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Heterogeneity in the links of psychological (in)flexibility subprocesses and well-being: Idionomic insights from an experience sampling study

Madeleine I. Fraser [a,*], Kathryn Field [a], Joseph Ciarrochi [b], Cristóbal Hernández [c], Jennifer Krafft [d], Korena Klimczak [e], Michael E. Levin [e], Keong Yap [a], Steven C. Hayes [f], Baljinder K. Sahdra [b]

[a] School of Behavior and Health Sciences, Australian Catholic University, Sydney, Australia
[b] Institute for Positive Psychology and Education, Australian Catholic University, Sydney, Australia
[c] Escuela de Psicología, Universidad Adolfo Ibáñez, Chile
[d] Department of Psychology, Mississippi State University, USA
[e] Department of Psychology, Utah State University, Logan, UT, USA
[f] Department of Psychology, University of Nevada, Reno, USA

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ABSTRACT

Psychological flexibility reliably predicts well-being, but the strength, nature and sequence of relationships between components of these constructs are likely to considerably vary between individuals. This study used emerging idionomic methods to examine within-person links between psychological flexibility/inflexibility subprocesses and hedonic well-being using ecological momentary assessment data (n = 167; 76% female college students; M_{age} = 23.8 years; sampling design: 3 prompts daily for one week; total measurements = 2252). We employed advanced statistical modelling techniques to understand complex time-series data, including modelling of individual behaviour (i-ARIMAX), meta-analyses to pool individual data to see overall heterogeneity (RE-MA), and multilevel modelling (Multilevel-VAR) to compare the groups which emerged from the data. Results aligned with past literature, demonstrating that psychological flexibility and inflexibility uniquely predicted hedonic well-being, though with substantial heterogeneity. Replicating past findings (Sahdra et al., 2024; see also Catts et al., 2025), we found that for Stoics, values operated independently from affect in within-person networks, while Non-Stoics showed strong value-affect connections. Novel analyses revealed that among Stoics, stress positively connected to acceptance, which then linked to committed action. While loneliness increased sadness for Stoics, they uniquely intensified committed action when sad—an effect only visible through within-person analysis. This contrasted with Non-Stoics, where sadness negatively impacted committed action. This study contributes to growing evidence supporting the advantages of an idionomic approach over purely nomothetic group analyses, particularly in revealing individual, idiosyncratic patterns.

1. Introduction

Psychological flexibility refers to the ability to acknowledge internal experiences (e.g., thoughts and emotions) in the present moment, while acting in alignment with personally determined values (Hayes, 2006; see also Cherry et al., 2021). Psychological flexibility is a core feature of Acceptance and Commitment Therapy (ACT; Ong & Eustis, 2021). ACT theoretically conceptualises psychological flexibility through mechanisms proposed by the Hexaflex model which delineates six interconnected subprocesses: acceptance, defusion, self-as-context, present moment awareness, values, and committed action (Ptáček & Jelínek, 2024). Conversely, psychological inflexibility is characterised as rigid responding to internal psychological reactions, often at the cost of engaging in a meaningful life aligned with core values (Klimczak et al., 2023). The inflexibility Hexaflex model also consists of six components: experiential avoidance, cognitive fusion, self-as-content, lack of contact with the present moment, lack of contact with values, and inaction. The links between psychological flexibility and inflexibility with well-being and psychopathology respectively have been well established (Gloster et al., 2021; Howell & Demuynck, 2021).

* Corresponding author. Psychology Discipline, 25a Barker Road, Australian Catholic University, Strathfield, NSW, 2135, Australia.
E-mail address: madeleine.fraser@acu.edu.au (M.I. Fraser).

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Past research has oversimplified the relationship between psychological flexibility and psychological inflexibility constructs, overlooking the nuances within the construct and dynamic relationship within individuals (Ong & Eustis, 2021). Traditionally, psychological inflexibility components were understood to be the inverse of the flexibility components along a continuum. However, recent research suggests they are more accurately conceptualised as multidimensional constructs that are interconnected and inter-related whilst encapsulating distinct characteristics (Ciarrochi et al., 2014; Stabbe et al., 2019). For example, Ribeyron et al. (2024) found that acceptance had strong negative correlations with anxiety and depression, and strong positive correlations with well-being. In contrast, experiential avoidance showed only weak correlations and was not a robust predictor of psychopathology or wellbeing. Furthermore, Ciarrochi et al. (2014) utilized profile analysis and found variations among individuals across different dimensions of psychological (in)flexibility (e.g., exhibiting both higher levels of fusion and actively pursuing valued action simultaneously). These findings challenge the theoretical assertion that avoidance and acceptance are opposites on the same continuum. Thus the multidimensional constructs psychological flexibility and psychological inflexibility are interconnected and dynamic in their relationships whilst remaining distinct (Ciarrochi et al., 2014).

Leveraging these more nuanced insights, emerging research has employed latent profile analysis using all 12 sub-processes of psychological (in)flexibility to investigate within-person patterns and associations with well-being (Pakenham et al., 2023; Stabbe et al., 2019). Stabbe et al. (2019) found distinct profiles emerged in a sample of US adults recruited through online survey platforms and a university research pool, in most profiles, increasing levels of psychological flexibility were associated with decreases in psychological inflexibility. For some profiles in this sample, however, the psychological (in)flexibility profiles were notably different, for example, one group demonstrated high levels of both psychological flexibility and inflexibility, while another group displayed average levels of psychological flexibility (excluding acceptance and present moment awareness) alongside low levels in several psychological inflexibility processes (Stabbe et al., 2019). Pakenham et al. (2023) also found similar profiles, collecting cross-section online survey data from Italian adults during COVID lockdowns. Both Pakenham et al. (2023) and Stabbe et al. (2019) found that while higher psychological flexibility was associated with well-being, it failed to buffer against the effects of the presence of inflexibility within groups, which evidenced links to poorer individual functioning (Stabbe et al., 2019). These studies further underscore the variability of psychological flexibility within and between individuals and the aggregate associations between psychological flexibility and well-being.

A notable difference between the studies was in the pattern of engagement with experiential avoidance (EA). Pakenham et al. (2023) found two profiles with the highest levels of well-being had the highest levels of both psychological flexibility and EA. Variations in EA relative to psychological (in)flexibility processes during a life-threatening pandemic may have reflected diverse coping strategies (Pakenham et al., 2023). EA in stressful contexts may involve redirecting energy from distress to pursue values. This aligns with ACT's view that coping strategies should be evaluated based on their effectiveness in supporting personal values rather than being labelled as solely "adaptive" or "maladaptive" (Pakenham et al., 2023). This finding supports the notion that psychological flexibility may be fundamentally idiographic in nature, as it is inherently contingent on contextual factors (Ong & Eustis, 2021).

Consequently, while these latent profile approaches provide person-centred insights into psychological (in)flexibility profiles and their association with well-being, they methodically do not capture the nuanced temporal and contextual interplay of psychological (in)flexibility subprocesses. Ecological Momentary Assessment (EMA) is a research method that focuses on individuals' real-time experiences in natural settings, offering insights into dynamic, moment-to-moment processes (Klimczak et al., 2023). A recent study utilising EMA examined the average within- and between-person relations of psychological inflexibility subprocesses and positive affect, negative affect, and meaningful activity (Klimczak et al., 2023). Regarding within-person effects, higher state-level cognitive fusion, lack of present moment awareness, lack of contact with values, and inaction were all significant predictors of lesser positive affect and meaningful activity in the moment. EMA enables an analysis of individual instances of behaviour and internal experiences, facilitating a more nuanced exploration of variables. However, this study relied on normative, group-level analyses understand the links between psychological inflexibility and hedonic well-being for individuals, which might obscure relevant interindividual differences regarding these processes.

Hedonic well-being is an important psychological construct, overlapping with the related constructeudaimonic well-being.Together these are two preferred experiences central to human flourishing (Ryan & Deci, 2001). Hedonic wellbeing reflects the experience of pleasure as opposed to displeasure across all broad aspects of life, whereas eudaimonic wellbeing captures a person's level of functioning (Ryan & Deci, 2001). Given that hedonic wellbeing is a central psychological experience likely to show greater fluctuation and variability across daily life, the current EMA study focused on hedonic wellbeing, as measured by experiences of positive emotions.

The Association for Contextual and Behavioural Science (ACBS) Task Force published a report outlining strategies and tactics aimed at research practices that support a demand for tailored, process-based intervention (Hayes et al., 2021). Recommendation 12 of the report highlights that “CBS research needs more idiographic and longitudinal, dynamic network-based research …” (Hayes et al., 2021, p. 177). Prior research on psychological flexibility has prioritised insights from the analysis of aggregated data, which forms the basis of most statistical analyses in psychology. Analyses of aggregates frequently proves inaccurate or unable to meet its assumptions when used to generate models of human behaviour that apply to particular people (Ciarrochi et al., 2024). "Idionomic" analysis is, as its name suggests, the use of "idiographic" methods as the foundation for "nomothetic" generalizations (Hayes et al., 2022). This approach underscores the necessity of understanding individual patterns before derived principle that may apply generally across larger populations (Ong et al., 2023). Idionomic analytic methods are crucial, as they acknowledge the limitations of traditional normative statistics in accommodating individual variability and temporal dynamics (Molenaar, 2004). This reconceptualisation signifies an important departure from conventional research methods, which typically use the analysis of aggregates as the basis for nomothetic conclusions that may inform clinical intervention decisions applied to particular people. Consequently, the findings from this research methodology hold significant implications for emerging process-based clinical practice.

The ABCS Task Force and emerging studies (Ciarrochi et al., 2024; Sahdra et al., 2024, 2025) are advocating for innovative research strategies that align with the growing recognition of the need for individualised interventions. Psychological flexibility is an important psychological construct and a key feature in ACT intervention (Ong & Eustis, 2021). It is crucial to disseminate research findings for clinicians working in the context of human variability that is both clinically relevant and targeted. Thus, this study aims to explore the idionomic links between psychological (in)flexibility and hedonic well-being through a secondary analysis of an existing, large EMA sample originally collected for a larger study by Klimczak et al. (2023). In addition to being a convenience sample likely to demonstrate better compliance with onerous EMA data collection procedures, university students often experience a developmental stage of psychological growth and change, where variability in psychological profiles may be considerable. Idionomic analyses of a non-clinical sample of university students provides us with insight about these psychological constructs which can serve as a baseline before further examining clinical populations. Pre-registered

hypotheses (https://osf.io/fq3zy)) were that.

H1. Based on past literature, we expect nomothetic findings of psychological flexibility subprocesses to be positively correlated to positive affect and negatively correlated to negative affect. We further expect psychological inflexibility subprocesses to be negatively correlated to positive affect and positively correlated to negative affect.

H2. To the extent that these effects are heterogeneous in the sample, we expect individuals who substantially deviate from the norm, relative to the rest of the sample, to show a different pattern of within-person associations between variables.

H3. Based on recent research on network analysis using idionomically defined groups (Sahdra et al., 2024), we expect the within-person networks to vary from the between person networks of the subgroup of individuals who deviate from the norm.

H4. To our knowledge, there are no prior studies teasing apart the within- and between-person longitudinal associations between these variables through an idionomic lens. Therefore, we do not have specific a priori hypotheses about the exact structure of the within-person and between-person networks of variables in the groups. That is, we could find individual variance in subprocesses of psychological (in)flexibility which may have varying relationships to affect.

H5. Based on past literature (Sahdra et al., 2024) we expect positive and negative contextual events to differentially impact the dynamics of psychological (in)flexibility subprocesses and their links with affect at an idionomic level.

2. Method

2.1. Participants

The current study involves secondary analysis of an existing de-identified dataset (see Klimczak et al., 2023 for details of the original study). A subset of data from the original study was used in the current study. The 167 participants in the final analysed sample identified primarily as White (93%), women (76%) with an average age of 23.8 years (*SD* = 8.7 years). All participants were enrolled in a Western United States university and were recruited through the university's online research participant platform. Participants received course credit for participating in the study.

Original data were collected from 201 participants between October 2020 and April 2021. To be eligible to participate in the original study, participants had to be 18 years or older, currently enrolled in college, and possess an Android or iPhone for responding to EMA surveys. See Table 1 of Klimczak et al. (2023) for more detailed sample characteristics. Of the original 201 sample, two participants were excluded for completing the baseline assessment too quickly (in less than 272 s, providing a minimum of 2 s per item; Huang et al., 2012), and 31 were excluded due to having completed less than two eligible EMA surveys, leaving 167 participants whose data were included in the analyses.

2.2. Measures

2.2.1. Shortened multidimensional psychological flexibility inventory (MPFI-24)

The MPFI-24 (Grégoire, Chénier, et al., 2020) is a 24-item global, trait-like measure that assesses each psychological flexibility sub-process in detail. The MPFI-24 items were selected based on guidance from Rolffs et al. (2016), and further validated by Grégoire, Gagnon, et al. (2020). To assess psychological (in)flexibility in-the-moment, one item from each of the subscales of the MPFI was included. Items were prefaced by "Since the last prompt …" (e.g., "Since the last prompt … I tried to distract myself when I felt unpleasant emotions"). Prior research has supported the use of single items in EMA designs (Song et al., 2022) and the Klimczak et al. (2023) study evidenced convergent validity of single-item use of MPFI psychological inflexibility items. In the current study, intraclass correlation coefficient-2 or ICC(2) from a one-way analysis-of-variance model was calculated to estimate the reliability of each of the EMA items (Bliese, 2000). These are reported in Table 1. All items were highly reliable, with ICC(2) ranging from .91 to .98.

Table 1
EMA items and their related ICC(2).

Construct	EMA Item	*ICC(2)* [95% *CI*]
1. Acceptance	Since the last prompt, I tried to make peace with my negative thoughts and feelings rather than resisting them	.97 [.97, .98]
2. Awareness	Since the last prompt, I was attentive and aware of my emotions	.98 [.97, .98]
3. Self as Context	Since the last prompt, even when I felt hurt or upset I tried to maintain a broader perspective	.98 [.97, .98]
4. Defusion	Since the last prompt, I was able to let negative feelings come and go without getting caught up in them	.97 [.96, .98]
5. Values	Since the last prompt, I was very in-touch with what is important to me and my life	.97 [.97, .98]
6. Committed Action	Since the last prompt, even when I stumbled in my efforts, I didn't quit working toward what is important	.98 [.97, .98]
7. Experiential Avoidance	Since the last prompt, I tried to distract myself when I felt unpleasant emotions	.96 [.95, .97]
8. Lack of Awareness	Since the last prompt, I did most things on "automatic" with little awareness of what I was doing	.97 [.97, .98]
9. Self as Content	Since the last prompt, I thought some of my emotions were bad or inappropriate and I shouldn't feel them	.97 [.96, .98]
10. Fusion	Since the last prompt, distressing thoughts tended to spin around in my mind like a broken record	.98 [.97, .98]
11. Lack of Values	Since the last prompt, my priorities and values often fell by the wayside	.97 [.96, .98]
12. Inaction	Since the last prompt, negative feelings often trapped me in inaction	.97 [.96, .98]
13. Happy	Right now, how happy do you feel?	.94 [.93, .95]
14. Excited	Right now, how excited do you feel?	.95 [.94, .96]
15. Joyful	Right now, how joyful do you feel?	.95 [.94, .96]
16. Confident	Right now, how confident do you feel?	.96 [.95, .97]
17. Nervous	Right now, how nervous do you feel?	.94 [.93, .95]
18. Ashamed	Right now, how ashamed do you feel?	.95 [.94, .96]
19. Sad	Right now, how sad do you feel?	.94 [.93, .96]
20. Angry	Right now, how angry do you feel?	.91 [.89, .93]
21. Guilty	Right now, how guilty do you feel?	.94 [.93, .96]
22. Irritable	Right now, how irritable do you feel?	.94 [.93, .95]
23. Lonely	Right now, how lonely do you feel?	.96 [.95, .97]
24. Connected	Right now, how connected do you feel to other people?	.94 [.93, .96]
25. Stressful Event	Since the last prompt, how much did you experience stressful events and situations?	.92 [.91, .94]
26. Positive Event	Since the last prompt, how much did you experience positive events and situations?	.94 [.92, .95]

Note. ICC(2): reliability of the EMA item from a one-way analysis-of-variance model; *CI* = Confidence Interval.

2.2.2. Positive and negative affect schedule (PANAS)

The PANAS (Watson et al., 1988) is a ten item scale designed to assess in-the-moment positive and negative affect. Each item was phrased as "Right now, how ___ do you feel?" and were rated on a 5-point Likert scale from 1 (not at all) to 5 (very much so). This included four items assessing positive affect (happy, excited, joyful, confident) and six items assessing negative affect (nervous, ashamed, sad, angry, guilty, irritable), with these specific items having been used and assessed for validity in previous EMA studies (Klimczak et al., 2023; Levin et al., 2018). The ICC(2) of the items are reported in Table 1, which showed these items were highly reliable.

2.2.3. Contextual variables

Two items were administered to assess contextual variables. These items included "Since the last prompt, how much did you experience stressful events and situations?" and "Since the last prompt, how much did you experience positive events and situations?" which were rated on a 5-point Likert scale from 1 (not at all) to 5 (very much so). Two social contextual variables were further administered including "Right now, how lonely do you feel?" and "Right now, how connected do you feel to other people?" which were also rated on a 5-point Likert scale from 1 (not at all) to 5 (very much so). The ICC(2) of these items, as reported in Table 1, showed high reliability.

2.3. Procedure

The archival de-identified dataset consists of EMA data, for which ethics approval was obtained from Utah State University (Project approval number #7788) and Australian Catholic University (Project code: 2024-3569X). The research was conducted entirely online utilising Qualtrics surveys. Participants undertook a screening process and provided informed consent before proceeding to a baseline assessment. Instructions for daily EMA surveys were sent via text message, with prompts randomly delivered within morning, midday, and evening time frames across a one week period. To be included in analyses, responses had to be completed within 2 h of the prompt and participants had to complete at least two EMA surveys. This extended response time was chosen to accommodate potential delays due to academic commitments. EMA surveys assessed psychological (in)flexibility processes, contextual variables, as well as current positive and negative affect. Participants were not exposed to any form of intervention during the study. Participants completed a post-online assessment questionnaire following the one-week EMA phase.

2.4. Analyses

Analyses were conducted in R 4.4.0 (R Core Team, 2024). We closely followed a detailed statistical analysis plan that was pre-registered in Open Science Framework (https://osf.io/fq3zy). Descriptive analyses were performed on all relevant variables. Missing data patterns of the EMA items indicated an overall missingness of 34% (see Fig. S1 in Appendix A). Missing data were handled using CopyMean longitudinal imputation (Genolini et al., 2013).

Idiographic Analysis (i-ARIMAX). To examine the within-person links between psychological flexibility processes and well-being, we utilized idiographic Autoregressive Integrated Moving Average models with eXogenous variables (i-ARIMAX; Ciarrochi et al., 2024; Sahdra et al., 2024). Models were estimated for each participant individually using the auto.arima function in the forecast package in R (Hyndman & Khandakar, 2008). This algorithm automates the identification of the optimal model structure for each individual by conducting unit root tests to determine the order of differencing (d) required for stationarity, and by minimizing the Corrected Akaike Information Criterion (AICc) to select the optimal autoregressive (p) and moving average (q) orders (Hyndman & Khandakar, 2008). This approach is particularly suitable for short time series as the AICc penalizes unnecessary model complexity, reducing the risk of overfitting when observations are limited (Ciarrochi et al., 2024). Consequently, AR and MA orders were not fixed but were optimized for each individual's data structure.

Convergence and Stability. Model convergence was robust across the sample. Across all bivariate process-outcome combinations, convergence failure occurred in less than 2% of models. These failures were predominantly due to insufficient variance in specific variables (e.g., zero variance in affect ratings over the week), which prevents the estimation of correlations (Li et al., 2025). Such cases were necessarily omitted from the relevant RE-MA. Furthermore, to address the potential instability of estimates derived from shorter time series, the subsequent RE-MA was weighted by the number of completed measurements per participant (Sahdra et al., 2024). This ensured that individuals with more data points contributed greater weight to the estimation of the nomothetic pooled effects."

3. Results

3.1. Descriptives

Table 2 reports the mean, standard deviation, and correlations between mean (averaged across time) scores of MPFI EMA variables. The flexibility items were more correlated with each other than with inflexibility items, and vice versa. Within-person correlations were calculated separately for each of the combinations of MPFI items. It is important to note that the range of within-person correlations was wide in all cases, suggesting that even when the mean correlation was positive (or negative), there were individuals in the data who showed the opposite correlations (e.g., acceptance and defusion range: .91 to .99). A wide range was also seen for the within-person correlations of the affect items (e.g., happy and confident range: .87 to 1.00) and between each MPFI and affect item (e.g., self-as-context and happiness range: .99 to .99).

3.2. I-ARIMAX and RE-MA

It was hypothesised (H1) that in normative analyses of aggregated data psychological flexibility sub-processes would be positively correlated to positive affect and negatively correlated to negative affect. We further expected psychological inflexibility sub-processes to be negatively correlated to positive affect and positively correlated to negative affect. To explore these links, i-ARIMAX models were run separately for each of the 12 MPFI items predicting each of the 10 affect items. The inflexibility items were reversed for ease of comparing effects of flexibility versus inflexibility. Consistent with H1, predicted links were evidenced across 120 pairs of psychological (in)flexibility and affect items. The mean of the absolute values of the pooled effects was .13, which indicated an overall small effect size of the link between (in)flexibility on hedonic well-being (see Table S1 in Appendix A).

The I^2 statistic describes the percentage of variation across individuals that is due to non-random heterogeneity rather than chance (Higgins & Thompson, 2002). The mean of I^2 across 120 RE-MA models was very high; 87.98 (range: 75.17 to 99.46). Therefore, the pooled effects need to be treated with caution due to high non-random heterogeneity.

3.3. Visualisations of heterogeneity of the idiographic effects

To examine the extent to which ensemble results from aggregated data applied to individual participants, we utilized caterpillar plots. A caterpillar plot is a variation of a forest plot in which individual effect estimates are ordered by magnitude rather than by study ID or name. This visualization allows for a direct comparison between the aggregate population effect and the distribution of individual slopes.

In Fig. 1 through 4, the x-axis represents the effect size (i-ARIMAX estimate), while the y-axis represents individual participants sorted

Table 2
Means, standard deviations, and correlations with confidence intervals for the mean scores of EMA psychological (in)flexibility items averaged across time.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Acceptance	3.40	1.01											
2. Awareness	3.84	1.00	.68** [.59, .76]										
3. Self as Context	3.82	1.04	.75** [.68, .81]	.73** [.65, .79]									
4. Defusion	3.58	1.00	.75** [.67, .81]	.56** [.45, .66]	.80** [.74, .85]								
5. Values	3.97	0.99	.64** [.54, .72]	.72** [.63, .78]	.83** [.77, .87]	.68** [.59, .75]							
6. Committed Action	4.07	1.02	.61** [.51, .70]	.66** [.56, .74]	.84** [.79, .88]	.69** [.60, .76]	.87** [.82, .90]						
7. Experiential Avoidance	3.10	0.93	.01 [-.15, .16]	-.02 [-.17, .14]	.02 [-.14, .17]	-.04 [-.19, .11]	-.06 [-.21, .09]	.06 [-.09, .21]					
8. Lack of Awareness	2.51	0.96	-.23** [-.37, -.08]	-.25** [-.39, -.10]	-.33** [-.46, -.19]	-.26** [-.40, -.11]	-.33** [-.45, -.18]	-.29** [-.42, -.14]	.37** [.23, .49]				
9. Self as Content	1.95	0.88	-.19* [-.33, -.04]	-.25** [-.39, -.10]	-.22** [-.36, -.07]	-.32** [-.45, -.18]	-.26** [-.39, -.11]	-.17** [-.31, -.02]	.44** [.31, .56]	.28** [.13, .41]			
10. Fusion	2.18	1.02	-.31** [-.44, -.16]	-.17** [-.31, -.02]	-.37** [-.49, -.23]	-.63** [-.71, -.53]	-.33** [-.46, -.19]	-.27** [-.40, -.12]	.32** [.18, .45]	.42** [.29, .54]	.48** [.35, .59]		
11. Lack of Values	2.01	0.84	-.20** [-.34, -.05]	-.29** [-.42, -.14]	-.40** [-.52, -.26}	-.39** [-.51, -.25]	-.49** [-.60, -.37]	-.40** [-.52, -.27]	.26** [.11, .39]	.51** [.39, .61]	.45** [.32, .56]	.63** [.52, .71]	
12. Inaction	1.96	0.88	-.30** [-.43, -.15]	-.25** [-.39, -.10]	-.39** [-.51, -.26]	-.51** [-.62, -.39]	-.45** [-.56, -.32]	-.37** [-.50, -.24]	.43** [.30, .55]	.56** [.44, .65]	.45** [.32, .57]	.74** [.67, .81]	.72** [.64, .79]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each intercorrelation.

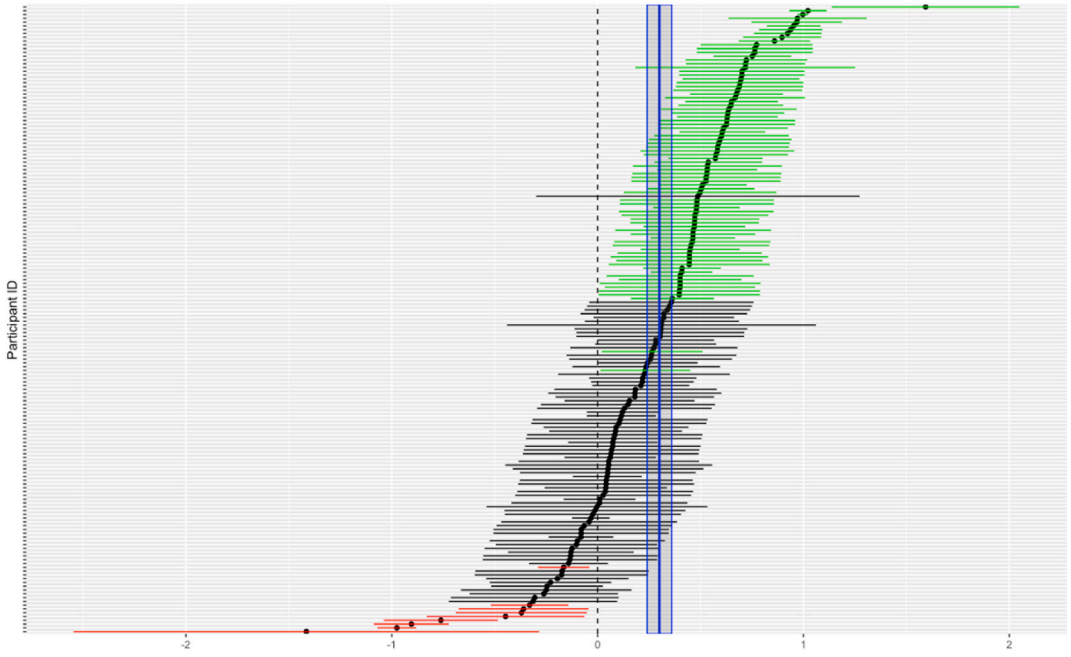

Fig. 1. Caterpillar plot showing effect sizes and 95% confidence intervals of within-person associations (i-ARIMAX estimates) for values and joyfulness
Note. Blue vertical lines represent the pooled (nomothetic) effect in the middle and the lower and upper bounds of the 95% CI of the pooled effect. Green horizontal lines indicate 95% CI of positive associations and red indicate negative associations.

from the most negative effect at the bottom to the most positive effect at the top. This ordering creates the characteristic S-shaped 'caterpillar' distribution. The vertical blue line and surrounding shaded band represent the pooled nomothetic effect and its 95% confidence interval (CI), derived from the RE-MA. Each horizontal line represents a single participant's estimated slope and their specific 95% CI.

Interpretation of these plots focuses on the alignment between the vertical band and the individual horizontal lines. If the sample were homogeneous (ergodic), the majority of individual horizontal lines would overlap with the vertical blue band. Deviations from this band illustrate non-random heterogeneity. To aid interpretation, these deviations are color-coded: green horizontal lines indicate individuals with

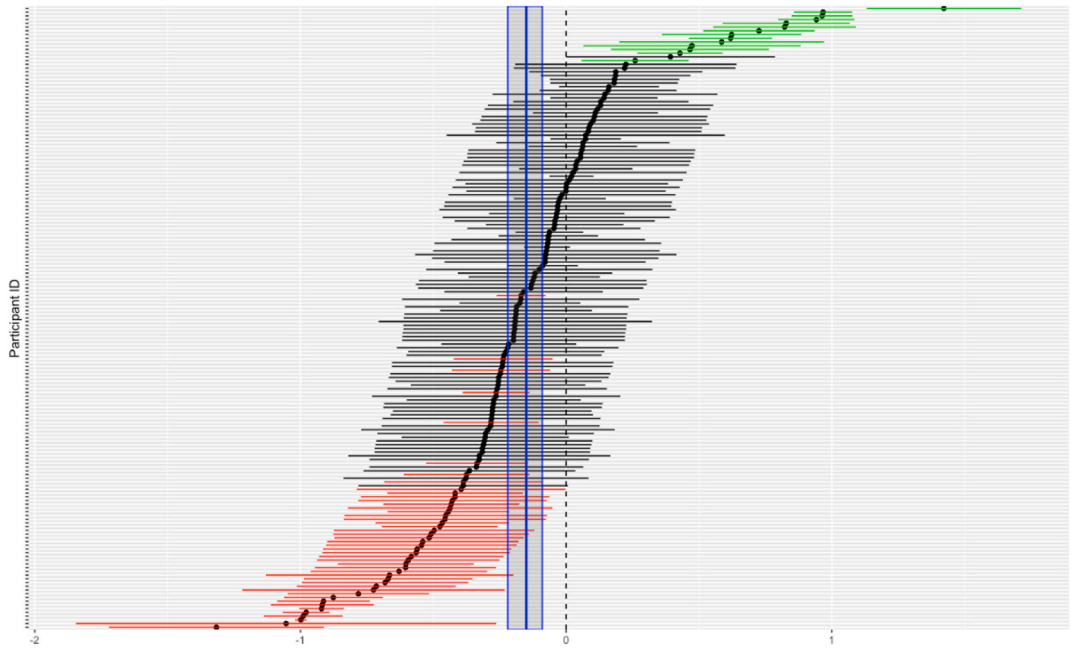

Fig. 2. Caterpillar plot showing effect sizes and 95% confidence intervals of within-person associations (i-ARIMAX estimates) for values and sadness.

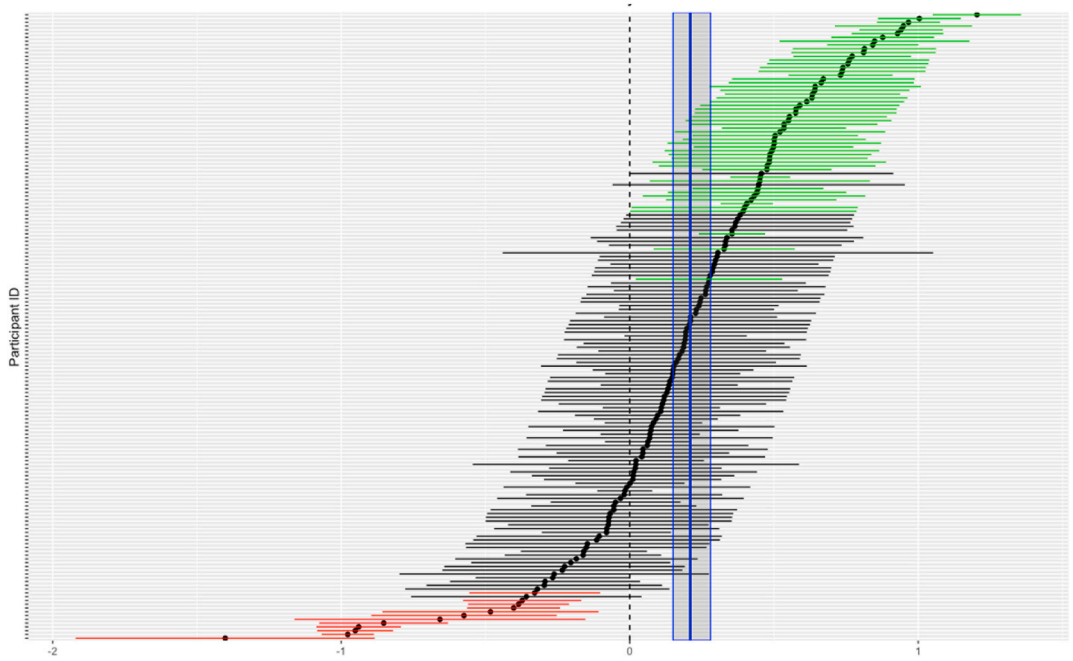

Fig. 3. Caterpillar plot showing effect sizes and 95% confidence intervals of within-person associations (i-ARIMAX estimates) for committed action and joyfulness.

statistically significant within-person positive associations, while red horizontal lines indicate individuals with statistically significant within-person negative associations. For example, in the analysis of values and joyfulness (Fig. 1), the blue band indicates a positive pooled effect. However, the presence of distinct red lines at the bottom of the plot reveals the 'Stoics'—individuals for whom living by their values was significantly associated with decreased joy, a relationship that is completely obscured when looking only at the nomothetic average.

3.4. MV RE-MA: (In)Flexibility as a moderator

Do flexibility and inflexibility processes differ in how they relate to outcomes across the six dimensions? In other words, are these processes distinct or redundant when predicting hedonic well-being? More specifically, is the pooled effect of processes on outcomes moderated by process type? And would this moderation help explain the observed heterogeneity? To answer these questions, we conducted multivariate random-effects meta-analysis (MV RE-MA) models with process-outcome effects nested within participants. This approach efficiently summarized overall pooled effects and heterogeneity estimates while reducing the number of moderation tests needed. We weighted analyses by each participant's completed measurement count, giving greater weight to i-ARIMAX estimates from participants with more complete data and less weight to those with substantial missing data (which had

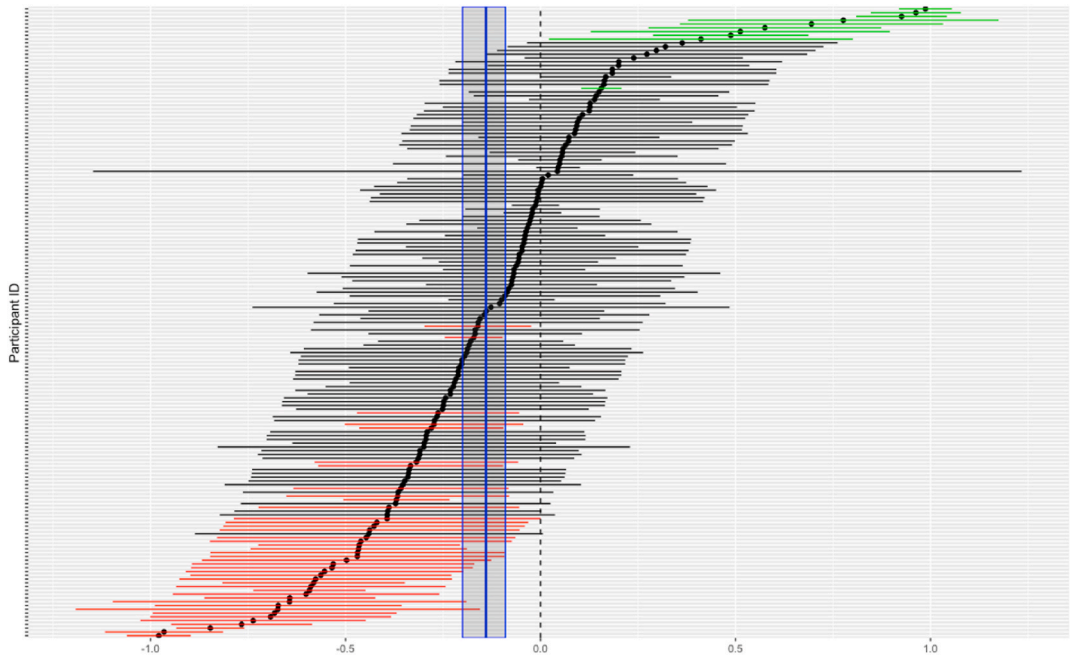

Fig. 4. Caterpillar plot showing effect sizes and 95% confidence intervals of within-person associations (i-ARIMAX estimates) for committed action and sadness.

been previously imputed).

To test moderation, we ran six models with 20 effects nested within each participant. For example, when testing acceptance vs. experiential avoidance as a moderator, each participant had 10 i-ARIMAX effects of acceptance linked to the 10 affect items and 10 effects of experiential avoidance (reversed) linked to the same affect items. Process type (e.g., acceptance vs. experiential avoidance) served as the moderator. This approach allowed us to determine whether the positive and negative dimensions of flexibility distinctly related to affect and to characterize the heterogeneity of these relationships.

Table 3
The effect of psychological flexibility on affect moderated by the type of (in)flexibility.

			95% Confidence Interval		95% Prediction Interval		Heterogeneity (I^2)		
Model	Pooled Effect	*SE*	*CI_LB*	*CI_UB*	*PI_LB*	*PI_UB*	Total	Within	Between
Moderator: Acceptance vs. Experiential Avoidance (Reversed)									
Full Model	0.09	0.01	0.07	0.12	-0.59	0.78	87.54%	75.41%	12.14%
Flexibility	0.14	0.02	0.11	0.18	-0.50	0.79	86.93%	53.05%	33.88%
Inflexibility (Reversed)	0.04	0.02	0.001	0.08	-0.67	0.76	87.65%	58.85%	28.80%
Moderator: Action vs. Inaction (Reversed)									
Full Model	0.17	0.02	0.14	0.2	-0.52	0.85	96.54%	74.66%	21.88%
Flexibility	0.15	0.02	0.11	0.19	-0.56	0.86	90.54%	59.83%	30.71%
Inflexibility (Reversed)	0.18	0.02	0.15	0.22	-0.48	0.85	97.42%	67.61%	29.81%
Moderator: Awareness vs. Lack of Awareness (Reversed)									
Full Model	0.10	0.01	0.07	0.12	-0.57	0.77	95.64%	79.77%	15.87%
Flexibility	0.11	0.02	0.07	0.15	-0.56	0.78	92.95%	60.93%	32.02%
Inflexibility (Reversed)	0.09	0.02	0.05	0.012	-0.59	0.76	95.25%	71.19%	24.05%
Moderator: Defusion vs. Fusion (Reversed)									
Full Model	0.20	0.02	0.17	0.23	-0.48	0.88	88.75%	68.70%	20.05%
Flexibility	0.21	0.02	0.17	0.24	-0.48	0.89	87.83%	58.14%	29.69%
Inflexibility (Reversed)	0.20	0.02	0.16	0.24	-0.48	0.87	89.39%	60.87%	28.52%
Moderator: Self-as-Context vs. Self-as-Content (Reversed)									
Full Model	0.11	0.02	0.08	0.14	-0.59	0.82	94.05%	75.39%	18.65%
Flexibility	0.13	0.02	0.09	0.17	-0.62	0.88	91.66%	58.03%	33.63%
Inflexibility (Reversed)	0.10	0.02	0.06	0.13	-0.55	0.75	91.13%	63.90%	27.24%
Moderator: Values vs. Lack of Values (Reversed)									
Full Model	0.17	0.02	0.13	0.20	-0.55	0.88	91.74%	73.77%	17.97%
Flexibility	0.19	0.02	0.15	0.22	-0.56	0.93	92.27%	66.06%	26.22%
Inflexibility (Reversed)	0.15	0.02	0.11	0.18	-0.54	0.84	90.79%	64.41%	26.38%

Note. *SE* = Standard Error; *CI* = Confidence Interval; *PI* = Prediction Interval; *LB* = Lower Bound; *UB* = Upper Bound.
In each of the six sets of the models above, the Full Model had 20 effects nested per person, with one item of flexibility (e.g., acceptance) predicting the 10 affect items and one (reversed) item of inflexibility (e.g., experiential avoidance) predicting the 10 affect items. The separate models of Flexibility and Inflexibility (reversed) each in any given set had 10 effects nested per person.

Of the six tests of moderation, the moderator was statistically significant for the following four (in)flexibility subprocess pairs; Acceptance vs. Experiential Avoidance ($F(df^1 = 1, df^2 = 3296) = 51.34$, $p < .001$), Action vs. Inaction ($F(df^1 = 1, df^2 = 3277) = 6.37$, $p = .012$), Self as Context vs. Self as Content ($F(df^1 = 1, df^2 = 3237) = 4.90$, $p = .027$), and Values vs. Lack of Values ($F(df^1 = 1, df^2 = 3296) = 7.38$, $p = 0.006$). The moderation test showed null effects for Awareness vs. Lack of Awareness ($F(df^1 = 1, df^2 = 3286) = 2.54$, $p = .11$), and Fusion vs. Defusion ($df^1 = 1, df^2 = 3267) = .27$, $p = .60$).

MV RE-MA allowed heterogeneity to be partitioned in the within and between components. See a summary of the results in Table 3. For each of the six dimensions of (in)flexibility, we first ran a baseline model (labelled Full Model in Table 3) with flexibility and inflexibility (reversed) items predicting positive and negative (reversed) affect items, i.e., 20 effects were nested per person. No moderator was included. We then ran separate models for the flexibility items predicting affect (10 effects per person) and inflexibility (reversed) items predicting affect (10 effects per person). In all sets of models, except for those of acceptance and experiential avoidance, the magnitude of the pooled effect of the flexibility model was comparable to that of the inflexibility model. The results suggest that the processes of flexibility and inflexibility tend to uniquely predict hedonic well-being outcomes. However, the pooled effect needs to be interpreted with extreme caution given the high degree of total heterogeneity in all models.

3.5. Cluster analysis

We next attempted to identify clusters of individuals with similar response patterns. Using data from i-ARIMAX models of flexibility and inflexibility items predicting affect, we focused on analyses for models predicting happiness (analyses of other affect items revealed similar challenges). To determine whether the i-ARIMAX estimates contained meaningful clusters of non-random structures, we employed the Hopkins statistic. This statistic ranges from approximately .5 (indicating no meaningful clusters) to 1.0 (suggesting significant clustering). Our data yielded a Hopkins statistic of .6755—closer to .5 than 1.0—suggesting a lack of meaningful structure. K-means cluster analysis confirmed this by failing to produce distinct clusters, with Fig. 5 revealing substantial overlap between attempted clusters. When comparing different cluster validation methods (including between vs. within variance balancing, silhouette method, Gap statistic, and 30 validation indices) to determine the optimal number of clusters, we found inconsistent estimates across methods (see Fig. S3). This lack of convergence aligns with the relatively low Hopkins statistic and indicates an absence of natural clustering in our data.

3.6. ARIMAX based grouping

After cluster analysis failed to yield meaningful groups, we adopted the i-ARIMAX-informed method for grouping participants. Following the methodological approach of Sahdra et al. (2024), we used the i-ARIMAX model of committed action ("even when I stumbled in my efforts, I didn't quit working toward what is important") predicting sadness to identify individuals who deviated from the normative pattern. We identified 10 individuals who showed a positive relationship between committed action and sadness (highlighted in green in the earlier caterpillar plot). We designated these participants as 'Stoics' ($n = 10$) and compared their networks of variables to those of 'Non-Stoics' (n

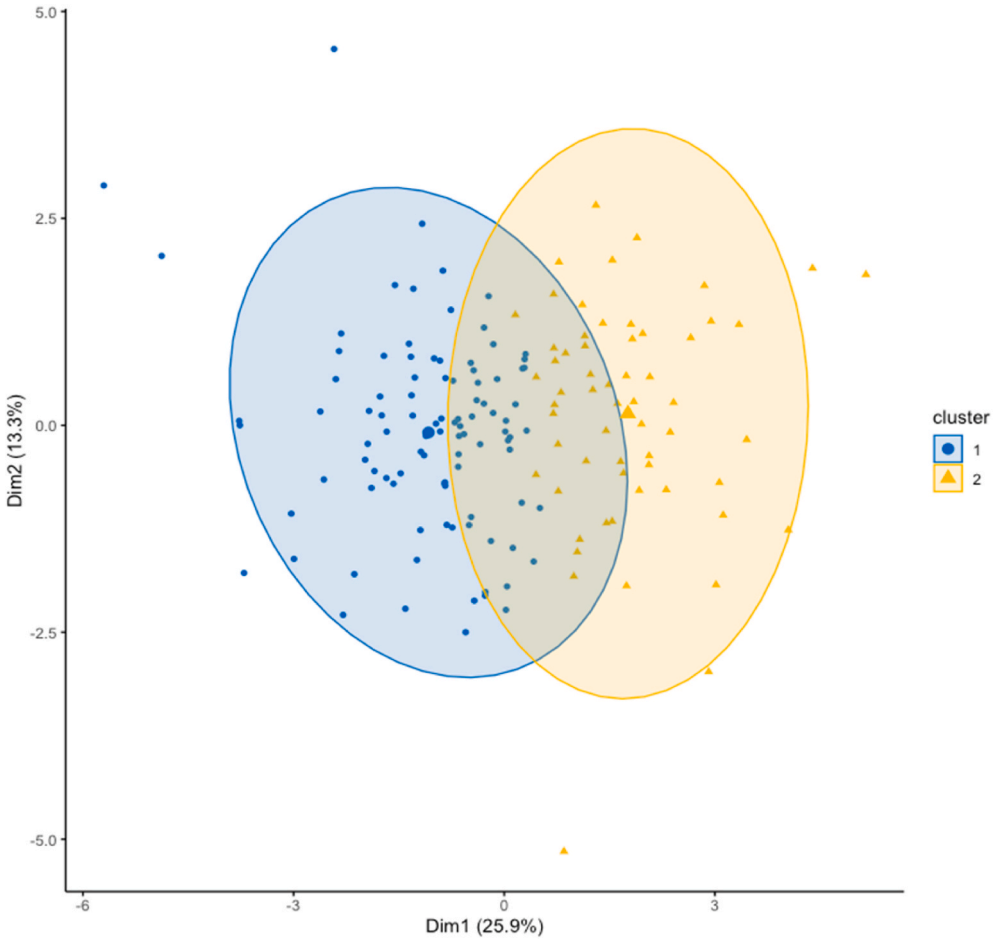

Fig. 5. Cluster Plot: substantial overlap between attempted clusters predicting happiness.

= 157).

While single-item measures can reflect momentary fluctuations, the identification of this subgroup represents the third replication of this specific functional pattern, following Sahdra et al. (2024) and Catts et al. (2025). While Sahdra et al. (2024) and Catts et al. (2025) used valued action items in their i-ARIMAX-informed grouping, our study replicated the Stoic vs. Non-Stoic network patterns using a different component of the psychological flexibility model (committed action). This consistency across three independent samples suggests that the 'Stoic' pattern of acting in accordance with values regardless of, or in the presence of, negative affect represents a stable functional class of behavior rather than statistical noise.**Multilevel VAR networks**.

To identify the ways in which the variables were dynamically interlinked in the subgroups, network modelling was conducted. For the network analyses, we employed Multilevel-VAR to estimate contemporaneous and temporal networks. Unlike the bivariate i-ARIMAX models where lags were optimized individually, the Multilevel-VAR assumes a lag-1 structure to estimate within-person dynamics across the full network of variables (Bringmann et al., 2013). To prevent convergence issues in these more complex multivariate network models (which are more sensitive to sample size than the bivariate i-ARIMAX models) we restricted the network nodes to the six processes of psychological flexibility and the two affect variables for the Stoic vs. Non-Stoic comparison (Sahdra et al., 2024).

Results replicated Sahdra et al.'s (2024) findings showing that for 'Stoics', values were not linked with sadness or joy in the within-person network (see Fig. 6), however, they were strongly related to affect in the between-person network (see Fig. 7). For the Non-Stoics, however, values were linked with joy, which was strongly linked with sadness at the within-person and between-person level (See Figs. 8 and 9). Furthermore, extending Sahdra et al.'s (2024) study, the psychological flexibility variable of acceptance was negatively linked with sadness at the within-person level but positively linked at the between-person level for the Non-Stoics. These results support H3 showing that within-person networks varied from the between-person networks of the subgroup of individuals who deviate from the norm.

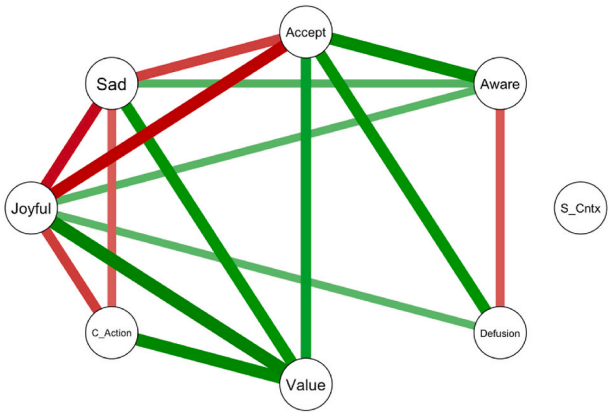

Fig. 7. Stoics: Between-person interrelations.

It was hypothesised (H4) that contextual variables would differentially impact the dynamics of psychological (in)flexibility sub-processes and their links with affect at an idionomic level. To compare the findings with those of Sahdra et al. (2024), values and committed action and the contextual variables of stressful and positive experiences were added. Only two additional psychological flexibility items (acceptance and awareness) were included to prevent convergence issues due to small sample size. For the Stoics, stress was unrelated to sadness or joy in the within-person network, however, positive experiences were related to joy (See Fig. 10). Furthermore, stress was positively related to acceptance, which was positively related to committed action. Both positive and stressful experiences were linked to acceptance. The only negative effect in the between-person network that was found in the within-person network is that between acceptance and sadness (See Fig. 11). All psychological flexibility items were included in the mlVAR models given the greater sample size of the Non-Stoics ($n = 157$). Results showed that for the Non-Stoics, acceptance was negatively related to sadness and positively related to joy and committed action in the within-person network (See Fig. 12). Furthermore, stressful events seem

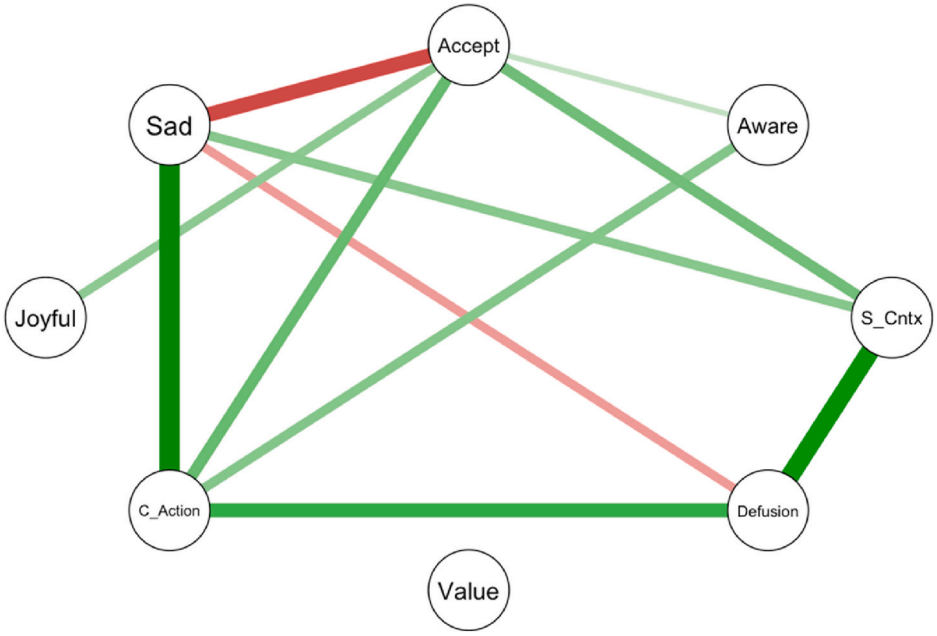

Fig. 6. Stoics: Within-person contemporaneous interrelations

Note. C_Action = "Even when I stumbled in my efforts, I didn't quit working toward what is important" item; Value = "I was very in-touch with what is important to me and my life"; Defusion = "I was able to let negative feelings come and go without getting caught up in them" item; S_Cntx = "Even when I felt hurt or upset I tried to maintain a broader perspective" item; Aware = "I was attentive and aware of my emotions" item; Accept = "I tried to make peace with my negative thoughts and feelings rather than resisting them" item; Sad = "How sad do you feel?" item; Joyful = "How joyful do you feel" item.

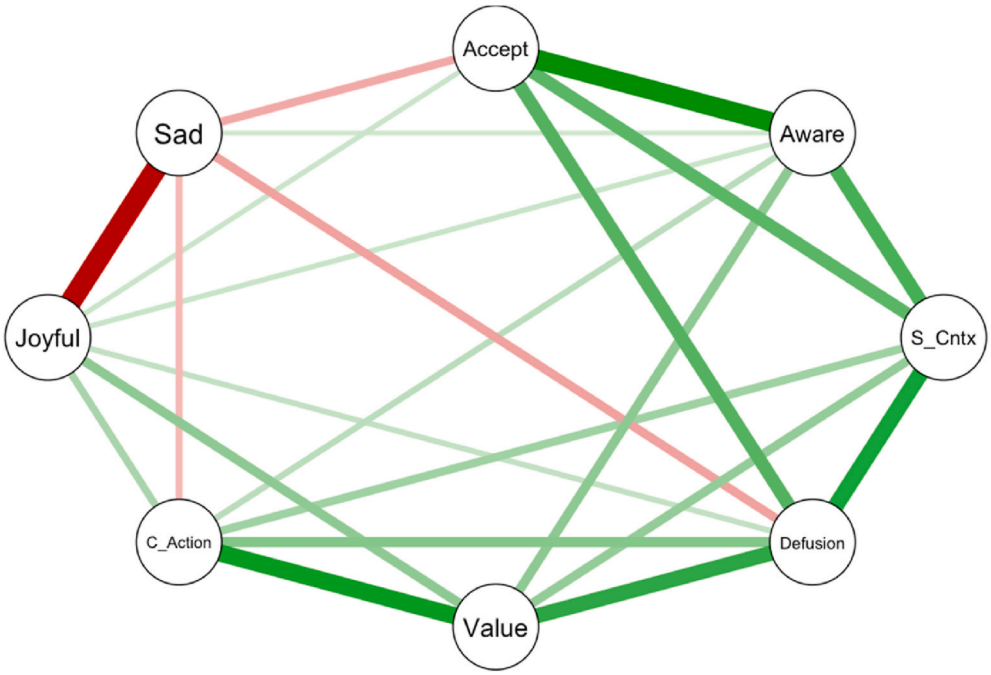

Fig. 8. Non-Stoics: Within-person contemporaneous interrelations.

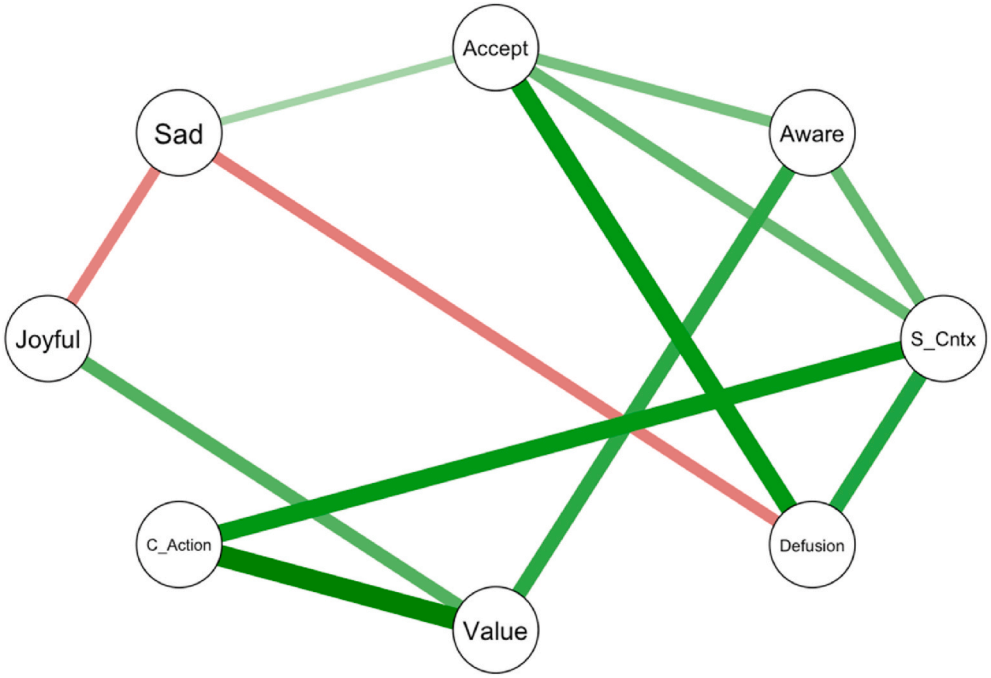

Fig. 9. Non-Stoics: Between-person interrelations.

to dampen their joy and increase sadness in the within-person network. The positive association between stress and sadness is also apparent in the between-person network (See Fig. 13).

In the networks below, adding the contextual variables of loneliness and connectedness revealed that loneliness increased sadness and dampened joy among the Stoics (Fig. 14). There was a strong association between sadness and committed action, an effect observed only at the within-person level (Fig. 15). In contrast, for the Non-Stoics sadness was negatively linked to committed action at the within-person level. Furthermore, both connection and committed action increased joyfulness. These findings importantly extend the Sahdra et al.'s (2024) and Catts et al.'s (2025) network findings using different variables and support our H4 by demonstrating that contextual variables differentially impact the dynamics of psychological (in)flexibility subprocesses and their links with affect for the two groups. See Fig. S4 in Appendix A for full-sample within-person and between-person networks, which show the pattern of associations between variables when the 'deviant' voices of the Stoics are not considered separately. In the full-sample within--person network, stress reduced joy and amplified sadness. The positive links between stress and acceptance observed in the Stoics' within-person network were absent—meaning the unique Stoic response patterns would be completely overlooked in these analyses (see Figs. 16

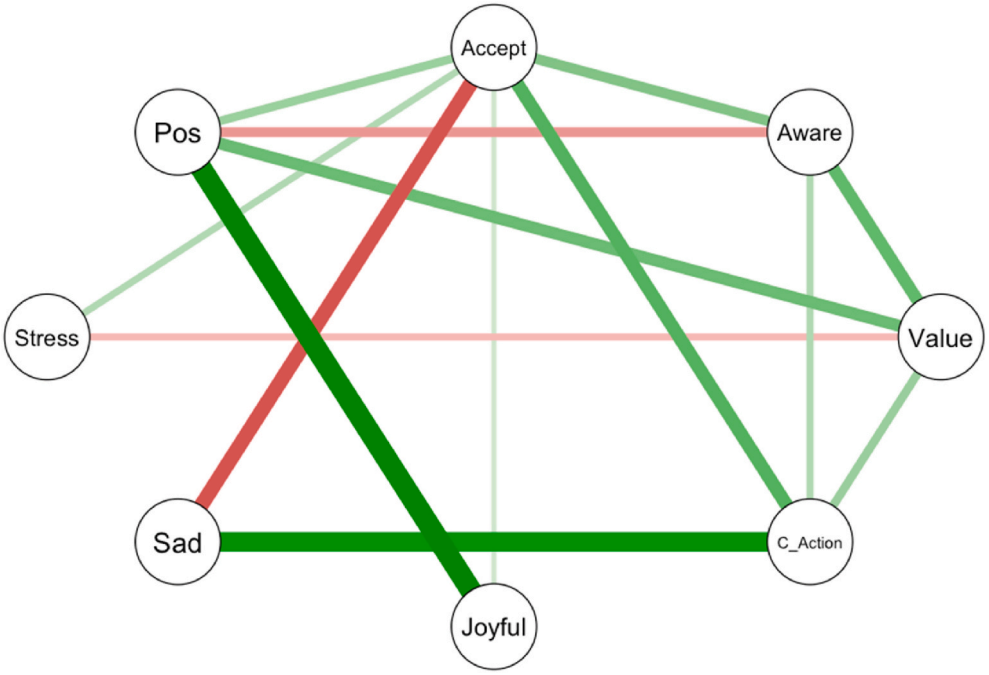

Fig. 10. Stoics: Within-person contemporaneous interrelations (stress and positive experiences)
Note. Stress = The context of stressful events in daily life; and Pos = The context of positive events in daily life.

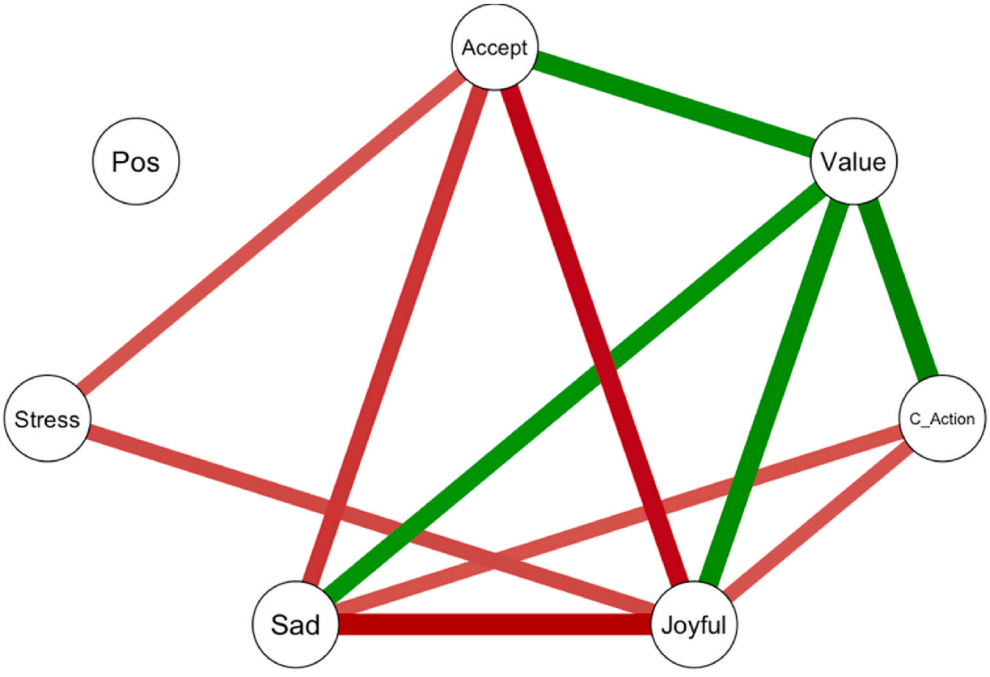

Fig. 11. Stoics: Between-person interrelations (stress and positive experiences).

and 17).

4. Discussion

This study explored the idionomic links between psychological flexibility, psychological inflexibility, and hedonic well-being. As hypothesised (H1), results were consistent with the previously established link between psychological flexibility and greater positive affect and psychological inflexibility and greater negative affect when examining aggregated data (Gloster et al., 2021; Howell & Demuynck, 2021). Consistent with emerging idionomic EMA research (Sahdra et al., 2024, 2025), however, substantial non-random heterogeneity was identified within the pooled effects. The current results support the conceptualisation of psychological flexibility and inflexibility subprocesses as distinct constructs, yet this distinction does not account for the high non-random heterogeneity of within person results. The i-ARIMAX estimates of within-person associations indicated that, consistent with our hypothesis (H2), individuals who exhibited substantial deviations from the norm demonstrated a different pattern of associations between variables. For each sub-process of psychological (in)flexibility, the

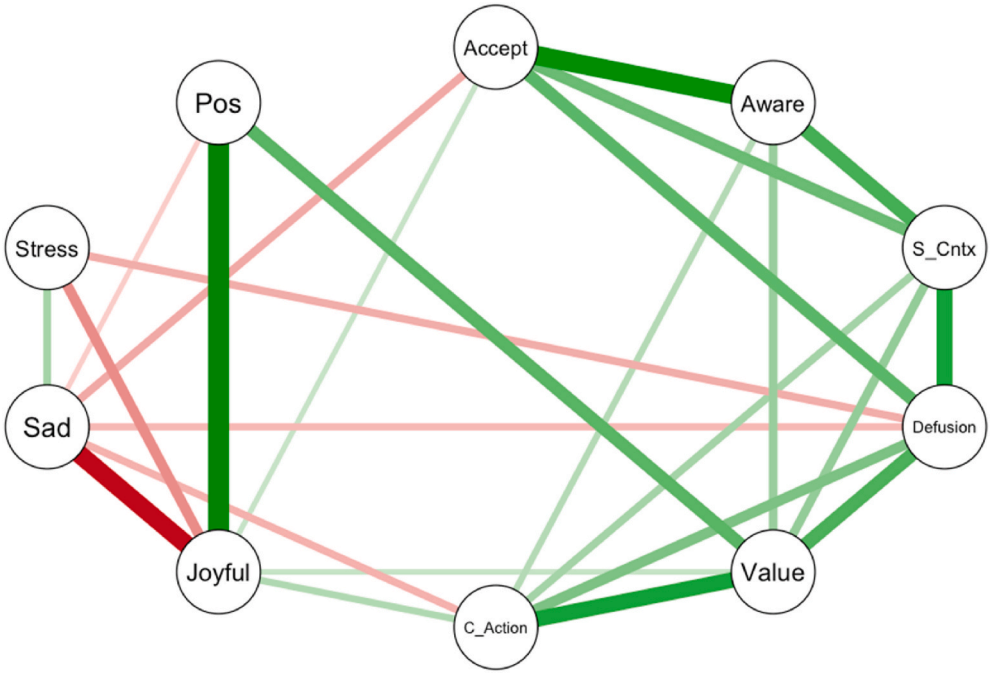

Fig. 12. Non-Stoics: Within-person contemporaneous interrelations (stress and positive experiences).

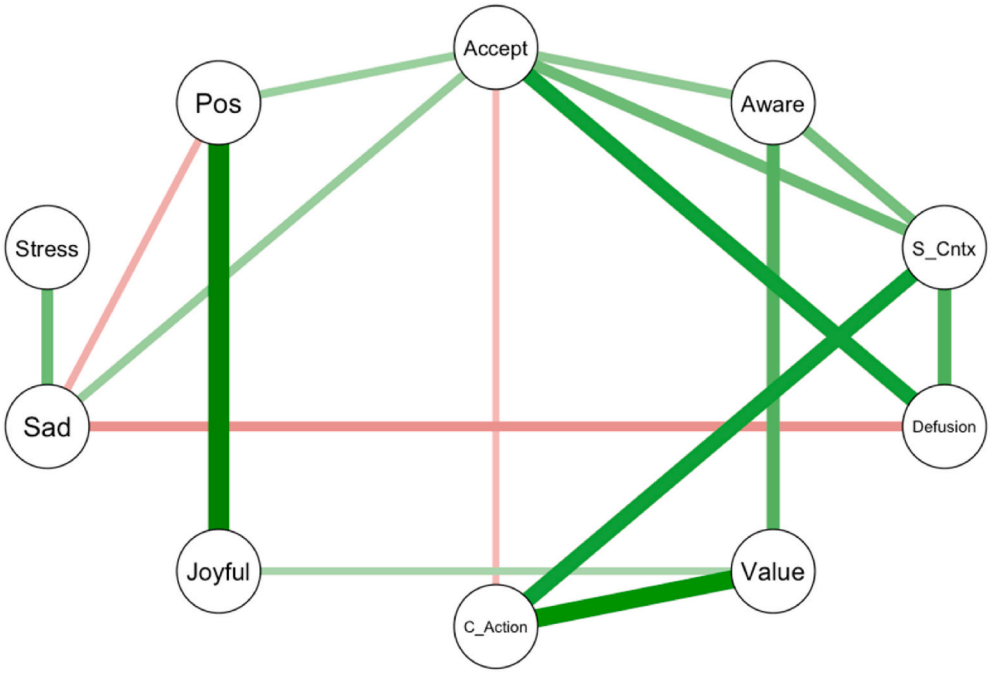

Fig. 13. Non-Stoics: Between-person interrelations (stress and positive experiences).

prediction intervals were wide and there were many individuals for whom relationships between variables were opposite to the pooled effect. If we focus solely on the pooled effect, as is common practice in research, we risk overlooking or misunderstanding these individuals.

The idionomic method emphasizes the importance of modeling individual patterns and subsequently drawing generalisations concerning broader populations if, and only if, idiographic information is preserved for enhanced (Hayes et al., 2022). Results supported our hypothesis (H3), that the within-person networks varied from the between-person networks of the subgroup of individuals who deviated from the norm. Between-person networks estimates are akin to multiple regression coefficients in cross-sectional designs. They represent conditional relationships (with all variables adjusted for each other) between the *means* of variables aggregated across all time points. In contrast, within-person contemporaneous networks function like conditional regression effects in longitudinal designs that incorporate time series information. Our analysis focuses specifically on contemporaneous relationships between variables at the same time point (while controlling for previous time points). Therefore, within-person contemporaneous networks show conditional links between variables at the same time point, after controlling for effects from previous time points in the series.

Our results replicated and extended the 'Stoics' vs. 'Non-Stoics'

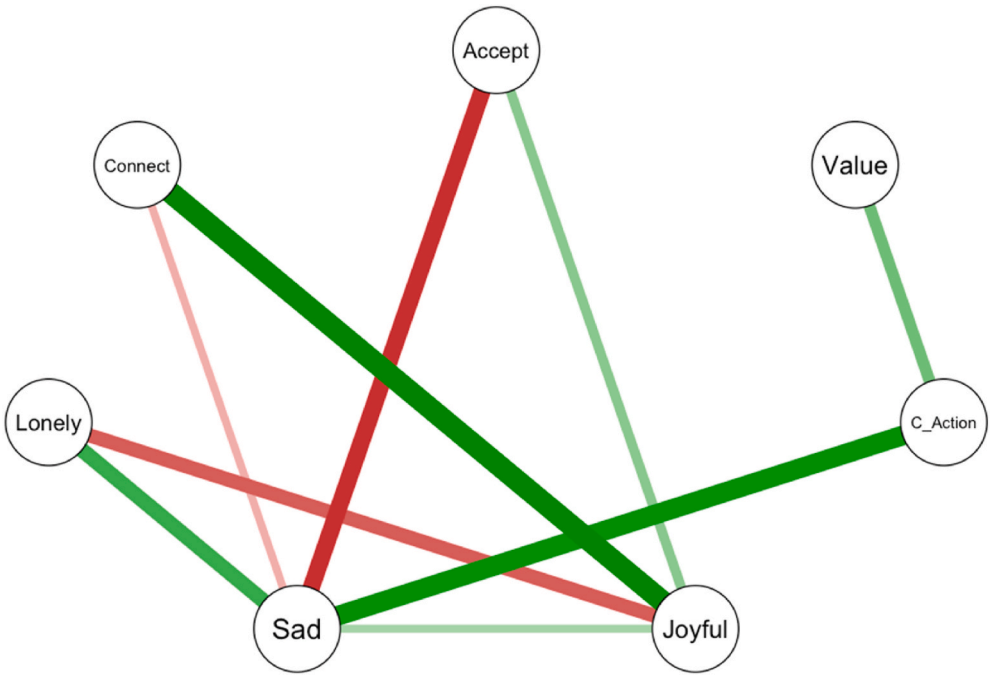

Fig. 14. Stoics: Within-person contemporaneous interrelations (lonely and connected)
Note. Lonely = The context of loneliness in daily life; and Connect = The context of connection in daily life.

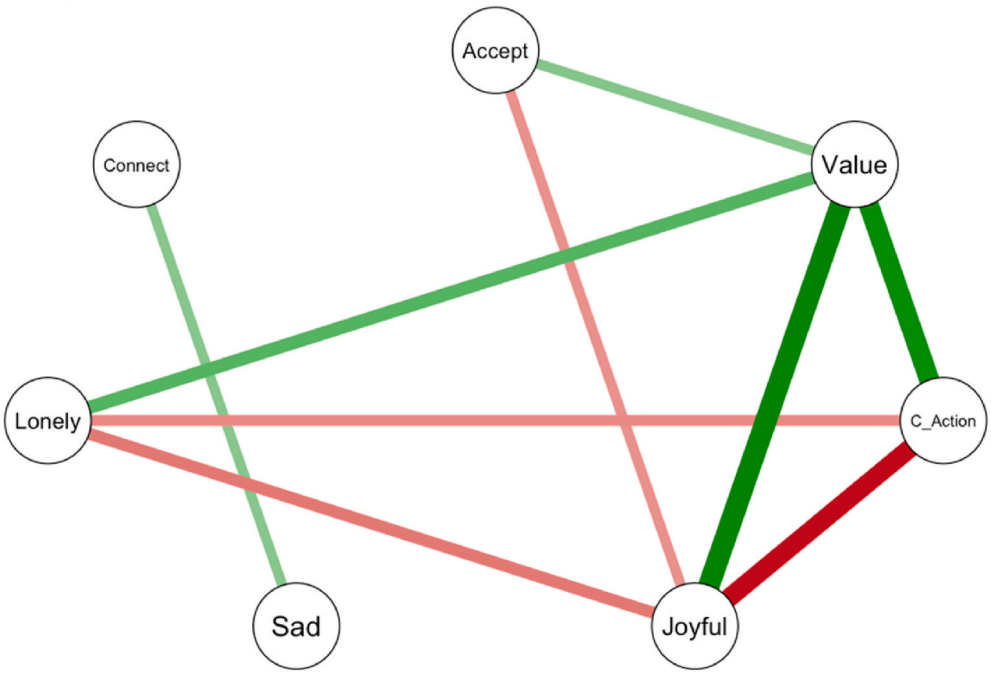

Fig. 15. Stoics: Between-person interrelations (lonely and connected).

findings reported by Sahdra et al. (2024) and Catts et al. (2025). The emergence of this subgroup across three independent studies provides strong evidence that this is a robust functional classification. For Non-Stoics, values were clearly linked with affect; staying in touch with their values was linked with joy, which was strongly linked with sadness. These results align with prior nomothetic research showing that engagement with values correlates with lower distress and enhanced well-being (Grégoire et al., 2021; Tunç et al., 2023).

In contrast, for Stoics, values were not linked with sadness or joy in the within-person network. This replication supports the theoretical alignment with the Stoic philosophy of apatheia, where an individual remains grounded in their values regardless of fluctuating emotional states (Graver, 2009). The fact that we identified this group using a committed action item, whereas previous studies (Catts et al., 2025; Sahdra et al., 2024) used valued action items, further supports the construct validity of the Stoic classification; it appears to be a genuine behavioral pattern where action is functionally independent of immediate hedonic reinforcement. These findings support the robustness of the idionomically-derived Stoic subgroup.

The within-person networks revealed clear patterns in these

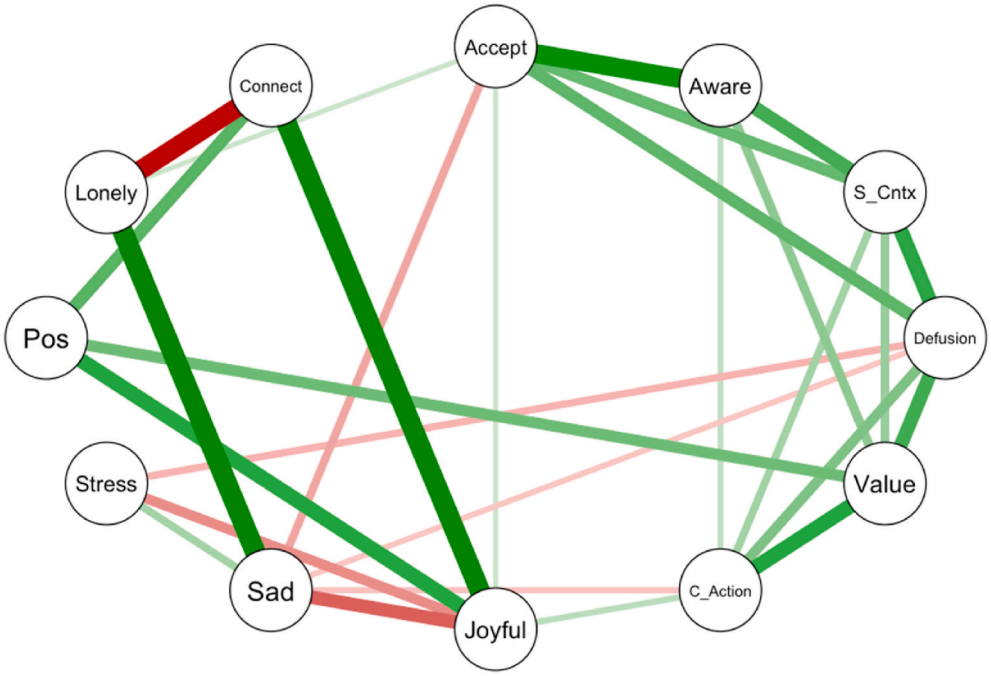

Fig. 16. Non-Stoics: Within-person contemporaneous interrelations (lonely and connected).

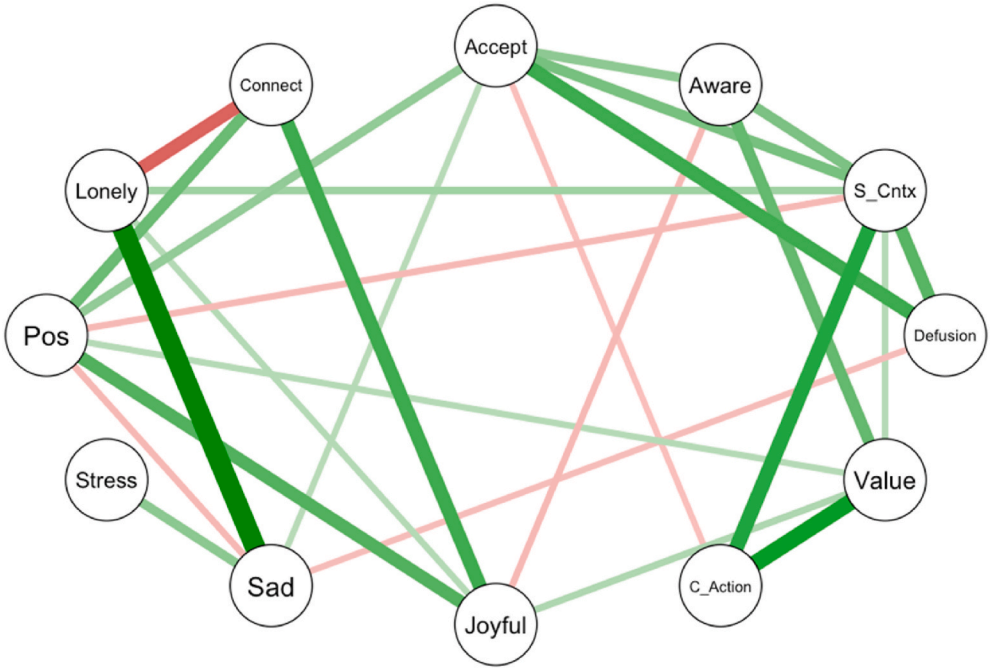

Fig. 17. Non-Stoics: Between-person interrelations (lonely and connected).

idiographically defined groups. For Non-Stoics, values were clearly linked with affect—staying in touch with their values was linked with joy, which was strongly linked with sadness. These results align with prior nomothetic research showing that engagement with values correlates with lower distress and enhanced well-being (Grégoire et al., 2021; Tunç et al., 2023). In contrast, for Stoics, values were not linked with sadness or joy in the within-person network. This may reflect the Stoic philosophy of *apatheia*, where an individual remains grounded in their values regardless of fluctuating emotional states (Graver, 2009).

Interestingly, values were strongly related to affect in the between-person network. This suggests that relying on between-person effects to infer individuals' day-to-day experiences at the within-person level may be misleading. The inclusion of contextual variables revealed more pronounced differences both within and between persons, demonstrating a distinct impact on the relationship dynamics between psychological flexibility sub-processes and affect (supporting H4). While past research (Sahdra et al., 2024) focused on stressful and positive events as contextual variables, we extended this by running models with additional variables of loneliness and connection, which showed similar results.

Further extending Sahdra et al.'s (2024) study, an additional psychological flexibility sub-process of acceptance showed a negative

association with sadness at the within-person level but positive at the between-person level for the Non-Stoics. Acceptance was also positively linked to both joy and committed action. Moreover, connection increased joyfulness, which in turn, increased committed action. The Klimczak et al. (2023) EMA study showed inaction linked with lesser positive affect which reflects the link between affect and committed action for the Non-Stoics. In contrast, Stoics are able to take joy from the positive experiences while remaining affectually unaffected by stressful events, again this may reflect *apatheia;* not letting negative external circumstances dictate emotional states (Graver, 2009). Both positive and stressful experiences were positively linked to acceptance, which, in turn, was positively associated with committed action. Results further showed that loneliness increased sadness and dampened joy among the Stoics. Interestingly, the Stoic pattern showed a doubling down on committed action despite sadness, an effect only observed at the within-person level. Overall, if we overlooked the high heterogeneity and focused wholly on the full-sample within-person network, we would find no evidence of positive connections between stress and acceptance, nor between sadness and committed action.

There are important clinical and practical implications based on the current findings. A clinician using evidence-based psychology might reasonably attempt to enhance a psychological flexibility subprocess to help clients alleviate feelings of sadness (a core symptom of depression). However, the current findings reveal the potential risks of this strategy. For example, both Stoic and Non-Stoic subgroups demonstrate that higher reported acceptance is related to lower sadness; however, the function of acceptance may differ between these groups. For Stoics, acceptance may be interpreted through a broader philosophical framework centred on resilience and duty (Sellars, 2017). This perspective may support Stoics in doubling down on committed action despite feelings of sadness. Therefore, increasing committed action without considering the acceptance-sadness link may fail to alleviate distress or even reinforce it. This example illustrates the effectiveness of identifying whether a unique client may match the subgroup profile of stoic or non-stoic at the start of treatment. Through collection of client EMA data, and mapping the relationships between components of psychological (in)flexibility, clinicians will have richer insight when developing case formulations and develop treatment plans based on these core underlying processes. Such treatment plans are likely to considerably differ to those based purely on large-scale group normative data. Understanding these nuances aligns with process-based therapy, which focuses on individual experiences and contexts to inform effective intervention (Hofmann & Hayes, 2018).

4.1. Limitations and future research

This study provides a valuable contribution by highlighting the significance of idionomic research, though it has several limitations. The present results replicate and support the findings of Sahdra et al. (2024) and Catts et al. (2025).This study extends the original research by incorporating additional measures of psychological flexibility and contextual variables, including loneliness and connection. However, convergence issues prevented us from including all psychological flexibility and inflexibility items in our models. A larger sample might have allowed for these elements, providing a more holistic picture of all 12 sub-processes of psychological (in)flexibility and their relationship with affect.

Importantly, the findings of the current study may have limited generalisability given the relatively small sample size of mostly female, white college students, representing a WEIRD (Western, educated, industrialized, rich, and democratic) population (Rad, Martigano & Ginges, 2018). WEIRD populations are likely to be outliers on measurable psychological phenomena relevant to the current study, such as self-concept and categorization (Henrich et al., 2010). Furthermore, psychological constructs such as psychological flexibility are likely to vary across culture and geography, and influenced by contextual factor such as social inequity, political freedom, societal norms and environmental degradation (Lambert et al., 2020). Cultural adaptations of psychological flexibility measures demonstrate these challenges – for example researchers struggled to translate the tern “a steady core” into Portuguese, and data collected from Portugues adults tended to report higher endorsement of positive constructs compared to Brazil. Generalizing psychological constructs across cultures as part of a universal human experience should be avoided. Given the promising current findings, future research could further investigate psychological flexibility across cultures and within specific contexts using EMA and idionomic methods.

Past studies (Catts et al., 2025; Sahdra et al., 2024) used different measures of committed action, compared to the current study which used the item “Since the last prompt, even when I stumbled in my efforts, I didn't quit working toward what is important”. Given we replicated past research using different measures of the same psychological constructs (Catts et al., 2025; Sahdra et al., 2024), the likelihood these are genuine behavioural phenomena is strengthened. Nonetheless, potential limitations of the measures used in the current study cause some concern. Brief items were used to facilitate intensive EMA methodology, however the interpretive ambiguity of Values items like "what is important to me" can meaningfully influence idiographic patterns of measured constructs. In addition, the brevity of some items may not capture the full complexity of the psychological flexibility component, for example the Self-as-context item focuses on emotional awareness rather than perspective taking or context sensitivity. Additionally, the Defusion item may reflect acceptance of experiencing negative feelings rather than defusion from them. Furthermore, we focused on hedonic well-being in the current study, future research could broaden outcome variables to include other related constructs that are important for psychological purpose, meaning, and overall well-being such as eudaemonic well-being. The current findings would benefit from future validation using robust measures.

Additionally, although involving multiple timepoints on a daily basis, this sample was collected in a relatively short time frame (one week), which is unlikely to capture idionmic stability or variability. Idiographic slopes estimated from such short time series are likely to be inherently unstable and may not generalise to longer time frames or other contexts, affecting both the meta-analytic summaries and the subgroup comparisons. Although the current results are promising, longer time series data would enable systematic examination of potential causal directions using various lags in temporal networks—something not feasible with our current sample. In this study, we implied a causal direction from psychological flexibility to affect based on our measurement timing: participants rated their (in)flexibility "since the last prompt," while affect was measured "right now." Future research should explore the implications of different temporal anchoring of responses.

4.2. Conclusion

In line with the ACBS Task Force Report and advances in idionomic research, this study emphasizes the importance of idionomic, longitudinal, and network-based investigations for developing tailored, process-based interventions. While normative effects help practitioners identify beneficial psychological processes for change, our findings show that nomothetic approaches often fail to accurately reflect individual experiences even for psychological (in)flexibility related processes. Idionomic findings offer greater value to clinicians by prompting them to observe the unique dynamics between psychological flexibility and affect in different individuals, including whether someone displays Stoic or Non-Stoic behavior patterns. Rather than simply emphasizing this dichotomy, though reliable and replicable, our key point is that we must recognize the nuanced individual variations that normative statistical analyses typically obscure. As clinical practice evolves, we need a new approach to psychological research that prioritizes idionomically-

examined group effects over broad generalizations. This shift will help avoid one-size-fits-all interventions and enable more personalized data-driven client support.

CRediT authorship contribution statement

Madeleine I. Fraser: Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Conceptualization. **Kathryn Field:** Writing – review & editing, Writing – original draft, Project administration, Formal analysis, Conceptualization. **Joseph Ciarrochi:** Writing – review & editing, Supervision, Methodology, Investigation, Formal analysis, Conceptualization. **Cristóbal Hernández:** Writing – review & editing, Validation, Supervision, Methodology, Conceptualization. **Jennifer Krafft:** Writing – review & editing, Supervision, Data curation, Conceptualization. **Korena Klimczak:** Writing – review & editing, Resources, Methodology, Investigation, Data curation, Conceptualization. **Michael E. Levin:** Writing – review & editing, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Keong Yap:** Writing – review & editing, Supervision, Conceptualization. **Steven C. Hayes:** Writing – review & editing, Supervision, Investigation, Conceptualization. **Baljinder K. Sahdra:** Writing – review & editing, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of competing interest

Given their editorial roles at JCBS, Dr. Baljinder K. Sahdra (Editor-in-Chief), and Drs. Michael Levin, Jennifer Krafft, and Cristóbal Hernández (Editorial Board Members) cannot have any involvement in the peer-review of this article. We have no other conflicts of interest to disclose.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jcbs.2026.100984.

Data availability

Data are available upon reasonable request.

References

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: implications for data aggregation and analysis. In K. J. Klein, & S. W. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 349–381). San Francisco, CA: Jossey-Bass, Inc.

Bringmann, L. F., Vissers, N., Wichers, M., Geschwind, N., Kuppens, P., Peeters, F., Borsboom, D., & Tuerlinckx, F. (2013). A network approach to psychopathology: New insights into clinical longitudinal data. *PLoS One, 8*(4), Article e60188. https://doi.org/10.1371/journal.pone.0060188

Catts, N. V., Sahdra, B. K., Ciarrochi, J., Fraser, M. I., Hernández, C., Hayes, S. C., & Gloster, A. T. (2025). Distinct pathways to well-being: Exploring valued action and mood among stoics and non-stoics. *Journal of Contextual Behavioral Science.* , Article 100898. https://doi.org/10.1016/j.jcbs.2025.100898

Cherry, K. M., Hoeven, E. V., Patterson, T. S., & Lumley, M. N. (2021). Defining and measuring "psychological flexibility": A narrative scoping review of diverse flexibility and rigidity constructs and perspectives. *Clinical Psychology Review, 84*, Article 101973. https://doi.org/10.1016/j.cpr.2021.101973

Ciarrochi, J., Sahdra, B. K., Fraser, M. I., Hayes, S. C., Yap, K., & Gloster, A. T. (2024b). The compassion connection: Experience sampling insights into romantic attraction. *Journal of Contextual Behavioral Science*, 100749. https://doi.org/10.1016/j.jcbs.2024.100749, 100749.

Ciarrochi, J., Sahdra, B., Hayes, S. C., Hofmann, S. G., Sanford, B., Stanton, C., Yap, K., Fraser, M. I., Gates, K., & Gloster, A. T. (2024a). A personalised approach to identifying important determinants of well-being. *Cognitive Therapy and Research, 48*(4), 1–22. https://doi.org/10.1007/s10608-024-10486-w

Ciarrochi, J., Sahdra, B., Marshall, S., Parker, P., & Horwath, C. (2014). Psychological flexibility is not a single dimension: The distinctive flexibility profiles of underweight, overweight, and obese people. *Journal of Contextual Behavioral Science, 3*(4), 236–247. https://doi.org/10.1016/j.jcbs.2014.07.002

Genolini, C., Écochard, R., & Jacqmin-Gadda, H. (2013). Copy mean: A new method to impute intermittent missing values in longitudinal studies. *Open Journal of Statistics, 3*(4), 26–40. https://doi.org/10.4236/ojs.2013.34a004

Gloster, A. T., Block, V. J., Klotsche, J., Villanueva, J., Rinner, M. T. B., Benoy, C., Walter, M., Karekla, M., & Bader, K. (2021). Psy-Flex: A contextually sensitive measure of psychological flexibility. *Journal of Contextual Behavioral Science, 22*, 13–23. https://doi.org/10.1016/j.jcbs.2021.09.001

Graver, M. R. (2009). *Stoicism & Emotion*. Chicago, Ill: University Of Chicago Press.

Grégoire, S., Chénier, C., Doucerain, M., Lachance, L., & Shankland, R. (2020). Ecological momentary assessment of stress, well-being, and psychological flexibility among college and university students during acceptance and commitment therapy. *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement, 52*(3), 231–243. https://doi.org/10.1037/cbs0000175

Grégoire, S., Doucerain, M., Morin, L., & Finkelstein-Fox, L. (2021). The relationship between value-based actions, psychological distress and well-being: A multilevel diary study. *Journal of Contextual Behavioral Science, 20*, 79–88. https://doi.org/10.1016/j.jcbs.2021.03.006

Grégoire, S., Gagnon, J., Lachance, L., Shankland, R., Dionne, F., Kotsou, I., Monestès, J., Rolffs, J. E., & Rogge, R. D. (2020b). Validation of the English and French versions of the multidimensional psychological flexibility inventory short form (MPFI-24). *Journal of Contextual Behavioral Science, 18*, 99–110.

Hayes, S. C. (2006). The six core processes of ACT. https://contextualscience.org/the_six_core_processes_of_act. (Accessed 1 August 2025).

Hayes, S. C., Ciarrochi, J., Hofmann, S. G., Chin, F., & Sahdra, B. (2022). Evolving an idionomic approach to processes of change: Towards a unified personalized science of human improvement. *Behaviour Research and Therapy, 156*, Article 104155. https://doi.org/10.1016/j.brat.2022.104155

Hayes, S. C., Merwin, R. M., McHugh, L., Sandoz, E. K., A-Tjak, J. G. L., Ruiz, F. J., Barnes-Holmes, D., Bricker, J. B., Ciarrochi, J., Dixon, M. R., Fung, K. P.-L., Gloster, A. T., Gobin, R. L., Gould, E. R., Hofmann, S. G., Kasujja, R., Karekla, M., Luciano, C., & McCracken, L. M. (2021). Report of the ACBS task force on the strategies and tactics of contextual behavioral science research. *Journal of Contextual Behavioral Science, 20*, 172–183. https://doi.org/10.1016/j.jcbs.2021.03.007

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2-3), 61–83.

Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine, 21*(11), 1539–1558. https://doi.org/10.1002/sim.1186

Hofmann, S. G., & Hayes, S. C. (2018). The future of intervention science: Process-based therapy. *Clinical Psychological Science, 7*(1), 37–50. https://doi.org/10.1177/2167702618772296

Howell, A. J., & Demuynck, K. M. (2021). Psychological flexibility and psychological inflexibility are independently associated with both hedonic and eudaimonic well-being. *Journal of Contextual Behavioral Science, 20*, 163–171. https://doi.org/10.1016/j.jcbs.2021.04.002

Huang, J. L., Curran, P. G., Keeney, J., Poposki, E. M., & DeShon, R. P. (2012). Detecting and deterring insufficient effort responding to surveys. *Journal of Business and Psychology, 27*(1), 99–114. https://doi.org/10.1007/s10869-011-9231-8

Hyndman, R. J., & Khandakar, Y. (2008). Automatic time series forecasting: The forecast package for R. *Journal of Statistical Software, 27*(3), 1–22. https://doi.org/10.18637/jss.v027.i03

Klimczak, K. S., Schwartz, S. E., Donahue, M. L., Capel, L. K., Snow, J. L., & Levin, M. E. (2023). Disentangling trait and state psychological inflexibility: A longitudinal multilevel approach. *Journal of Contextual Behavioral Science, 29*, 13–22. https://doi.org/10.1016/j.jcbs.2023.05.006

Lambert, L., Lomas, T., van de Weijer, M. P., Passmore, H. A., Joshanloo, M., Harter, J., … Diener, E. (2020). Towards a greater global understanding of wellbeing: A proposal for a more inclusive measure. *International Journal of Wellbeing, 10*(2).

Levin, M. E., Krafft, J., Pierce, B., & Potts, S. (2018). When is experiential avoidance harmful in the moment? Examining global experiential avoidance as a moderator. *Journal of Behavior Therapy and Experimental Psychiatry, 61*, 158–163. https://doi.org/10.1016/j.jbtep.2018.07.005

Li, W., Ciarrochi, J., Fraser, M. I., Hayes, S. C., Hernández, C., Ong, C. W., & Sahdra, B. (2025). *Advancing idiographic methodology: Simulations and an empirical study comparing ARIMAX, network, and machine learning approaches [Manuscript in preparation/under review]*.

Molenaar, P. C. M. (2004). A manifesto on psychology as idiographic science: Bringing the person back into scientific psychology, this time forever. *Measurement: Interdisciplinary Research & Perspective, 2*(4), 201–218. https://doi.org/10.1207/s15366359mea0204_1

Ong, C. W., & Eustis, E. H. (2021). Psychological fexibility. In M. P. Twohig, M. E. Levin, & J. M. Petersen (Eds.), *The Oxford handbook of acceptance and commitment therapy*. Oxford University Press.

Ong, C. W., Sheehan, K. G., & Haaga, D. A. F. (2023). Measuring ACT in context: Challenges and future directions. *Journal of Contextual Behavioral Science, 28*, 235–247. https://doi.org/10.1016/j.jcbs.2023.04.005

Pakenham, K. I., Landi, G., Cattivelli, R., Grandi, S., & Tossani, E. (2023). Identification of psychological flexibility and inflexibility profiles during the COVID-19 pandemic. *Journal of Clinical Psychology, 79*(10), 2225–2250. https://doi.org/10.1002/jclp.23536

Ptáček, M., & Jelínek, M. (2024). Assessing psychological flexibility: The psychometric properties of the Czech translation of the CompACT questionnaire. *Československá Psychologie, 68*(1), 30–48. https://doi.org/10.51561/cspsych.68.1.30

R Core Team. (2024). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing.

Rad, M. S., Martingano, A. J., & Ginges, J. (2018). Toward a psychology of homo sapiens: Making psychological science more representative of the human population. *Proceedings of the National Academy of Sciences, 115*(45), 11401–11405.

Ribeyron, J., Shankland, R., Leys, C., & Duriez, N. (2024). Acceptance is a better predictor of anxiety, depressive symptoms, and well-being compared to other emotional competences. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*. https://doi.org/10.1037/cbs0000430

Rolffs, J. L., Rogge, R. D., & Wilson, K. G. (2016). Disentangling components of flexibility via the hexaflex model development and validation of the multidimensional psychological flexibility inventory (MPFI). *Assessment, 25*(4), 458–482. https://doi.org/10.1177/1073191116645905

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Sahdra, B. K., Ciarrochi, J., Klimczak, K. S., Krafft, J., Hayes, S. C., & Levin, M. (2024). Testing the applicability of idionomic statistics in longitudinal studies: The example of "doing what matters.". *Journal of Contextual Behavioral Science, 32*, Article 100728. https://doi.org/10.1016/j.jcbs.2024.100728

Sahdra, B. K., Shin, A., Fraser, M., Levin, M. E., Klimczak, K. S., Krafft, J., Hayes, S. C., Hernández, C., & Ciarrochi, J. (2025). One size does not make all happy: Idionomic links between striving for positive states and happiness in experience sampling. *Journal of Happiness Studies, 26*, 101. https://doi.org/10.1007/s10902-025-00933-0

Sellars, J. (2017). *The routledge handbook of the Stoic tradition*. Routledge, Taylor & Francis Group.

Song, J., Howe, E., Oltmanns, J. R., & Fisher, A. J. (2022). Examining the concurrent and predictive validity of single items in ecological momentary assessments. *Assessment.* , Article 107319112211135. https://doi.org/10.1177/10731911221113563

Stabbe, O. K., Rolffs, J. L., & Rogge, R. D. (2019). Flexibly and/or inflexibly embracing life: Identifying fundamental approaches to life with latent profile analyses on the dimensions of the Hexaflex model. *Journal of Contextual Behavioral Science, 12*, 106–118. https://doi.org/10.1016/j.jcbs.2019.03.003

Tunç, H., Morris, P. G., Kyranides, M. N., McArdle, A., McConachie, D., & Williams, J. (2023). The relationships between valued living and depression and anxiety: A systematic review, meta-analysis, and meta-regression. *Journal of Contextual Behavioral Science, 28*, 102–126. https://doi.org/10.1016/j.jcbs.2023.02.004

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063