Finally, if one were to take the person-centered profile and further adjust it by removing the normative effect of situations, one would obtain a graphical representation of the person × situation interaction effect, i.e., a profile illustrating how much more or less self-critical a person is in each situation than would be expected given their overall, trait level of self-criticism and the normative effect of the situation on self-criticism. Fig. 1 illustrates how, independent of their trait levels, two individuals might have highly distinct person × situation interaction profiles for self-criticism.

Such profiles were given the evocative name *behavioral signatures* to underline the uniqueness of the signature to each individual (Shoda et al., 1994; Shoda et al., 2015). Fournier et al. (2008) studied such signatures in adults' interpersonal behavior and found that they were stable over time and that traits accounted for about half the variability in behavior, with the remainder attributable to normative situation effects and signatures. Although the concept of a behavioral signature as a profile has great intuitive appeal, it has generated less research than one might expect, perhaps because of the inherent difficulty in studying idiographic concepts (Fournier & Moskowitz, 2018). We hope to illustrate how multilevel modeling, which was not readily available when the signature concept was first formulated, permits the empirical examination of the correlates of differing signatures. Person-specific signatures warrant continued investigation both because of their theoretical importance as an aspect of personality that is not captured by trait variables and because of their potential clinical utility for guiding
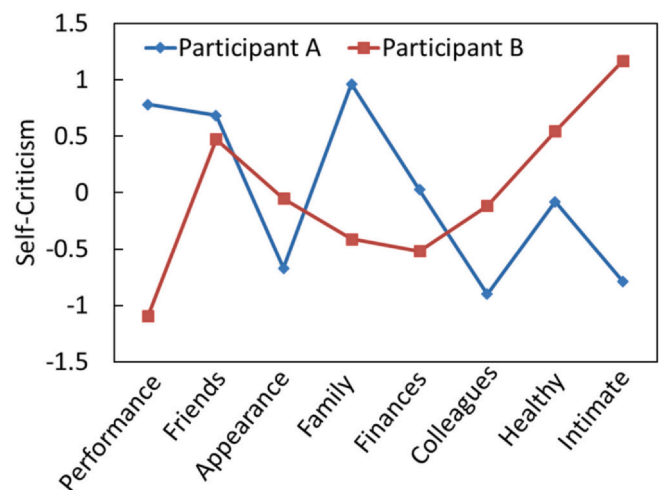

Fig. 1. Self-criticism signatures for two individuals.
Note. Points represent the level of self-criticism in each of eight domains, adjusted for the individual's mean level of self-criticism and the normative effect of each domain.

tailored, individualized interventions, particularly when applied to risk and resilience factors.

1.4. Present studies

Study 1 builds on a method developed by Norman Endler and colleagues to quantify person, situation, and person × situation interaction effects. In those early studies, participants were asked to rate how much they experienced each of 14 anxiety responses (i.e., items on a questionnaire) in each of 11 situations (Endler et al., 1962; Endler & Hunt, 1966) or each of 10 hostile responses to 14 situations (Endler & Hunt, 1968), thereby generating three-dimensional (person × situation × response) data arrays. Variance component analyses revealed the proportions of variability in individuals' characteristics that were attributable to person, situation, response, Person × Situation, Person × Response and Situation × Response. In general, Endler and colleagues found that the two-way interactions accounted for considerable variance, with much less attributable to stable traits (person) than a naïve trait theory would suggest.

We adapted this methodology to study consistency and variability in self-criticism and self-compassion, although we examined variability across domains of the self rather than across external situations. We were guided in selecting domains by Messer and Harter's (2012) Self-Perception Scale for Adults, the UCLA Life Stress Inventory (Hammen et al., 1987), and a desire to sample from both the self-definitional and relatedness domains identified by Blatt (2004) as fundamental aspects of personality. Eight domains were selected, including: 1) academic/job performance; 2) academic/job relationships; 3) close friendships; 4) family relationships; 5) intimate (marital or romantic) relationships; 6) physical appearance; 7) healthy lifestyle and 8) finances. Across four different samples, we conducted variance components analyses for self-criticism, self-reassurance, and self-compassion as measured by, respectively, the FSCRS, the DEQ, and the SCS. The response factor in the variance component analyses was represented by six items from the Inadequate Self scale of self-criticism, six items from the DEQ self-criticism factor, six items from the Self-Reassurance scale, and the six subscales of the SCS.

Based on the general principle that personality characteristics display both consistency and variability (Fleeson & Jayawickreme, 2015; Fournier & Moskowitz, 2018), we expected to observe substantial variance components for person, domain, and the Person × Domain interaction. The paucity of domain-specific data for self-criticism and self-compassion makes it difficult to make precise predictions as to the size of those variance components. Some guidance is provided by studies of personality in adults that report intraclass correlations (ICCs) indicating the proportion of between-persons variance compared to the total variance, which includes within-person variability over domains or situations. Levine and Milyavskaya (2018) reported an ICC of 0.42 for Evaluative Concerns Perfectionism (also called Self-Critical Perfectionism) measured over four domains; the ICC for Personal Standards Perfectionism, however, was only 0.14. Fournier et al. (2008) reported ICCs ranging from 0.45 to 0.53 for dominance, submissiveness, quarrelsomeness, agreeableness, the four poles of the interpersonal circumplex. Fleeson and Gallagher (2009) found ICCs ranging from 0.22 (Extroversion) to 0.51 (Intellect) for the Big Five personality factors. Variance components for person were lower in Endler and colleagues' studies, but their focus was on emotional states which may well display greater situational variability (Fleeson, 2001). Considering the range of ICCs that have been reported, we predicted that: 1) the variance attributable to person would range from about a quarter to about a half for the various risk and resilience measures; and 2) the variance attributable to domain and Person × Domain would both be substantial and together would be comparable to the person variance. No predictions were made regarding response variance, except that we expected response variance to be more prominent for the SCS, as its six subscales were intended to be correlated but distinct aspects of self-compassion,

rather than being interchangeable indicators of a single factor (Neff, 2003b; Neff, 2016).

Study 1 confirmed the presence of person, domain, and Person × Domain variance in self-criticism, self-reassurance, and self-compassion across four samples. Using the FSCRS in the fourth sample, Study 2 addressed the question of whether the non-trait sources of variance are consequential. That is, do normative domain scores and signatures for self-criticism and self-reassurance predict variance in important outcomes beyond that explained by trait levels? Multilevel modeling was used to examine the extent to which person, domain, and signature scores for self-criticism and self-reassurance predicted domain-specific measures of negative and positive affect (Diener & Emmons, 1984). Similar analyses were conducted by Levine and Milyavskaya (2018), who used four idiographically defined domains, and found both between-persons and within-person relations between perfectionism dimensions and well-being measures including NA and PA. We therefore predicted that: 1) at the between-persons level, Self-Criticism would be positively related to NA and negatively related to PA (and conversely for Self-Reassurance); 2) at the within-person level, normative domain scores for self-criticism would be positively related to NA and negatively related to PA (and conversely for Self-Reassurance); and 3) also at the within-person level, signature scores for self-criticism would be positively related to NA and negatively related to PA (and conversely for Self-Reassurance). In other words, we expected that elevated self-criticism, on average, normatively for domains, or idiosyncratically as indicated by the person's self-criticism signature, would be linked to worse affective outcomes, and that the converse wold be true for self-reassurance.

2. Study 1: variance components analyses in four samples

Study 1 was based on four samples, three collected using Mturk to recruit diverse samples of young adults, and the fourth a sample of university students recruited from a research participation pool. The samples were administered, respectively, the FSCRS, the DEQ, the SCS, and again the FSCRS. Studies were approved by a university Research Ethics Board.

2.1. Method

2.1.1. Participants

Sociodemographic characteristics of the four samples are presented in Table 1. All four samples were restricted in age (18 to 25), and the fourth sample was predominantly female university students.

2.1.1.1. Sample 1. Participants were recruited through MTurk for a study of "how you respond in various life domains"; the advertisement stipulated that participants be between 18 and 25 years old, resident in the United States, fluent in English, and either employed 20 h or more per week or enrolled as a student with at least a half-time course load. Those who were interested were directed to the Qualtrics on-line survey site where they provided informed consent and completed the survey. Three attention check questions (e.g., "Please answer *7* to this question") were used to identify responders who might be responding randomly or inattentively. Participants were compensated $1.00.

The survey was begun by 601 individuals, of whom 371 completed the study. The sample size was further reduced to 302 by eliminating those who failed one or more attention checks and to 273 by eliminating those whose reported birthdays were inconsistent with the age requirement.

2.1.1.2. Sample 2. Participants were recruited, tested, and compensated in the same way as Sample 1. The survey was begun by 574 individuals, of whom 383 completed the study. The sample size was further reduced to 304 by eliminating those who failed an attention check and to 274 by eliminating those who reported inconsistent

Table 1
Sociodemographic characteristics of participants.

Characteristic	Sample 1 N = 273		Sample 2 N = 274		Sample 3 N = 237		Sample 4 N = 196	
	n	%	n	%	n	%	n	%
Gender								
Female	139	51	133	49	121	51	181	92
Male	134	49	139	51	115	49	14	7
Nonbinary							1	1
Not reported	2	–	2	–	1	–		
Ethnic background								
White	212	79	216	79	184	78	102	52
Black	19	7	23	8	19	8	2	1
Southeast Asian	7	3	9	3	8	3	2	1
Latin American	18	7	7	3	11	5	5	3
Chinese	9	3	6	2	4	2	30	15
South Asian	6	2	6	2	5	2	4	2
West Asian/Arab					3	1	13	7
Korean							3	2
Mixed							29	15
Other	2	–	7	3	3	1	6	3
Relationship status								
Single	125	46	123	45	97	41	88	45
Casual dating							24	12
In relationship, not cohabiting	63	23	72	26	59	25	70	36
Cohabiting/married	83	30	76	28	80	34	12	6
Separated/divorced	2	1	3	1	1	–	2	1
Employment								
≥ 20 h/week	221	81	232	85	192	81		
Student ≥ 1/2 time[a]	127	47	102	37	123	52	196	100
Level of education								
< Community college	58	21	68	25	42	18		
Community college	118	43	97	35	94	40		
University degree[a]	97	36	108	39	101	43	196	100

Note. The average age of each sample was: Sample 1 = 21.4 (*SD* = 1.92); Sample 2 = 21.7 (*SD* = 1.86); Sample 3 = 21.8 (*SD* = 1.89); Sample 4 = 20.8 years (*SD* = 1.32).

[a] Participants in Sample 4 were all students currently enrolled in a university program.

birthdays.

2.1.1.3. Sample 3. Participants were recruited, tested, and compensated in the same way as Sample 1. 662 individuals began the study, of whom 368 completed the study. The sample size was further reduced to 282 by eliminating those who failed an attention check and to 237 by eliminating those who reported inconsistent birthdays.

2.1.1.4. Sample 4. Participants were recruited through a research pool in the Department of Psychology at a Canadian university. This pool enabled students to earn extra credit by participating in research studies accessed through an on-line portal. Students were invited to enroll in a study of, "how you respond in various life domains" if they were between the ages of 18 and 25 years old. Those who enrolled were provided with a link to the Qualtrics on-line survey site where they provided informed consent and completed the survey. One attention check ("What year is it?") was included in the survey.

Participants received one extra credit towards their psychology course. The study was begun by 218 students, of whom 199 completed the study; three were excluded based on the attention check, resulting in a final sample size of 196.

2.1.2. Procedure

After providing consent, participants in Samples 1–3 completed a demographics questionnaire followed by several non-domain-specific questionnaires which are not pertinent to the present article.

Participants were next administered the domain-specific version of the FSCRS (Sample 1), the DEQ (Sample 2), or the SCS (Sample 3). Finally, in an effort to reduce any negative affect that may have been aroused by the survey, participants in all samples were asked to recall a positive event in one of the domains and to complete five items from the Rosenberg Self-Esteem Scale (Rosenberg, 1965) to describe how they felt after the event.

In Sample 4, after providing consent, participants completed a demographics questionnaire followed by a series of domain-specific questionnaires using the same eight domains as in the first three samples. In addition to the domain-specific version of the FSCRS, the package included domain-specific versions of Diener and Emmons' (1984) positive and negative affect scales.

2.1.3. Measures
2.1.3.1. Domains. In all four samples, the eight domains were presented in a fixed order, alternating self-definitional and relational domains: Academic or Job Performance, Friendships, Physical Appearance, Family Relationships, Managing My Finances, Relationships at School or Workplace, Maintaining a Healthy Lifestyle, and Intimate (Marital or Romantic) Relationships.

2.1.3.2. Domain-specific self-criticism and self-reassurance (Samples 1 and 4). Gilbert et al. (2004) found three factors in the standard FSCRS, Inadequate Self, Self-Hatred, and Self-Reassurance, comprising nine, five, and eight items respectively. Participants respond to items on a 5-point Likert scale, ranging from 0 (*Not at all like me*) to 4 (*Extremely like me*). The scales have good internal consistency and reliability (Baião et al., 2015; Gilbert et al., 2004; Hermanto & Zuroff, 2016). We used the six highest loading items (Gilbert et al., 2004) from the Inadequate Self and Self-Reassurance scales to construct the domain-specific measures.

Using instructions closely modeled on those of the standard FSCRS, participants were asked to rate, "how you typically act towards yourself in distressing or difficult times in 8 different life domains." The six Inadequate Self and the six Self-Reassured items were presented in a random, alternating order within each domain.

2.1.3.3. Domain-specific self-criticism (Sample 2). The domain-specific measure of self-criticism used in Sample 2 was based on Rudich et al.'s (2008) six-item short form of the DEQ (DEQ-SC6). Rudich et al. attempted to address limitations of the standard DEQ by selecting face valid items that explicitly referenced setting high standards for oneself and self-punitive responding to failures, but which did not refer to affective responses. Items are rated on a 1 (*Strongly disagree*) to 7 (*Strongly agree*) scale. Sample items include, "I have a tendency to be very self-critical," and "I compare myself often to standards or goals." Rudich et al. demonstrated that their scale (DEQ-SC6) had high internal consistency, correlated highly with the self-criticism factor from the full length DEQ, and had generally similar predictive relations as the full-length scale.

The domain-specific DEQ-SC6 was introduced to participants with the statement, "The following questions ask you about how you typically act towards yourself in 8 different life domains." The six items were presented in a random order, alternating with five items from the Rosenberg Self-Esteem Scale. The self-esteem items served as positively-toned filler items and were not analyzed.

2.1.3.4. Domain-specific self-compassion (Sample 3). The domain-specific measure of self-compassion used in Sample 3 was based on the 12-item short form of the Self-Compassion Scale (SCS-SF; Neff, 2003b; Raes et al., 2011). There are two items for each of the three compassionate responses to distress (self-kindness, common humanity, and mindfulness) and two items for each of the three uncompassionate responses (self-criticism, isolation, and over-identification). The short form correlates highly with the full length SCS and has the same factor structure (Raes et al., 2011). Self-compassionate and self-

Table 2
Variance components (%) for self-criticism, self-reassurance, and self-compassion across four samples.

Sample	Variable and instrument	Person (P)	Domain (D)	Response (R)	P × D	P × R	D × R
1	Inadequate Self-FSCRS	42.50	0.99	0.76	21.86	6.16	0.23
1	Self-Reassurance-FSCRS	46.45	0.58	1.88	20.19	5.86	0.43
2	Self-Criticism-DEQ-SC6	30.89	6.05	2.55	23.75	6.91	0.81
3	Self-Compassion-SCS-SF	29.20	0.54	7.39	13.70	22.52	0.18
4	Inadequate Self-FSCRS	31.54	2.02	1.48	25.55	7.22	1.07
4	Self-Reassurance-FSCRS	39.10	2.09	3.33	22.05	6.73	0.68

DEQ-SC6 = Depressive Experiences Questionnaire, six item self-criticism scale; SCS-SF = Self-Compassion Scale, Short Form.

uncompassionate items were alternated.

2.2. Results and discussion

2.2.1. Variance components

We conducted variance components analyses (Searle et al., 1992) using PROC VARCOMP and REML estimation in SAS 9.4 (SAS Institute Inc, 2015), with the effects of person, domain, response, and their 3 two-way interactions all specified to be random. The three-way interaction could not be estimated separately from random error. Cohen's rules of thumb for describing effect-sizes were proposed in the context of fixed rather than random effects, but we will employ them to facilitate summarizing the findings; thus, we will refer to 4% or less of the variance as a small amount, 25% as medium, and 65% or more as large.

Table 2 displays the proportions of variance in Self-Criticism, Self-Reassurance, and Self-Compassion that were attributable to person, domain, response, and the two-way interactions. A simplified version is provided in Fig. 2, which displays the variance components for the sources of primary interest: person, domain, and Person × Domain.

Our prediction that person would account for between a quarter to a half of the variance was confirmed; across the four samples and four measures, the person variance component was medium-sized, ranging from 29.2% for self-compassion as measured with the SCS-SF to 46.5% for self-reassurance as measured by the FSCRS. The domain variance components were surprisingly small, with only that for self-criticism as measured by the DEQ-SC6 exceeding the criterion of 4% for a small source of variance. It is possible that a different sample of domains would have led to a larger domain effect, or that the normative effect of domains of the self is less than that of external situations, which were the focus of the Person × Situation literature. Another possible explanation is that all of the measures other than the DEQ-SC6 direct participants' attention to difficult or stressful times, which may reduce

the distinctiveness of the domains.

Our prediction that the Person × Domain interaction would contribute substantial variance to the dependent variables was supported, with small to medium-sized variance components ranging from 13.7% for self-compassion as measured by the SCS-SF to 25.6% for self-criticism as measured by the IS-SC in the fourth sample. These findings demonstrate the potential value of expanding beyond trait conceptions of risk and resilience to recognize normative domain variability and signatures that capture Person × Domain variability. Although the co-existence of stability and variability is a familiar theme in personality psychology and has been documented for many common personality variables (e.g., Fleeson & Gallagher, 2009), this is to our knowledge one of the few times that such coexistence has been addressed regarding risk and resilience variables, and the first time that the signature concept has been applied to them.

Self-compassion as measured by the SCS-SF functioned somewhat differently from the other scales. The SCS-SF displayed the largest amount of response variance as well as the largest amount of Person × Response variance. This pattern is consistent with the intended structure of the scale, as the differing responses (i.e., SCS subscales) were intended to be meaningfully different from one another rather than interchangeable markers of a single underlying factor (Neff, 2003b, 2016), as is the case with the FSCRS and DEQ. Thus, the pattern of an individual's self-compassionate or self-uncompassionate responding may represent a potentially important new variable that could be termed a *Person × Response signature*. A person who is especially facile at maintaining Mindfulness but less able to accept Common Humanity may be different clinically from someone who is poor at Mindfulness but understands Common Humanity, even if their overall traits levels of self-compassion are identical.

Several limitations of the study should be acknowledged. First, the high rate of attrition in Samples 1–3, which is commonly observed in
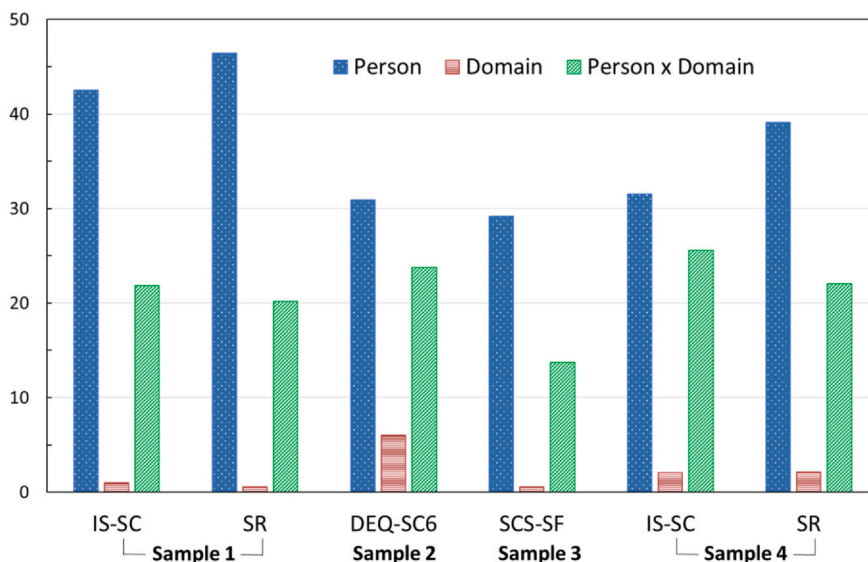

Fig. 2. Variance components (%) for person, domain, and person × domain for self-criticism, self-reassurance, and self-compassion across four samples.
Note. IS-SC = Inadequate Self Self-Criticism; SR = Self-Reassurance; DEQ-SC6 = Depressive Experiences Questionnaire, six item self-criticism scale; SCS-SF = Self-Compassion Scale, Short Form.

Table 3

Means, standard deviations, iccs, reliability, and correlations in sample 4.

Measure	M	SD$_b$	SD$_w$	ICC	ω$_b$	ω$_w$	1	2	3	4
1. Self-Criticism	2.15	0.70	0.71	0.50	0.995	0.912	–	−0.67***	0.75***	−0.55***
2. Self-Reassurance	2.56	0.70	0.60	0.58	0.998	0.943	−0.61***	–	−0.61***	0.79***
3. Negative Affect	3.13	0.91	1.10	0.41	0.985	0.920	0.40***	−0.37***	–	−0.55***
4. Positive Affect	4.73	0.74	1.27	0.25	0.999	0.973	−0.18***	0.17***	−0.56***	–

Within-person correlations are presented below the diagonal and between-persons correlations are presented above the diagonal. SD$_b$ = between-persons standard deviation; SD$_w$ = within-person standard deviation; ICC = intraclass correlation. ω$_{w}$ = within-person Omega estimate. ω$_b$ = between-person Omega estimate.

   *** p < .001.

Mturk samples, is a cause for concern, although we are somewhat re-assured by the similarity of results obtained in Sample 4 which had much lower attrition. Second, variance components obtained in designs such as ours will depend on the nature and range of the persons, domains, and responses that are sampled (Moskowitz & Fournier, 2015). The consistency of our findings across measures and across samples supports the broad conclusion that incorporating domain and signature concepts into risk and resilience research is warranted, but the precise variance components could vary in future research using different samples of people, domains, or instruments. All four samples were young, with mean ages of about 21. Samples 1–3 were nearly 80% White, and Sample 4 was almost entirely female. It would therefore be valuable to attempt to replicate these findings using more broadly representative samples, other classes of domains or situations, and other risk and resilience variables such as perfectionism, mindfulness, rumination, and emotion regulation.

3. Study 2

The goal of Study 2 was to demonstrate that the novel sources of variance identified in Study 1, i.e. domain and Person × Domain, could predict variance in negative affect (NA) and positive affect (PA) beyond that explained by trait levels of Self-Criticism and Self-Reassurance. In these analyses, we aggregated over the response factor, so the data consisted of eight Self-Criticism (or eight Self-Reassurance) scores for each participant, with the domain scores nested within participants. Multilevel models were estimated in which the dependent variables were predicted by both between-persons (level-2) and within-person (level-1) components of Self-Criticism or Self-Reassurance. The between-persons scores were the means over the eight domains. The within-person variance was further decomposed into two parts: 1) the normative domain scores, obtained by averaging over all participants, and 2) the Person × Domain (signature) scores, obtained by subtracting both the individual's trait score and the normative domain score from the individual's raw score in each domain. In each analysis, we initially specified the error covariance structure as UN(1), which allows the error variance to differ across domains. We then compared the fit obtained with several different error covariance structures using the AIC and BIC criteria, and in some cases adopted a factor analytic structure with two factors (FA[2]).

3.1. Method

3.1.1. Participants

The data from participants in Sample 4 (*N* = 196) were used for Study 2.

3.1.2. Measures

3.1.2.1. Domain-specific affect. Negative and positive affect were measured using nine items developed through factor analytic work by Diener and Emmons (1984); in their terminology, NA refers to unpleasant affect and PA refers to pleasant affect. On a scale from 1 (*Not at all*) to 7 (*Extremely*), participants were asked to rate the extent to which they tended to experience each of five negative affect items (i.e.,

unhappy, worried/anxious, frustrated, depressed, angry/hostile) and each of four positive affect items (i.e. happy, joyful, pleased, enjoyment/fun) within each domain.

3.1.2.2. Domain-specific self-criticism and self-reassurance. Self-Criticism and Self-Reassurance were measured, as in Sample 1, with six alternating items each from the FSCRS.

3.1.2.3. Reliability. Reliability was examined using McDonald's (1999) omega statistic. Omega provides an estimate of total scale score reliability that outperforms other reliability estimates (Geldhof et al., 2014; Revelle & Zinbarg, 2009). Two-level confirmatory factor analyses were conducted for each of the four variables of interest (i.e., self-criticism, self-reassurance, negative affect, and positive affect) using Mplus Version 8.4 (Muthén & Muthén, 1998–2017). The standardized factor loadings and residual variance estimates were used to calculate omega at both the between-persons and within-person levels. Omega exceeded 0.90 for each variable at both levels of analysis, indicating excellent reliability (see Table 3).

3.2. Results

3.2.1. Descriptive statistics

ICCs, means, standard deviations, and correlations at the between-persons and within-person levels are presented in Table 3. The ICCs indicate that all variables displayed considerable variance both between- and within-person, although PA had the smallest proportion of between-persons variance. At both levels, Self-Criticism and Self-Reassurance were moderately negatively related, as were NA and PA. Self-Criticism predicted higher NA and lower PA, and the reverse was true for Self-Reassurance; the correlations were stronger between-persons than within-person.

3.2.2. Self-criticism

3.2.2.1. Domain effects. Although the variance component for domain in Sample 4 was small, it did indicate that there were differences across domains in the Self-Criticism they elicited. To better characterize these differences, we conducted the conceptual equivalent of a fixed effects repeated measures analysis of variance on Self-Criticism with one within-person factor, domain. The actual analysis was performed in PROC MIXED in SAS 9.4 (SAS Institute Inc, 2015), with maximum likelihood estimation and Kenward-Roger degrees of freedom. The best fitting error covariance structure was FA(2). The overall effect of domain was expected to be statistically significant, but we had no hypotheses regarding which domains would be associated with higher or lower Self-Criticism.

The effect of domain was significant, $F(7, 267) = 15.25, p < .001$ (see Fig. 3). Two post hoc comparisons were conducted using the ESTIMATE statement to identify the domains of highest and lowest average Self-Criticism. The first comparison indicated that Self-Criticism in the Performance and Intimate Relations domains was, on average, greater than that in the other six domains, $t(235) = 6.77, p < .001$. Although unpredicted, it is perhaps not surprising that young adults would be self-critical about their romantic relationships,
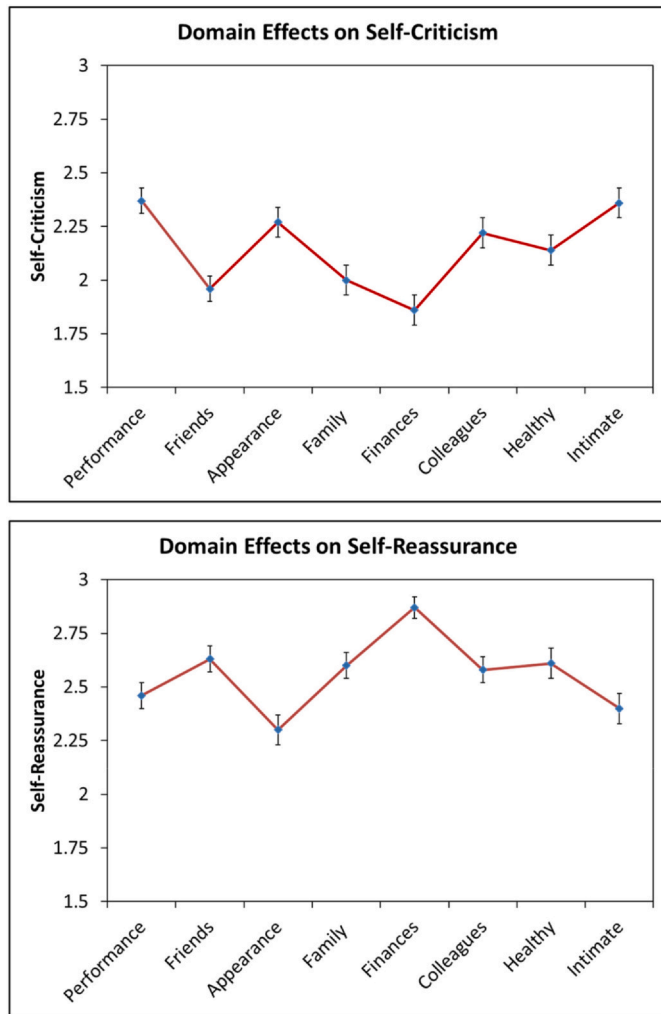
Fig. 3. Normative domain effects on self-criticism and self-reassurance.
Note. Plotted values are means over all participants. Error bars are *SEs*.

and that those attending a highly competitive university would be especially self-critical regarding academic performance. The second post hoc comparison showed that Self-Criticism in the Friend, Family, and Finance domains was, on average, lower than in the other five domains, $t(284) = -9.39, p < .001$.

3.2.2.2. Predicting NA. A multilevel model predicting NA was calculated in PROC MIXED in SAS 9.4 (SAS Institute Inc, 2015) using maximum likelihood estimation, a UN(1) error covariance structure, and Kenward-Roger degrees of freedom. There was one between-persons predictor, mean Self-Criticism (MN-SC), and two within-person predictors. All three predictors were fixed effects. The within-person predictors were: 1) the means over all participants for Self-Criticism in each domain (Domain-SC), and 2) the self-criticism signature score (SIG-SC) for each participant within each domain. It was predicted that the effects for person, domain, and the Person × Domain interaction would all be significant.

The unstandardized regression coefficients in the resulting models can be understood as slopes and indicate the number of scale units of change in the dependent variable that would be predicted to follow from a single scale unit of change in the predictor variable. As predicted, MN-SC was positively related to NA, slope = 0.99, *SE* = 0.068, $t(193) = 14.49, p < .001$, replicating prior findings that individuals high in trait self-criticism report higher overall levels of NA. In addition, the effect of Domain-SC was significant, slope = 1.23, *SE* = 0.147, t
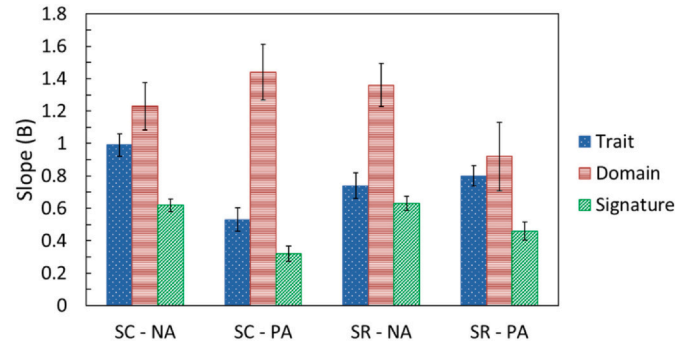

Fig. 4. Absolute values of regression coefficients (slopes) of na and pa on self-criticism and self-reassurance.
Note. SC = Self-Criticism; SR = Self-Reassurance. Regression coefficients are from multilevel models in which NA or PA were regressed on trait, domain, and signature scores for Self-Criticism or Self-Reassurance. Error bars are *SEs*. Absolute values are shown to facilitate comparison of effect sizes. Self-Criticism was positively related to NA and negatively related to PA; the opposite pattern held for Self-Reassurance.

$(870) = 8.37, p < .001$, indicating that domains that were normatively associated with higher levels of Self-Criticism were also associated with higher levels of NA. Finally, the effect of SIG-SC was significant, slope = 0.61, *SE* = 0.039, $t(1230) = 15.74, p < .001$, indicating that domains in which an individual was more self-critical than would be expected from their trait level and the normative domain effect were also associated with higher NA. The sizes of the three effects were compared using ESTIMATE statements, and the effect of MN-SC was found to be stronger than that of SIG-SC, estimated difference = 0.37, *SE* = 0.079, $t(335) = 4.77, p < .001$. The effect of Domain-SC was also stronger than that of SIG-SC, estimated difference = 0.62, *SE* = 0.152, $t(918) = 4.06, p < .001$. The Domain-SC effect was not significantly stronger than that of MN-SC, $p = .134$. Absolute values of slopes for this and subsequent analyses are displayed in Fig. 4 for ease of comparison.

3.2.2.3. Predicting PA. The same multilevel analysis was applied to PA. As predicted, all three effects were significant. MN-SC was negatively related to PA, slope = -0.53, *SE* = 0.073, $t(193) = -7.31, p < .001$, replicating prior findings that individuals high in trait self-criticism report lower levels of PA. In addition, the effect of Domain-SC was significant, slope = -1.44, *SE* = 0.173, $t(669) = -8.32, p < .001$, indicating that domains that were normatively associated with higher levels of Self-Criticism were also associated with lower levels of PA. Finally, the effect of SIG-SC was significant, slope = -0.32, *SE* = 0.046, $t(1152) = -7.03, p < .001$, indicating that domains in which an individual was more self-critical than would be expected from their trait level or the normative domain effect were also associated with lower PA. The effect of MN-SC was stronger than that of SIG-SC, estimated difference = -0.21, *SE* = 0.086, $t(357) = -2.48, p = .014$; the effect of Domain-SC was stronger than that of SIG-SC, estimated difference = -1.11, *SE* = 0.179, $t(709) = -6.24, p < .001$; and the effect of Domain-SC was stronger than that of MN-SC, estimated difference = -0.90, *SE* = 0.187, $t(810) = -4.81, p < .001$.

3.2.3. Self-reassurance
3.2.3.1. Domain effects. Domain effects for Self-Reassurance were tested in the same way as for Self-Criticism, again with an FA(2) error structure. As expected, the effect of domain was significant, $F(7, 271) = 15.22, p < .001$ (see Fig. 3). Post hoc comparisons indicated that: 1) Self-Reassurance in the Finances domain was, on average, higher than that in the other seven domains, $t(195) = 7.84, p < .001$; and 2) Self-Reassurance in the Appearance domain was, on average,

lower than in the other seven domains, $t(196) = -6.65$, $p < .001$. These domain effects were not predicted, but it is possible that the Finances effect reflects the middle class or higher background of the majority of students at the university. Cultural pressures faced by this primarily female sample of young adults may have rendered self-reassurance about appearance-related problems a difficult challenge (Bearman et al., 2006).

3.2.3.2. Predicting NA. The relation between Self-Reassurance and NA was examined using the same multilevel model as for Self-Criticism, except that in this case the FA(2) error structure provided a better fit. As predicted, the effects of mean Self-Reassurance (MN-SR), mean Self-Reassurance in each domain (Domain-SR), and the Self-Reassurance signature (SIG-SR) were all significant. MN-SR was negatively related to NA, slope $= -0.74$, $SE = 0.078$, $t(193) = -9.49$, $p < .001$, as was Domain-RS, slope $= -1.36$, $SE = 0.134$, $t(427) = -10.10$, $p < .001$, and SIG-RS, slope $= -0.63$, $SE = 0.043$, $t(1145) = -14.62$, $p < .001$. The effect of Domain-SR was stronger than that of SIG-SR, estimated difference $= -0.73$, $SE = 0.141$, $t(479) = -5.16$, $p < .001$, and the effect of Domain-SR was also stronger than that of MN-SR, estimated difference $= -0.61$, $SE = 0.155$, $t(609) = -3.95$, $p < .001$. The effects of MN-SR and SIG-SR did not differ significantly, $p = .197$.

3.2.3.3. Predicting PA. The relation between Self-Reassurance and PA was examined with the same multilevel model, but with the UN(1) error structure. Again, and as predicted, all three effects were significant. MN-SR was positively related to PA, slope $= 0.80$, $SE = 0.063$, $t(193) = 12.70$, $p < .001$, as was Domain-RS, slope $= 0.92$, $SE = 0.211$, $t(507) = 4.36$, $p < .001$, and SIG-RS. slope $= 0.46$, $SE = 0.055$, $t(1171) = 8.33$, $p < .001$. The effect of MN-SR was stronger than that of SIG-SR, estimated difference $= 0.34$, $SE = 0.084$, $t(560) = 3.99$, $p < .001$, and the effect of Domain-SR was stronger than that of SIG-SR, estimated difference $= 0.46$, $SE = 0.218$, $t(550) = 2.11$, $p = .036$. The effects of MN-SR and Domain-SR did not differ significantly, $p = .575$.

3.3. Discussion

The results demonstrated that mean levels (traits) do not exhaust the predictive power of risk and resilience variables. Between-persons variables such as traits are inherently restricted to predicting between-persons outcomes; the addition of within-person variables such as domain and signatures are necessary in order to predict within-person variability. As expected, for both Self-Criticism and Self-Reassurance, normative domain level and person-specific signatures predicted significant within-person variance in NA and PA, in addition to the between-persons effect of the mean levels.

Interestingly, the slopes for the domain effects were in all cases larger, frequently significantly so, than the slopes for traits or signatures. Although the variance component analyses in Study 1 indicated that normative differences across domains were not large, these results indicate that they can nonetheless be highly consequential for individuals' affective experiences. We also found that in all four analyses, i.e., for both Self-Criticism and Self-Reassurance and for both NA and PA, the slope for traits was significantly larger than the slope for signatures. In this article we have emphasized the potential value of researchers' broadening their analyses beyond mean levels, but it must also be acknowledged that traits are powerful predictors of average outcomes, in this case, NA and PA. The predictive power of traits for important life outcomes is well established (Roberts et al., 2007), and so we are advocating supplementing, not replacing, traits with signatures.

The generalizability of the results of Study 2, like those of Study 1, are limited by the specific set of domains employed. Moreover, Study 2 was based on Sample 4, which was young, with a mean age less than 22,

all enrolled in college, and overwhelmingly female (92%). The sample was more ethnically diverse (52% White) than Samples 1–3, but still was not broadly representative of other ethnicities. Future research should seek to expand the range of domains, investigate more diverse samples, and examine additional risk and resilience variables. Both studies relied exclusively on self-report questionnaires, and the addition of non-self-report measures would be valuable. For example, knowledgeable informants could be recruited to provide ratings of participants' affect in various domains. Finally, the cross-sectional nature of our data precludes inferring that differences in Self-Criticism or Self-Reassurance cause higher or lower levels of NA or PA, although our key conclusion that domain and signature effects should be considered in addition to trait effects would remain valid even if the relations between the personality and affective variables were reversed or reciprocal.

4. General discussion

Two key findings emerged from our studies. First, differences between individuals in mean levels of Self-Criticism and Self-Reassurance are substantial, but they co-exist with substantial differences in normative domain levels and with person-specific patterns of variability over domains, i.e., self-criticism signatures and self-reassurance signatures. Second, all three forms of variability contribute to variability in NA and PA. Thus, if a researcher or clinician wishes to describe or explain a person's affective patterns, it is insufficient to consider solely the person's mean levels of risk and resilience characteristics.

Adopting the perspective that consistency and variability are intrinsic, complementary features of risk and resilience variables opens up many interesting lines of research. The extensive research on the developmental origins of self-criticism and perfectionism (Kopala-Sibley & Zuroff, 2014) could be broadened to examine the developmental origins of domain differences and signatures. For example, how do cultural values or gender roles influence domain differences? How do individuals acquire a self-criticism signature with peaks in one domain and valleys in another? Similarly, research examining the mechanisms connecting risk and resilience traits to positive and negative outcomes could be extended to address mediating and moderating processes involving domain differences and signatures. For example, do self-criticism signatures interact with domain-specific levels of stress to predict NA or psychopathology? Or might there be domain-specific stress generation processes in which elevated levels of self-criticism in a person's signature gives rise to higher levels of stress in that domain?

There are also potential clinical implications of considering variability in risk and resilience variables over domains as well as over individuals. Clinicians may wish to reorient some of their assessment practices to collect domain-specific (or perhaps situation-specific) information. Calculating normative domain scores and signature scores would require access to either local or more large-scale normative data, but even the simpler step of examining a client's mean level and domain-level deviations around that mean could be informative, despite the confounding of normative domain and signature effects. Such a person-centered profile would reveal areas of special difficulties or potential strengths which could then be used in treatment planning. If normative domain and signature scores were available, the former might be informative about the developmental experiences or present life circumstances shared by the client base, and the latter might provide clues about the unique developmental experiences or present life circumstances of each particular client.

We chose to study domains of the self rather than classes of external situations, as is the tradition in personality science, for a number of reasons. First, it remains unclear how to classify external situations, as there are many plausible, competing systems (Fournier & Moskowitz, 2018). Moreover, individuals may differ greatly in the frequency with which they encounter different situational contexts. For example, a person who is not in a romantic relationship or not in regular contact

with their parents may experience few events that might trigger self-criticism in those domains. Many external situations also lend themselves to multiple classifications; for example, a seminar situation may be a dominance situation for some, an affiliation situation for others, a mating-relevant situation for others, and for some all of the above at different points in the semester. Thus, we regarded specifying a broadly applicable set of self-domains as a more tractable problem than specifying a typology of external situations and therefore a preferable way to begin the study of contextual influences on self-criticism and self-reassurance. That said, future research might well choose one system for defining situations and investigate variability in risk and resilience behaviors as a function of such situations using event-contingent recording methods (Moskowitz et al., 2009). We consider Brown et al.'s (2015) typology of situations to be especially promising because their evolutionary framework coordinates well with Gilbert's evolutionary models of self-criticism and self-reassurance.

The launching point for this research was the person × situation interaction literature in personality science, but we think that our findings may in turn provide some guidance for new paths forward in that field. A major obstacle to employing the profile-based signature concept fruitfully has been that it is inherently idiographic, which makes it difficult to employ in the nomothetic research favored by most scientists (Fournier & Moskowitz, 2018). The combination of systematically sampling domains (or external situations) and multilevel modeling allows one to pose and test nomothetic questions about individual's unique signatures. Thus, we showed that it was generally true for the individuals in our sample that the domains in which they were especially self-critical were the domains in which they experienced especially high levels of NA, and conversely for self-reassurance. We hope that this approach can be fruitfully employed to reinvigorate research on profile-based signatures in personality science.

CRediT authorship contribution statement

David C. Zuroff: Conceptualization, Methodology, Formal analysis, Resources, Writing - original draft, Supervision, Project administration, Funding acquisition. **Kayleigh-Ann Clegg:** Methodology, Formal analysis, Investigation, Data curation, Writing - review & editing. **Shelby L. Levine:** Methodology, Writing - review & editing. **Nicola Hermanto:** Methodology, Investigation, Writing - review & editing. **Benjamin F. Armstrong:** Methodology, Writing - review & editing. **Ben Haward:** Methodology, Writing - review & editing. **Sorin Thode:** Methodology, Writing - review & editing.

Declaration of competing interest

We have no conflicts of interest to disclose.

References

Baião, R., Gilbert, P., McEwan, K., & Carvalho, S. (2015). Forms of self-criticising/attacking & self-reassuring scale: Psychometric properties and normative study. *Psychology and Psychotherapy: Theory, Research and Practice, 88*(4), 438–452. https://doi.org/10.1111/papt.12049.

Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualizations, correlates, & interventions. *Review of General Psychology, 15*(4), 289–303. https://doi.org/10.1037/a0025754.

Bearman, S. K., Presnell, K., Martinez, E., & Stice, E. (2006). The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence, 35*(2), 217–229.

Blatt, S. J. (2004). *Experiences of depression: Theoretical, clinical, and research perspectives* (1st ed.). American Psychological Association.

Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology, 85*(4), 383–389. https://doi.org/10.1037/0021-843X.85.4.383.

Blatt, S. J., & Shichman, S. (1983). Two primary configurations of psychopathology. *Psychoanalysis and Contemporary Thought, 6*(2), 187–254.

Blatt, S. J., & Zuroff, D. C. (1992). Interpersonal relatedness and self-definition: Two prototypes for depression. *Clinical Psychology Review, 12*, 527–562.

Brown, N. A., Neel, R., & Sherman, R. A. (2015). Measuring the evolutionarily important

goals of situations: Situational affordances for adaptive problems. *Evolutionary Psychology, 13*(3), 1–15.

Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology, 47*(5), 1105–1117.

Duarte, C., Stubbs, J. R., Gilbert, P., Stalker, C., Catarino, F., Basran, J., ... Morris, L. (2019). The weight-focused forms of self-criticising/attacking and self-reassuring scale: Confirmatory factor analysis and associations with control, loss of control of eating and weight in overweight and obese women. *Psychology and Psychotherapy: Theory, Research and Practice, 92*(4), 539–553.

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical Psychology Review, 31*(2), 203–212. https://doi.org/10.1016/j.cpr.2010.04.009.

Endler, N. S., & Hunt, J. (1968). SR inventories of hostility and comparisons of the proportions of variance from persons, responses, and situations for hostility and anxiousness. *Journal of Personality and Social Psychology, 9*(4), 30.

Endler, N. S., & Hunt, J. M. (1966). Sources of behavioral variance as measured by the SR inventory of anxiousness. *Psychological Bulletin, 65*(6), 336.

Endler, N. S., Hunt, J. M. C. V., & Rosenstein, A. J. (1962). An SR inventory of anxiousness. *Psychological Monographs: General and Applied, 76*(17), 1.

Endler, N. S., & Magnusson, D. (1976). Toward an interactional psychology of personality. *Psychological Bulletin, 83*(5), 956.

Falconer, C. J., King, J. A., & Brewin, C. R. (2015). Demonstrating mood repair with a situation-based measure of self-compassion and self-criticism. *Psychology and Psychotherapy: Theory, Research and Practice, 88*(4), 351–365. https://doi.org/10.1111/papt.1205.

Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness, 10*(8), 1455–1473. https://doi.org/10.1007/s12671-019-01134-6.

Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology, 80*(6), 1011–1027. https://doi.org/10.1037/0022-3514.80.6.1011.

Fleeson, W., & Gallagher, P. (2009). The implications of Big Five standing for the distribution of trait manifestation in behavior: Fifteen experience-sampling studies and a meta-analysis. *Journal of Personality and Social Psychology, 97*(6), 1097–1114. https://doi.org/10.1037/a0016786.

Fleeson, W., & Jayawickreme, E. (2015). Whole trait theory. *Journal of Research in Personality, 56*, 82–92.

Fournier, M. A., & Moskowitz, D. S. (2018). Cross-situational consistency, variability and the behavioral signature. In V. Zeigler-Hill, & T. K. Shackelford (Eds.). *The SAGE handbook of personality and individual differences: Origins of personality and individual differences* (pp. 218–240). Sage Reference. https://doi.org/10.4135/9781526451200.n13.

Fournier, M. A., Moskowitz, D. S., & Zuroff, D. C. (2008). Integrating dispositions, signatures, and the interpersonal domain. *Journal of Personality and Social Psychology, 94*(3), 531. https://doi.org/10.1037/0022-3514.94.3.531.

Geldhof, G. J., Preacher, K. J., & Zyphur, M. J. (2014). Reliability estimation in a multilevel confirmatory factor analysis framework. *Psychological Methods, 19*(1), 72–91. https://doi.org/10.1037/a0032138.

Gilbert, P. (1992). *Depression: The evolution of powerlessness.* Guilford Press.

Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*(1), 6–41. https://doi.org/10.1111/bjc.12043.

Gilbert, P., Catarino, F., Duarte, C., Matos, M., Kolts, R., Stubbs, J., ... Basran, J. (2017). The development of compassionate engagement and action scales for self and others. *Journal of Compassionate Health Care, 4*(1), 1–24. https://doi.org/10.1186/s40639-017-0033-3.

Gilbert, P., Clarke, M., Hempel, S., Miles, J. N., & Irons, C. (2004). Criticizing and reassuring oneself: An exploration of forms, styles and reasons in female students. *British Journal of Clinical Psychology, 43*(1), 31–50.

Hammen, C., Gordon, D., Burge, D., Adrian, C., Jaenicke, C., & Hiroto, D. (1987). Maternal affective disorders, illness, and stress: Risk for children's psychopathology. *American Journal of Psychiatry, 144*(6), 736–741.

Hermanto, N., & Zuroff, D. C. (2016). The social mentality theory of self-compassion and self-reassurance: The interactive effect of care-seeking and caregiving. *Journal of Social Psychology, 156*(5), 523–535. https://doi.org/10.1080/00224545.2015.1135779.

Hermanto, N., Zuroff, D. C., Kopala-Sibley, D. C., Kelly, A. C., Matos, M., Gilbert, P., & Koestner, R. (2016). Ability to receive compassion from others buffers the depressogenic effect of self-criticism: A cross-cultural multi-study analysis. *Personality and Individual Differences, 98*, 324–332.

Kelly, A. C., Vimalakanthan, K., & Carter, J. C. (2014). Understanding the roles of self-esteem, self-compassion, and fear of self-compassion in eating disorder pathology: An examination of female students and eating disorder patients. *Eating Behaviors, 15*(3), 388–391. https://doi.org/10.1016/j.eatbeh.2014.04.008.

Kopala-Sibley, D. C., & Zuroff, D. C. (2014). The developmental origins of personality factors from the self-definitional and relatedness domains: A review of theory and research. *Review of General Psychology, 18*(3), 137–155. https://doi.org/10.1037/gpr0000013.

Levine, S. L., & Milyavskaya, M. (2018). Domain-specific perfectionism: An examination of perfectionism beyond the trait-level and its link to well-being. *Journal of Research in Personality, 74*, 56–65. https://doi.org/10.1016/j.jrp.2018.02.002.

Luyten, P., & Blatt, S. J. (2013). Interpersonal relatedness and self-definition in normal and disrupted personality development: Retrospect and prospect. *American Psychologist, 68*(3), 172–183. https://doi.org/10.1037/a0032243.

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*(6), 545–552. https://doi.org/10.1002/cpp.2005.

McDonald, R. P. (1999). *Test theory: A unified treatment.* Lawrence Erlbaum.

Messer, B., & Harter, S. (2012). *The self-perception profile for adults: Manual and questionnaires.* [Unpublished manuscript]Department of Psychology, The University of Denver.

Mischel, W. (1968). *Personality and assessment.* New York, NY: Wiley.

Moskowitz, D. S., & Fournier, M. A. (2015). The interplay of persons and situations: Retrospect and prospect. In M. Mikulincer, P. R. Shaver, M. L. Cooper, & R. J. Larsen (Eds.). *APA handbook of personality and social psychology: Vol. 4. Personality processes and individual differences* (pp. 471–489). American Psychological Association.

Moskowitz, D. S., Russell, J. J., Sadikaj, G., & Sutton, R. (2009). Measuring people intensively. *Canadian Psychology/Psychologie Canadienne, 50*(3), 131–140.

Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus User's Guide* (8th ed.). Los Angeles, CA: Muthén & Muthén.

Neff, K. D. (2003a). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*(2), 85–102.

Neff, K. D. (2003b). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223–250. https://doi.org/10.1080/15298860309027.

Neff, K. D. (2016). The self-compassion scale is a valid and theoretically coherent measure of self-compassion. *Mindfulness, 7*(1), 264–274. https://doi.org/10.1007/s12671-015-0479-3.

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the self-compassion scale. *Clinical Psychology & Psychotherapy, 18*(3), 250–255. https://doi.org/10.1002/cpp.70.

Regev, R., Shahar, G., & Lipsitz, J. D. (2012). Is social self-criticism a unique vulnerability dimension for social anxiety and depression? *International Journal of Cognitive Therapy, 5*(2), 211–218.

Revelle, W., & Zinbarg, R. E. (2009). Coefficients alpha, beta, omega, and the glb: Comments on Sijtsma. *Psychometrika, 74*(1), 145–154. https://doi.org/10.1007/s11336-008-9102-z.

Rice, K. G., & Aldea, M. A. (2006). State dependence and trait stability of perfectionism: A short-term longitudinal study. *Journal of Counseling Psychology, 53*(2), 205.

Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science, 2*(4), 313–345. https://doi.org/10.1111/j.1745-6916.2007.00047.x.

Rosenberg, M. (1965). *Society and the adolescent self-Image.* Princeton University Press.

Rudich, Z., Lerman, S. F., Gurevich, B., Weksler, N., & Shahar, G. (2008). Patients' self-criticism is a stronger predictor of physician's evaluation of prognosis than pain diagnosis or severity in chronic pain patients. *Journal of Pain, 9*(3), 210–216. https://doi.org/10.1016/j.jpain.2007.10.013.

SAS Institute Inc (2015). *SAS/STAT®14.1 user's guide.* Cary, NC: SAS Institute Inc.

Searle, S. R., Casella, G., & McCulloch, C. E. (1992). *Variance components.* Wiley.

Shahar, G. (2015). *Erosion: The psychopathology of self-criticism.* Oxford University Press.

Shoda, Y., Mischel, W., & Wright, J. C. (1994). Intraindividual stability in the organization and patterning of behavior: Incorporating psychological situations into the idiographic analysis of personality. *Journal of Personality and Social Psychology, 67*(4), 674–687. https://doi:10.1037/0022-3514.67.4.674.

Shoda, Y., Wilson, N. L., Whitsett, D. D., Lee-Dussud, J., & Zayas, V. (2015). The person as a cognitive-affective processing system: From quantitative idiography to cumulative science. In M. L. Cooper, & R. J. Larsen (Eds.). *Handbook of personality processes and individual differences* (pp. 491–513). APA Press.

Terry, M. L., Leary, M. R., Mehta, S., & Henderson, K. (2013). Self-compassionate reactions to health threats. *Personality and Social Psychology Bulletin, 39*(7), 911–926. https://doi.org/10.1177/0146167213488213.

Westphal, M., Leahy, R. L., Pala, A. N., & Wupperman, P. (2016). Self-compassion and emotional invalidation mediate the effects of parental indifference on psychopathology. *Psychiatry Research, 242*, 186–191. https://doi.org/10.1016/j.psychres.2016.05.040.

Zelkowitz, R. L., & Cole, D. A. (2020). Longitudinal relations of self-criticism with disordered eating behaviors and nonsuicidal self-injury. *International Journal of Eating Disorders.* https://doi.org/10.1002/eat.23284.

Zuroff, D. C., Koestner, R., & Powers, T. A. (1994). Self-criticism at age 12: A longitudinal study of adjustment. *Cognitive Therapy and Research, 18*(4), 367–385.

Zuroff, D. C., Sadikaj, G., Kelly, A. C., & Leybman, M. J. (2016). Conceptualizing and measuring self-criticism as both a personality trait and a personality state. *Journal of Personality Assessment, 98*(1), 14–21. https://doi.org/10.1080/00223891.2015.1044604.

Zuroff, D. C., Santor, D. A., & Mongrain, M. (2005). Dependency, self-criticism, and maladjustment. In J. S. Auerbach, K. J. Levy, & C. E. Schaffer (Eds.). *Relatedness, self-definition and mental representation: Essays in honor of Sidney J. Blatt* (pp. 75–90). Brunner-Routledge.