Emotion

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A Multilevel Factor Structure of Emotion Beliefs: Evidence for Situational Relevance and Emotion Structure Beliefs

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Researchers typically examine one or two emotion beliefs, without considering how the beliefs may map onto a latent set of emotion beliefs. Examining the factor structure of emotion beliefs may offer a parsimonious and helpful way to conceptualize emotion beliefs and advance empirical work on the topic. We used multilevel exploratory and confirmatory factor analyses to test the factor structure of emotion beliefs in two samples (Sample 1: $N = 179$ community adults; Sample 2: $N = 234$ undergraduate students) who each completed 1 or 2 weeks of ecological momentary assessment, repeatedly reporting on eight emotion beliefs: justified, fit the situation, helpful, enduring (duration), complex, warranted expression, controllable, and having a clear source. In each sample, we found consistent evidence for a two-factor structure at the within- and between-person level, except the controllability item. The first factor reflected situational relevance beliefs, or the degree to which emotions were evaluated as appropriate for the situation (i.e., justified, fit, helpful, and had clear causes). The second factor reflected emotion structure beliefs, or what people believed about the properties of their emotion experiences (i.e., long-lasting and complex). In the multigroup confirmatory factor analyses including both samples, emotion controllability cross-loading onto both factors (in opposite directions). We present support for convergent and discriminant validity of the two factors. Elucidating the factor structure of emotion beliefs is a critical step forward in the study of emotion beliefs. Future research is needed to examine how these situational relevance and emotion structure beliefs relate to emotion processes and psychological well-being.

Keywords: affect, emotion, beliefs, attitudes, judgments

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People hold a wide range of beliefs about the world around them. These beliefs shape their perceptions, behaviors, and interactions (Albarracín & Wyer, 2000; Wellman & Woolley, 1990). People also hold beliefs about their emotions and emotional experiences (Ford & Gross, 2019; Kneeland & Kisley, 2023). Many emotion beliefs have been identified and empirically examined (Kisley et al., 2024), with some positing their independence (e.g., Ford & Gross, 2019; Veilleux, Chamberlain, et al., 2021). However, a majority of research has primarily focused on only one or two individual emotion beliefs (e.g., goodness and controllability of emotions). To clarify the association between emotion beliefs and emotion processes, particularly in how emotion beliefs shape emotion-related experiences and well-being, it is necessary to comprehensively examine how various individual emotion beliefs may reflect a smaller set of latent beliefs. Doing so would provide a helpful and parsimonious way to assess emotion beliefs. In the present investigation, we examined a wide range of individual emotion beliefs in response to significant daily events to elucidate the underlying structure of emotion beliefs.

Emotion beliefs reflect the judgments, values, or mindsets people have about emotions (Kneeland & Kisley, 2023). People have beliefs about the utility or goodness of emotions (e.g., sadness can

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indicate that help may be needed; Chow & Berenbaum, 2012) or the malleability or controllability of emotions (e.g., feelings can be changed; De Castella et al., 2013; Tamir et al., 2007; for a review, see Ford & Gross, 2019). People also hold beliefs about the experience of their emotions, such as how long an emotion will last (duration), how unique their emotional experiences are from others, or whether their feelings are simple or complex (Leahy, 2016; Veilleux, Chamberlain, et al., 2021; Veilleux, Pollert, et al., 2021). These beliefs can be general or personal; for example, individuals may hold beliefs about the controllability of emotions overall (Tamir et al., 2007) or about their own emotional experience (De Castella et al., 2013). Furthermore, these emotion beliefs have links with positive affect (e.g., Daniel et al., 2020; Karnaze & Levine, 2018; Tamir et al., 2007), negative affect (e.g., Karnaze & Levine, 2018; Kneeland et al., 2020; Tamir et al., 2007), as well as emotion regulation (e.g., Johnston et al., 2025; for a review, see Hong & Kangas, 2022).

Despite the breadth of emotion beliefs, they are not typically examined exhaustively. Several scales have been developed to assess individual emotion beliefs. Most scales capture one or two emotion beliefs (for a review, see Kisley et al., 2024), using several items to assess each belief, implying an underlying factor structure. Of note, there is a growing body of research that has examined more than two emotion beliefs in a single assessment (e.g., Kneeland et al., 2024; Veilleux et al., 2023; Veilleux, Warner, et al., 2021). Although emotion beliefs are considered distinct from each other (Ford & Gross, 2019; Veilleux, Chamberlain, et al., 2021), some may have conceptual overlap. For example, Willroth et al. (2023) considered positive judgments of emotions, or views of the adaptiveness of emotions, to include goodness, usefulness, helpfulness, and appropriateness (e.g., "I often consider my unpleasant emotions to be beneficial"). Beliefs that reflect how long emotions last (duration) and the complexity of emotions might, instead, indicate the properties or characteristics of the emotional experience with little judgment or valuation regarding the goodness or badness of the feeling.

The extent that these various individual emotion beliefs may reflect core dimensions of beliefs and how these dimensions are organized (i.e., related to each other) is unknown. Given that many emotion beliefs are relevant for emotional experiences and regulation as well as psychological well-being (De Castella et al., 2013; Kneeland et al., 2024; Veilleux, Pollert, et al., 2021), it is important to investigate them comprehensively. As alluded to by Willroth et al. (2023), many emotion beliefs may be tapping into a similar underlying construct and thus may be conceptually redundant to examine them as separate constructs. A factor structure approach to examining multiple emotion beliefs can provide a parsimonious and integrated way to study emotion beliefs and their commonalities in relation to emotion processes.

In addition to the limited research examining different emotion beliefs, most research has conceptualized individual emotion beliefs as a traitlike, stable characteristic of the person. However, recent literature suggests that emotion beliefs vary across moments (Petrova et al., 2024; Veilleux, Warner, et al., 2021) and depend on the emotional state and context, such as the location and the activity in which a person is engaging (Veilleux et al., 2023). Although individuals may have stable beliefs about their emotions, their beliefs might also be contextually situated, depending on their thoughts and external environment. The momentary or statelike nature of emotion beliefs is supported not only by recent studies (Petrova et al., 2024; Veilleux, Warner, et al., 2021) but by clinical approaches (Hofmann et al., 2012). For example, cognitive behavioral therapy involves encouraging individuals to change cognitive distortions, which may include beliefs about emotions. A person might generally endorse greater controllability beliefs about their emotions, but when their emotions feel intense or overwhelming, they might not believe their feelings in the moment to be controllable. The use of ecological momentary assessment (EMA), which involves collecting multiple assessments throughout the day to capture the frequency and fluctuations of human experiences and behaviors (Molenaar & Campbell, 2009; Shiffman et al., 2008), can provide a powerful method for assessing within-person variability in emotion beliefs.

The Present Study

Studies have yet to examine a factor structure of emotion beliefs. To fully grasp how emotion beliefs play a role in psychological processes, we need to first consider the various emotion beliefs people hold and examine whether they tap into shared, underlying constructs. Building upon important research using EMA to assess emotion beliefs (Petrova et al., 2024; Veilleux et al., 2023), we examined a variety of individual emotion beliefs that included the extent to which emotions were (a) justified, (b) fit the situation, (c) helpful, (d) enduring (duration), (e) complex, (f) warranting expression, (g) controllable, and (h) having a clear source. Here, we focused on personal emotion beliefs (i.e., beliefs that individuals have of their own emotions), given that personal beliefs show greater variations in daily life and are more robust predictors of well-being than general emotion beliefs (De Castella et al., 2013; Kneeland et al., 2024). We also assessed whether these emotion beliefs varied over time in daily life.

We assessed momentary emotion beliefs using EMA in two samples (Sample 1: $N = 179$ community-dwelling adults; Sample 2: $N = 234$ student sample). Our first aim was to identify the factor structure of emotion beliefs at both within- and between-person levels, with a focus on within-person, as recent literature suggests greater variability at the within-person than between-person level (Petrova et al., 2024). To this end, we conducted a multilevel exploratory factor analysis (EFA) to explore factor structures at each level in the community sample.

Our second aim was to replicate the factor structure in the student sample, using multilevel confirmatory factor analysis (CFA). To increase confidence in our factor structure, we conducted multigroup multilevel CFA to ensure the emotion beliefs were interpreted and measured similarly across the two samples and determine the best-fitting structure across both samples. Given that one potential differing characteristic of the two samples is that one included adults between the ages of 18 and 65 and that the other included young adults between the ages of 18 and 30, we also tested measurement invariance by age group, as research suggests age-related differences in emotion beliefs (Gross et al., 1997; Veilleux, Pollert, et al., 2021).

Finally, our third aim was to test convergent, discriminant, and criterion validity based on the emotion belief factor(s) discovered in the first two aims. For example, we expected that a factor that includes usefulness or helpfulness beliefs, if found, to correlate with trait measures that assess these beliefs (convergent), whereas a

factor assessing less studied beliefs (e.g., complexity) would not (discriminant); a factor that includes controllability beliefs, if found, would correlate with trait measures that assess this. We tested criterion validity by examining correlations between factors with life satisfaction and depressive symptoms.

Method

Participants and Procedure

Sample 1: Community Sample

A total of 179 adults (M_{age} = 35.34, SD_{age} = 12.26) between the ages of 18 and 65 were recruited between November of 2022 and October of 2023 from the greater St. Louis, Missouri, region to participate in an Institutional Review Board (IRB)-approved study examining everyday emotional experiences (IRB No.: 202209063). Individuals were recruited through flyers at local businesses and a medical school participant registry that distributes research opportunities across social media to the local community. 53% of the sample identified as women, 46% identified as men, 2% identified as nonbinary, and <1% identified as transgender. The racial and ethnic composition of the sample was as follows: 69% White, 15% African American/Black, 13% Asian, 8% Latinx, 3% Middle Eastern, 2% Indigenous, <1% Native Hawaiian/Pacific Islander, and 3% did not report; see Supplemental Table S1 for all demographic details. Recruitment was stratified by race and ethnicity to ensure a representative sample of the region and by gender and age to ensure a diverse sample.

Individuals completed a phone screener to assess their eligibility. The study included an in-person session involving auditory and visual tasks and assessment of peripheral physiology, so individuals were ineligible if they had severe hearing or visual impairments or circumstances that impacted cardiovascular and respiratory activity (e.g., pacemaker). Individuals were ineligible if they did not own a smartphone due to the EMA study component. The sample of 179 did not include four participants (n = 2 withdrew, n = 2 completed zero or one EMA survey).

Participants were sent a link to a survey to complete before their in-person session. During the in-person session, participants completed additional surveys, a lab task, and a semistructured EMA tutorial, which included helping them download the app, learn about the survey schedule, and provide information about EMA items. Research staff asked questions to assess comprehension and provided standardized examples. EMA surveys started the day after the session. Participants were surveyed five times a day for 14 days. Surveys occurred during a 15-hr window of the participants choosing. Compensation for completing the study was $135, with a bonus of $15 if participants completed 80% or more surveys, totaling up to $150 possible compensation. Average compliance rate was 69% (M = 48.6 of 70 surveys, SD = 15.1; Range = 7–69). A total of 8,690 observations were collected out of 12,530 possible observations.

Sample 2: Student Sample

Young adults between the ages of 18 and 30 at a private university in the Midwest were recruited between December of 2023 and September of 2024 to complete an IRB-approved study about emotions in daily life (IRB No.: 202311081). Participants were recruited through the human subject pool as well as across the university through announcements in large courses and flyers. Participants were eligible if they used a smartphone. If interested, participants signed up for the study online or contacted the research team. After informed consent, they completed an online survey. Then they completed an EMA protocol, involving assessments of emotion and emotion beliefs eight times a day for one week. Surveys occurred during a 15-hr window of the participants choosing. Compliance rate was 58% (M = 32.53 of 56 surveys, SD = 12.40; Range = 6–56). 7,613 observations were collected in total out of 13,104 possible observations.

A sample of 234 young adults (M_{age} = 19.9, SD_{age} = 1.5) participated in the EMA portion of the study and were compensated with either research credit for their courses or gift card compensation. 59% of the sample identified as female, 37% identified as male, 1% identified as nonbinary, and 2% did not wish to disclose. The racial and ethnic composition of the sample was as follows: 62% White, 9% African American/Black, 2% African, 18% Asian, 9% South Asian, 15% Latinx, 2% Middle Eastern, <1% other; refer to Supplemental Table S1 for further details on all demographics. Research credit was prorated based on how many EMA surveys and portions of the study they completed. They were given .5 credits for completion of the online survey and were prorated credit based on completion of EMA surveys (e.g., an additional .5 credit at 11%–25% of surveys, 26%–43% of surveys, etc.) for up to a total of 2.5 course extra credit. For monetary compensation, participants were given $7.50 for the online survey and an additional prorated compensation based on completion of EMA surveys (i.e., an additional $7.50 at 11%–25% of surveys, 26%–43% of surveys, etc.) for up to a total of $37.50. As a minimum, we had planned to recruit a sample of 200 based on recommendations for factor analysis with an expected two-factor structure with three or more indicators in each (Kyriazos, 2018).

Measures

Experience Sampling Method

At each EMA survey, participants were asked to "think about the largest shift in how you felt since the last survey." The rationale for asking about this was to have them report on a situation that was the most salient and emotionally significant. Then participants reported on the event that caused the shift and answered questions about the event and their experiences.

Emotion Beliefs. Emotion belief items were developed based on measures in the extant literature (De Castella et al., 2013; Petrova et al., 2024; Willroth et al., 2023), with four items adapted from the Individual Beliefs about Emotions Scale (IBAE) since, at the time of study design, this measure assessed the largest range of beliefs (Veilleux, Chamberlain, et al., 2021). We modified IBAE items to make them suitable for EMA. This is consistent with Veilleux et al. (2023), in which items were revised to specifically capture momentary emotion beliefs. All items were framed as assessing personal beliefs, or what individuals believed about their own emotions. We designed four items to reflect emotion beliefs being assessed in the literature. For example, we designed "To what extent were your feelings UNHELPFUL versus HELPFUL?" to assess utility beliefs and "To what extent did you think your emotions

could be CONTROLLED?" to assess controllability beliefs. We also assessed whether emotions were justified, capturing the view that emotion experiences were relevant to the context (Archer & Mills, 2019) and whether the emotion fit the situation, capturing the view that emotion experiences were appropriate (Petrova et al., 2024; Willroth et al., 2023). These were administered both as a trait-level version in the online survey and as a momentary-level version in the EMA.

Participants were prompted with the following before answering a series of questions assessing emotion beliefs, "The next set of items will ask you about how you THOUGHT about your feelings in response to the event." For the community sample, the emotion beliefs were presented in a random order. For the student sample, items were presented in a fixed order (as presented below). Emotion beliefs were assessed with the following items: "To what extent were your feelings JUSTIFIED?" (justification belief; 1 = not at all justified; 4 = somewhat justified; 7 = totally justified), "To what extent did your feelings FIT THE SITUATION?" (fit belief; 1 = not at all; 7 = a great deal), "To what extent were your feelings UNHELPFUL versus HELPFUL?" (helpfulness belief; 1 = unhelpful and useless; 4 = neither unhelpful nor helpful; 7 = helpful and useful), "How long did you think your feelings would LAST?" (duration belief; 1 = not very long; 4 = somewhat long; 7 = seemed to last forever), "To what extent were your feelings COMPLEX?" (complexity belief; 1 = I felt one emotion at a time; 7 = I felt a variety of emotions at once), "To what extent did your feelings need to be LET OUT or KEPT to yourself?" (warranted expression belief; 1 = must be "let out"; 7 = should be kept to yourself), "To what extent did you think your emotions could be CONTROLLED?" (controllability belief; 1 = hard to change or alter; 7 = able to be controlled), and "Where did your feelings COME FROM?" (source belief; 1 = no clear cause; 7 = clear identifiable cause). All items were rated on a 7-point Likert-type scale (see Supplemental Table S2 for response options).

In the online survey prior to the EMA, participants reported on their trait emotion beliefs. Participants completed the IBAE (Veilleux, Chamberlain, et al., 2021), which assessed six of the emotion beliefs included in the EMA protocol, including helpful, long-lasting, complex, warranted expression, controllable, and having a clear source. Items on the IBAE are rated using a 5-point bipolar scale (e.g., 1 = negative feelings are helpful and useful; I welcome my negative feelings; 5 = negative feelings are bad and destructive; I would prefer to never feel bad). We supplemented the scale to assess the other two emotion belief items, justified and fit.

To assess construct validity, we conducted multilevel models to examine associations of each EMA emotion belief item with its trait version at the between-person level. Most of the trait emotion beliefs were significantly associated with their momentary emotion beliefs in expected, positive directions. A few of the momentary beliefs were not associated with their trait assessments though also in the expected, positive directions; however, this might reflect a ceiling effect due to the amount of within-person variance. The conditional R^2 for each the models suggests relative variance explained by trait assessments (.24–.39; see Supplemental Table S2). When considering sample differences, the community sample reported higher source and fit beliefs ($p < .003$), but lower duration and complex beliefs ($p < .05$), than the student sample (see Supplemental Table S3).

Trait Measures of Emotion Beliefs

In the community sample, we also assessed trait emotion usefulness and controllability beliefs using the 16-item Emotion Beliefs Questionnaire (Becerra et al., 2020). In the student sample, we included the Emotion Beliefs Questionnaire (and the two samples did not differ on their ratings) and other beliefs to assess convergent and discriminant validity. This included the 24-item Emotion Judgments Questionnaire (Willroth et al., 2023), the eight-item Help and Hinder Theories about Emotion Measure (Karnaze & Levine, 2020), and the Implicit Theories of Emotions Scale (De Castella et al., 2013). For reliability and descriptives for these scales, please refer to Supplemental Table S3 (details for how life satisfaction and depressive symptoms were assessed are also in the Supplemental Materials; syntax is available on the Open Science Framework [OSF] page).

Data Analytic Plan

Analyses were conducted using Mplus Version 8.10 (Muthén & Muthén, 2017) and R Version 2024.4.2.764 (R Core Team, 2023) using the psych (Revelle, 2024) and Lavaan packages (Rosseel, 2012). To address our first aim examining the factor structure of emotion beliefs, we first conducted a two-level EFA. We evaluated the intraclass correlation coefficients of the emotion belief items to ensure that ratio of between-to-within person variation warrants a two-level EFA. To fully explore all plausible factor structures, we conducted two-level EFAs first including all eight items. The Mplus output produces model outcomes when specifying various factor structures at one level while leaving the other level unstructured, allowing us to identify the most appropriate model structure at each level separately. We used the oblique geomin rotation as we expected the factors to be correlated (Costello & Osborne, 2005; Sass & Schmitt, 2010) and the maximum likelihood estimator.

We then considered eigenvalues for the number of factors suggested for each level. Eigenvalues with values over 1 are often used to determine the appropriate number of factors (Cliff, 1988). An alternative approach, the scree test, considers the appropriate number of factors as the last point at which eigenvalues had a substantial decline (Cattell, 1966). In addition to using eigenvalues and scree tests for visual checks for factors, we conducted parallel analysis using the nFactors package (Raiche & Magis, 2022), which takes the eigenvalues and scree plot and compares it to inferred data through Monte-Carlo simulation (Horn, 1965). To select the best factor structure, we considered the suggested number of factors based on eigenvalues, scree test, and parallel analyses, as well as interpretability of model results. We consider factor loadings $\geq$0.30 to be meaningful loadings and loadings $\geq$0.40 to be primary loadings.

To address our second aim of replicating the factor structure from the community sample, we conducted a multilevel CFA with the student sample. We evaluated model fit using the following goodness-of-fit indices: χ^2 tests, the Tucker–Lewis index (TLI), the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and standardized root-mean-square residual (SRMR). Higher TLI and CFI values but lower RMSEA and SRMR values indicate better fit. Various cutoff criteria have been suggested by methodologists (Brown, 2015). CFI and TLI in the range of .90 and .95 indicate acceptable fit (Bentler, 1990), and TLI and CFI close to or greater than .95 suggest relatively good fit (Hu & Bentler, 1999). According to Hu and Bentler (1999), RMSEA

close to .06 or below and SRMR close to .08 or below indicates relatively good fit. Cudeck and Browne (1992) proposed that RMSEA below .08 indicates adequate model fit and that RMSEA below .05 indicates good model fit.

We considered the following contingencies if we found poor model fit: (a) explore model specifications and modification indices to identify where it may be optimal to adjust the model and (b) consider returning to EFA. Since characteristics differed in our samples, we employed multigroup CFA by merging the data sets together with the two samples as the grouping variable; doing so allowed us to evaluate whether the emotion beliefs are interpreted and measured similarly across the two samples (i.e., those in the student sample are perceiving and answering the emotion belief items to an equivalent extent as those in the community sample).

We systematically tested measurement invariance, starting with adding a means structure to the model and testing the base configural model. Then, we tested metric (restricting factor loadings to be the same across groups), scalar (restricting the factor loadings and intercepts to be the same across groups), and then strict invariance (restricting the factor loadings, intercepts, and residuals to be the same across groups). Model fit worsens when adding constraints, so we compared change in model fit following prior recommendations and guidelines for interpreting acceptable measurement invariance (Chen, 2007; Putnick & Bornstein, 2016). We report model comparison and follow the threshold of change for goodness-of-fit indices, $\Delta CFI \leq .01$, $\Delta RMSEA \leq .015$, $\Delta SRMR \leq .030$ for the metric model, and $\Delta SRMR \leq .015$ for scalar and strict invariance models (Chen, 2007; Putnick & Bornstein, 2016). We took meeting two of the three guidelines for threshold of change as indication for measurement invariance; doing so allowed us to minimize bias from any one fit index (Putnick & Bornstein, 2016).

For CFA models, we considered modification indices to improve model fit and free up parameters. Based on modification indices, we set the residual variance of the between-person indicator for how long my emotions would last to zero, indicating that all of the between-person variance for that indicator was explained by the latent variable. We used standardized scaling for the model, such that latent means for within- and between- person factors were equal to 0 and variances were equal to 1. Then, using the sample-invariant model previously identified, we conducted a multilevel CFA with age as a continuous moderator. We evaluated the model based on fit indices described above. After determining the factor structure, we averaged the items within each factor and correlated them with the trait emotion beliefs assessed in each study.

Transparency and Openness

The sample size for the community sample was determined for a larger study aimed at examining interoception in everyday life and to adequately answer a variety of questions aimed at examining emotion experiences and behavior in everyday life (for information and a list of measures regarding the community sample, see the OSF page https://osf.io/7s6wn/; for information and a list of measures regarding the student sample, see the OSF page https://osf.io/7zhev/). The student sample was part of a collaboration study with researchers examining culture, beliefs, and emotion regulation (see this OSF page link for further details). As mentioned, we aimed to recruit over 200 students for minimum requirements for factor analysis (Kyriazos, 2018). The studies were not preregistered; data and syntax for analyses are available on OSF: https://osf.io/7zhev/.

Results

Table 1 includes the descriptive statistics for EMA items (see Supplemental Table S3 for descriptive statistics for IBAE assessments). Correlations between emotion belief items at the within- and between-person level for both samples are summarized in Supplemental Table S4.[1] In the community sample, justified, fit, helpful, controllability, and clear source were positively correlated; the complexity belief had negative correlations with these beliefs. Duration belief was positively correlated with complex belief and negatively correlated with controllability belief, with small to no correlations with the other beliefs. In contrast, all belief items were positively correlated with each another in the student sample.

Community Sample Emotion Beliefs Factor Structure

For the community sample, the eigenvalues suggested a two- or three-factor structure at the within-person level and a three- or four-factor structure at the between-person level. Parallel analysis of the scree plots showed support for a two-factor structure at the within-person level and a three-factor structure at the between-person level. When specifying the two-factor structure at the within-person level while keeping the between-person level unstructured, seven of the eight beliefs had a primary loading on one factor except for the warranted expression item. The warranted expression item did not have a meaningful loading ($\geq$0.3) on either of the two factors at the within-person level. The three-factor solution did not converge, likely due to model under-identification.

When specifying two-factor structure at the between-person level while keeping the within-person level unstructured, again, seven of the eight items had a primary loading on one factor, and the warranted expression item was the only item that did not have a meaningful loading on either factor. The three-factor structure did not converge at the between-person level also likely due to model under-identification. Altogether, it appeared that the two-factor solution at both levels was the most appropriate solution; however, the warranted expression item did not load on any extracted factor at either level, suggesting that it may not belong to the same factors as the other items at each level and likely reflects a separate dimension of emotion beliefs. See Supplemental Table S5 for results of EFAs including the warranted expression item based on the community sample.

We repeated the EFA analyses excluding the warranted expression belief item and specifying one to three factors at each level. The eigenvalues suggest a two- or three-factor structure at both the within-person and between-person levels. The parallel analysis of scree plots showed support for a two-factor structure at both the within- and between-person levels. We first evaluated

[1] Justified and fit beliefs were highly correlated at the between-person level but were distinct at the within-person level. The focus of the current article is at the within-person level, as more recent findings (Petrova et al., 2024) suggest that emotion beliefs have relatively high within-person variability. To clarify that the two items were not having undue weight over the factor structure, we conducted additional EFAs where we excluded either item. These had similar model fits with items loading onto the same factors, and cross-loading for controllability remained. Consequently, we retained both items in the factor structure.

Table 1
Sample 1: Community and Sample 2: Students Variable Descriptives

Variable	Community sample (N = 179)				Students sample (N = 234)			
	No. of observations	M (SD)	Minimum–Maximum	ICC	No. of observations	M (SD)	Minimum–Maximum	ICC
EMA justified	8,202	5.21 (1.45)	1–7	0.367	7,331	4.79 (1.51)	1–7	0.366
EMA fit	8,204	5.43 (1.46)	1–7	0.374	7,331	4.87 (1.53)	1–7	0.363
EMA helpful	8,204	4.49 (1.42)	1–7	0.214	7,333	4.04 (1.44)	1–7	0.240
EMA warranted expression	8,211	4.44 (1.82)	1–7	0.245	7,333	4.09 (1.59)	1–7	0.259
EMA complex	8,214	3.11 (1.82)	1–7	0.261	7,329	3.67 (1.71)	1–7	0.308
EMA duration	8,208	3.46 (1.50)	1–7	0.255	7,331	3.56 (1.45)	1–7	0.234
EMA control	8,202	5.09 (1.71)	1–7	0.317	7,330	4.37 (1.63)	1–7	0.348
EMA source	8,202	5.47 (1.73)	1–7	0.389	7,331	4.91 (1.65)	1–7	0.340

Note. Total number of participants from Studies 1 and 2 is N = 413. EMA = ecological momentary assessment; ICC = intraclass correlation coefficients.

two-factor and three-factor solutions at the within-person level while keeping the between-person level unstructured (see the top panel of Supplemental Table S6 for factor loadings and model fit). For the two-factor solution at the within-person level, each emotion belief item had a primary loading on only one factor. The three-factor solution at the within-person level had three concerns: (a) only the helpful item loaded on Factor 3 (indicating that this factor solution is less parsimonious than the two-factor solution); (b) the controllability emotion belief did not have a primary loading on any factor; and (c) Factors 1 and 3 showed a significant and moderate correlation with each other (calling the distinctiveness of the factors into question). Therefore, the two-factor solution appeared to be the most appropriate structure at the within-person level.

We then evaluated two-factor and three-factor solutions at the between-person level while keeping the within-person level unstructured (see the top panel of Supplemental Table S6). For the two-factor solution at the within-person level, each emotion belief item has a primary loading with one exception; the controllability belief had primary loadings on both factors, though the magnitude of the loading was slightly higher for Factor 1 (0.590) than for Factor 2 (−0.427). The same concerns at the within-person level are noted for the three-factor solution at the between-person level: (a) only the

Table 2
Geomin-Rotated Factor Loadings of Accepted Two-Level Factor Solutions for Emotion Beliefs

Variable name	Within-person level		Between-person level	
	Factor 1: Situational relevance	Factor 2: Emotion structure	Factor 1: Situational relevance	Factor 2: Emotion structure
		Community sample (N = 179)		
Emotion beliefs				
Justify	**0.745**	0.000	**0.947**	0.099
Fit	**0.726**	−0.002	**0.988**	0.013
Helpful	**0.472**	−0.191	**0.574**	−0.012
Duration	0.238	**0.497**	0.006	**0.864**
Complex	−0.003	**0.510**	−0.226	**0.465**
Control	0.261	**−0.441**	**0.588**	**−0.422**
Source	**0.554**	0.113	**0.740**	0.072
Correlations				
Factor 1		−0.095		0.022
Fit indices		RMSEA = .041; CFI = .977; TLI = .939		
		Student sample (N = 234)		
Emotion beliefs				
Justify	**0.722**	−0.008	**0.989**	−0.008
Fit	**0.732**	0.016	**1.005**	−0.020
Helpful	**0.529**	−0.130	**0.668**	0.219
Duration	0.173	**0.533**	0.266	**0.680**
Complex	−0.010	**0.496**	−0.006	**0.874**
Control	**0.425**	−0.231	**0.608**	0.033
Source	**0.594**	0.105	**0.903**	0.028
Correlations				
Factor 1		0.149[a]		0.278[a]
Fit indices		RMSEA = .052; CFI = .968; TLI = .915		

Note. Values in bold are primary loadings (≥0.40). CFI = comparative fit index; RMSEA = root-mean-square error of approximation; TLI = Tucker–Lewis index.
[a] Factor correlations are significant at $p < .05$ level.

helpful item loaded on Factor 3; (b) the controllability emotion belief had primary loadings on both Factors 1 and 2; and (c) Factors 1 and 3 were significantly and strongly correlated with each other. Thus, we accepted the two-factor solution at the between-person level as the most appropriate factor structure. See Table 2 (top panel) for geomin-rotated factor loadings when specifying a two-factor solution simultaneously at the within- and between-person in a multilevel EFA. Based on these analyses, we arrived at a final model where Factor 1 at both the within- and between-person levels included justified, fit, helpful, and source and Factor 2 at both the within- and between-person levels included duration, complexity, and controllability. Controllability loaded onto both factors at the between-person level.

Student Sample Emotion Beliefs Factor Structure

We then conducted a multilevel CFA with our student sample, based on the factor structure that emerged in the EFA for our community sample (i.e., Factor 1 includes emotion justification, fit, helpfulness, and source; Factor 2 includes duration, complexity, and controllability). This, however, resulted in poor model fit (RMSEA = .122, 90% CI [.12, .124]; CFI = .849; TLI = .819; SRMR = .166). Modification indices did not provide insights for improving model fit across indices. Thus, we revisited multilevel EFA for the student sample to see whether the factor structure may have differed.

Following the same procedures with the community sample, we first tried to run a two-level EFA on all eight emotion belief items, including the warranted expression emotion belief. Similar to the community sample, the warranted expression item had the same issues as in the community sample (i.e., not loading on any factors in the most viable factor solutions at either level; see Supplemental Table S7 for results of EFAs including the warranted expression item based for the student sample). Thus, we conducted the EFA excluding the warranted expression item. The eigenvalues suggest a two- or three-factor structure at the within-person and between-person levels. Similarly, parallel analysis of scree plots for the student sample showed support for a two-factor structure. Thus, we evaluated both two-factor and three-factor solutions at each level (see bottom panel of Supplemental Table S6). For both levels, we accepted the two-factor solution because each emotion belief item had a primary loading on one factor, and factors were weakly correlated with each other. The three-factor solution at each level had similar concerns as those raised in the community sample. Table 2 (bottom panel) summarizes geomin-rotated factor loadings when a two-factor solution is specified simultaneously at the within- and between-person in a multilevel EFA.

When looking at the factor loadings in the student sample, the controllability item loaded more highly instead onto Factor 1 that included justification, fit, helpfulness, and source. Factor 2 still included the item loadings of duration and complexity beliefs. In summary, at the within-person level, the controllability item loaded more highly onto Factor 1 in the student sample, whereas it loaded more highly onto Factor 2 in the community sample. Across the two samples, the controllability item loaded somewhat similarly onto both factors at the between-person level.

Multigroup CFA to Test Measurement Invariance

Given that the two samples differed such that the controllability item loaded onto Factor 2 in the community sample and loaded onto Factor 1 in the student sample, we conducted follow-up analyses to test measurement invariance of the factor structure (i.e., if the differences in factor structure are explained by meaningful differences based on the two samples). Because the controllability item did load similarly for both studies at the between-person level, this might suggest relative cross-loadings for the controllability item. Thus, we ran three multigroup CFAs, in which we (a) restricted controllability to load solely onto Factor 1, (b) restricted controllability to load solely onto Factor 2, and (c) allowed for controllability to cross-load onto both factors.

When restricting controllability to load solely onto Factor 1, model adjustments were made; within- and between-person factor variances were set to 1 and the duration item residual variance was set to 0 at the between-person level. The configural model had poor fit indices ($\chi^2[152] = 10802.446$, $p < .001$; CFI = .887; TLI = .865; RMSEA = .095, 90% CI [.094 .097]; SRMR = .136). All three change thresholds for fit indices were met when comparing metric and configural invariance models; two of the three change thresholds for fit indices were met when comparing scalar and metric invariance models, as well as when comparing residual and scalar invariance models (see Supplemental Table S8), suggesting invariance across groups, but an ill-fitting model. Across all models and both samples, factor loadings were above .30.

When restricting controllability to load solely onto Factor 2, similar model adjustments were made; within and between-person factor variances were set to 1, and the duration item variance was set to 0 at the between-person level. The configural model also had poor fit indices ($\chi^2[152] = 17200.602$, $p < .001$; CFI = .819; TLI = .784; RMSEA = .12, 90% CI [.119 .122]; SRMR = .161). One of three change thresholds was met when comparing metric and configural invariance models, suggesting a potential lack of invariance across groups. Two of three change thresholds were met when comparing scalar and metric invariance models, as well as when comparing residual and scalar invariance models (see Supplemental Table S9). Across all models and both samples, the controllability item factor loadings when restricted to Factor 2 were below .30; all other factor loadings were above .30.

When allowing controllability to cross-load onto both factors, we specified the covariance for Factor 1 and Factor 2 at both the within and between-person level (i.e., factor within [fw] and factor between; fw1 ~~ fw2) and set the covariances for the within- and between-person factors to 0 (i.e., factor between1 ~~ 0 × fw1). The duration item residual variance was also set to 0 at the between-person level. The configural model had good fit to the data ($\chi^2[144] = 5770.948$, $p < .001$; CFI = .940; TLI = .925; RMSEA = .071, 90% CI [.069 .073]; SRMR = .044; see Table 3 for full results). Two of the three change thresholds were met when comparing metric and configural invariance models; ΔCFI was just slightly above the recommended threshold of −.01 (ΔCFI = −.013). Two of three change thresholds were met when comparing scalar and metric invariance models, as well as when comparing residual and scalar invariance models. Overall, the model fit was better when allowing the controllability belief item to cross-load onto both factors and the model had strong evidence for measurement invariance across both samples.

Table 3
Multilevel Group Confirmatory Factor Analyses With Controllability Belief Cross-Loading Onto Both Factors

Variable	Within-person level		Between-person level	
	Factor 1: Situational relevance	Factor 2: Emotion structure	Factor 1: Situational relevance	Factor 2: Emotion structure
	Community sample (N = 179)			
Emotion beliefs				
Justify	0.744		0.941	
Fit	0.730		0.976	
Helpful	0.486		0.562	
Duration		0.624		1.00
Complex		0.418		0.322
Control	0.382	−0.397	0.575	−0.354
Source	0.537		0.682	
Correlations				
Factor 1		0.126**		0.044
	Student sample (N = 234)			
Emotion beliefs				
Justify	0.720		0.976	
Fit	0.737		0.986	
Helpful	0.502		0.705	
Duration		0.903		1.000
Complex		0.321		0.629
Control	0.426	−0.140	0.666	−0.086
Source	0.612		0.898	
Correlations				
Factor 1		0.268***		0.287***
Fit indices	$\chi^2(144) = 5770.948$, $p < .001$; CFI = .940; TLI = .925; RMSEA = .071; SRMR = .044			
	Configural versus metric: $\chi^2(12) = 46.98$, $p < .001$; ΔCFI = .013; ΔRMSEA = .005; ΔSRMR = .013			
	Metric versus scalar: $\chi^2(10) = 132.028$, $p < .001$; ΔCFI = .031; ΔRMSEA = .011; ΔSRMR = .009			
	Scalar versus strict: $\chi^2(13) = 204.962$, $p < .001$; ΔCFI = .039; ΔRMSEA = .012; ΔSRMR = .001			

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-squared residual.
** $p < .01$. *** $p < .001$.

The resulting analyses imply a two-factor structure at the within- and between-person levels, with controllability belief loading onto both factors. We named the first factor situational relevance beliefs about emotions, which reflects the degree to which individuals evaluate their emotions to be appropriate for their situation. The beliefs within this factor include justified, fit, helpful, source, and controllability. We named the second factor emotion structure beliefs, which reflects how individuals evaluate the characteristics or properties of the emotion experience. The beliefs within this factor include duration, complexity, and controllability.

Age as a Moderator and Construct Validity

When testing age as a moderator, there was mixed evidence for model fit. Some indices indicated adequate fit (CFI = .913; RMSEA = .081, 90% CI [.079 .082]), whereas other fit indices indicated borderline acceptable fit (TLI = .894) and poor fit (SRMR = .129; $\chi^2[86] = 8293.969$, $p < .001$). Age was positively associated with Factor 1 (situational relevance beliefs; $b = .02$, $SE = .004$, $p < .001$) and negatively associated with Factor 2 (emotion structure beliefs; $b = -.01$, $SE = .004$, $p = .012$) at the between-person level only. Age was not significantly associated with Factor 1 (situational relevance beliefs; $b = .001$, $SE = .001$, $p = .157$) or Factor 2 (emotion structure beliefs; $b = .001$, $SE = .001$, $p = .166$) at the within-person level.

We found convergent validity for Factor 1 (situational relevance beliefs) across samples, such that scales and subscales in trait measures of emotion beliefs that assessed positive judgments toward emotions, helpfulness, and usefulness of emotions were positively correlated with Factor 1, which included items that broadly assessed these beliefs. Importantly, Factor 2 (emotion structure beliefs) showed discriminant validity and was not correlated with any of these; items in Factor 2 included beliefs not typically examined in trait measures. Consistent with controllability having cross-loaded onto both factors, we found support that both factors were correlated with malleability beliefs (for all results, see Table 4).[2]

Discussion

Although people hold several emotion beliefs (Kisley et al., 2024; Kneeland & Kisley, 2023), emotion beliefs are typically examined piecemeal, with little attention to how they may overlap. Further, in addition to varying across individuals, the extent to which people endorse emotion beliefs varies across moments (e.g., Petrova et al., 2024). In two independent samples, we assessed multiple, individual emotion beliefs, focused on examining personal emotion beliefs, or what individuals believed about their own emotions, using EMA to test the factor structure of emotion beliefs in everyday life. We found

[2] We also considered criterion validity by assessing whether the factors were associated with measures of well-being (i.e., depressive symptoms and satisfaction with life). Overall, we found support for Factor 1's positive association and Factor 2's negative association with well-being. Details of the measures and how they were scored are available in the Supplemental Materials.

Table 4

Correlations Between Factors 1 and 2 (Situational Relevance and Emotion Structure Beliefs) With Trait Measures of Beliefs

Variable	1	2	3	4	5	6
Community sample						
1. Factor 1 situational relevance beliefs	—					
2. Factor 2 emotion structure beliefs	−.45***	—				
3. EBQ uselessness	−.14†	−.05	—			
4. EBQ uncontrollability	−.19*	.23**	.33***	—		
5. CESD depressive symptoms	−.26***	.35***	.20**	.30***	—	
6. SWLS satisfaction with life scale	.17*	−.31***	−.27***	−.33***	−.60***	—

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
Student sample													
1. Factor 1 situational relevance beliefs	—												
2. Factor 2 emotion structure beliefs	−.12	—											
3. EBQ uselessness	−.21**	.12	—										
4. EBQ uncontrollability	−.13*	.08	.73***	—									
5. EJQ pleasant positive judgments	.20**	−.03	−.20**	−.14*	—								
6. EJQ pleasant negative judgments	−.12	.09	.15*	.16*	−.55***	—							
7. EJQ unpleasant positive judgments	.17*	.02	−.16*	−.07	.04	.24***	—						
8. EJQ unpleasant negative judgments	−.08	.13	.16*	.13*	.19**	.14*	−.06	—					
9. HHTEM help belief	.23***	.02	−.34***	−.21**	.12	−.09	.04	−.17*	—				
10. HHTEM hinder belief	−.13*	.02	.23***	.24***	−.04	.07	.07	.05	−.24***	—			
11. Implicit malleability belief	.20**	−.19**	−.32***	−.45***	.15*	−.09	.22***	−.18**	.04	−.24***	—		
12. CESD depressive symptoms	−.14*	.15*	.06	.08	−.20**	.24***	−.10	.18**	.01	.12†	−.33***	—	
13. SWLS satisfaction with life scale	.12†	−.11†	−.16*	−.16*	.24***	−.28***	.07	−.19**	.12†	−.12†	.23***	−.60***	—

Note. EBQ = Emotion belief Questionnaire (Becerra et al., 2020); higher scores on the EBQ indicate greater beliefs that emotions are useless and uncontrollable; thus, the pattern indicated in the table follows the direction we expected; EJQ = Emotion Judgments Questionnaire (Willroth et al., 2023); HHTEM = Help and Hinder Theories of Emotion Measure (Karnaze & Levine, 2020); CESD = Center for Epidemiologic Studies Depression Scale; SWLS = Satisfaction with Life Scale.

* $p < .05$. ** $p < .01$. *** $p < .001$. † $p < .10$ (marginally significant).

strong consistent evidence for a two-factor structure of emotion beliefs at within- and between-person levels. When testing measurement invariance, the most plausible and well-fitting model were these two factors, with controllability cross-loading on both factors. In addition, these two factors showed convergence with trait measures that assessed beliefs falling within the respective factors (i.e., usefulness correlated with Factor 1 [situational relevance beliefs]; controllability correlated with both factors in opposite directions).

We identified Factor 1 as situational relevance beliefs, indicating the extent to which emotions were congruent with one's contexts, and the extent to which individuals find their emotions to be useful and appropriate for the situation, as well as identify the source of their emotion in its context. Situational relevance beliefs include beliefs about justification, fit, helpfulness, and source. We identified Factor 2 as indicating emotion structure beliefs or the evaluations that individuals have about the characteristics or properties of their emotion experiences. Emotion structure beliefs include beliefs about how long emotions last (duration) and complexity at both within-person and between-person levels. The emergence of a consistent two-factor model at the within- and between-level, despite the irregularity of the controllability item, suggests that the momentary endorsement (i.e., when) and the average endorsement (i.e., who) of emotion beliefs had a similar latent structure.

Our finding that the controllability belief cross-loaded relatively equally onto these two factors (in opposite directions) highlights the complexity of emotion beliefs and questions propositions that goodness and malleability beliefs at the between-person level are orthogonal (Ford & Gross, 2019). The cross-loading indicates constructs overlap and potential competing hypotheses about how emotion beliefs are structured. One interpretation is that controllability beliefs could play a role in both factors, as the extent to which individuals view their emotions as appropriate with their context and the evaluations individuals have about the features of their emotional experiences to be long-lasting, or complex could be related to whether an individual believes that their emotion can be controlled. This can be bidirectional (i.e., controllability of emotions informs situational relevance and emotion structure beliefs, or alternatively, situational relevance and emotion structure beliefs inform the controllability of emotions). Additional studies should test whether controllability beliefs are an antecedent or subsequent belief of emotions and if a cross-loading is replicated.

Another possible interpretation of the cross-loading findings is that controllability beliefs could be a third, separate factor, consistent with theory and literature examining emotion controllability beliefs as a separate belief from goodness or utility beliefs (Becerra et al., 2020; Ford & Gross, 2019). In our study, testing a third or fourth separate factor resulted in only one item loading onto a third factor or an under identified four-factor model. Although we included eight items comprehensive to beliefs examined in the field, additional items may help to test the emergence of a third or fourth factor. There may be other similar beliefs relating to the controllability or malleability of emotions, such as beliefs about emotion regulation (Livingstone et al., 2020; Ortner et al., 2017), beliefs about emotions influencing behaviors (Veilleux, Chamberlain, et al., 2021; Veilleux et al., 2023), and the extent to which individuals feel responsible for their emotions and beliefs (McCormick, 2011). Thus, further investigation of whether controllability beliefs and other regulation-related beliefs fall under a third factor is warranted.

Both factors of emotion beliefs varied with age, in that age was associated with the two factors at the between-person level, but in opposite directions. Situational relevance beliefs were positively associated with age, which is somewhat consistent with age being correlated with more positive and less negative judgments about positive emotions (though age was unrelated to judgments of negative emotion; Willroth et al., 2023). In contrast, emotion structure beliefs were negatively associated with age, which is consistent with age being associated with higher emotional clarity and possibly more experience with emotion (e.g., Mankus et al., 2016). These associations in the present study were in the cross-loading model, in which the emotion controllability belief also could be playing a role in the pattern of findings with age. This idea regarding controllability is supported by findings from Veilleux, Warner, et al. (2021), where age was associated with greater trait-level controllability beliefs (i.e., between-person level) but not associated with momentary emotion controllability beliefs (i.e., within-person level).

Age was unrelated to the two factors at the within-person level. How much an individual endorsed beliefs at any given moment did not vary with age, which supports the highly contextual nature of emotion beliefs (Petrova et al., 2024; Veilleux, Warner, et al., 2021). However, age moderated patterns between contexts and emotion-related processes in daily life (Growney et al., 2023). When examining individual differences in age and emotion beliefs, older adults experience more stable emotions (Growney et al., 2025), which may reflect the lower average endorsement of emotion structure beliefs. In addition, with age, individuals experience less negative emotion and more positive emotion (Carstensen et al., 2000), which could be related to their greater endorsement of situational relevance beliefs.

Limitations, Recommendations, and Future Directions

Although we had two samples that represented adults across younger, early middle, and middle adulthood, our samples did not include youth or older adults. Emotion beliefs are likely developing in childhood; for example, controllability beliefs decline in adolescence (Crawford et al., 2021; Ford et al., 2018). Given the change in emotional experience and stability over adulthood (e.g., Carstensen et al., 2000), emotion beliefs might also vary and change in later life. Future work should assess whether the factor structure varies across the lifespan by including in youth and older adults.

The warranted expression belief item, intended to capture beliefs about the expression of emotions, did not load well onto either factor. Revising this item to better directly assess emotional expression might help clarify how the this belief maps alongside other emotion beliefs, possibly controllability, as a third factor of regulation-related beliefs. In retrospect, we think the wording of the item was too extreme, in that one anchor was "must be let out," which might imply a pent-up expression. Emotions may feel like they should or need to be expressed, but not to this extent. In addition, beliefs about warranted expression might be highly dependent on the valence of emotion as opposed to assessment of emotion more broadly, as the expression of different discrete emotions vary based on social norms and culture (Bastian et al., 2012; Hareli et al., 2015). For example, cultures vary in the endorsement of malleability beliefs and some view nervousness as a useful emotion (Qu & Telzer, 2017; Yoo et al., 2022). In East Asian cultures, mixed emotions are more common and viewed as more

contextually relevant and more appropriate or acceptable compared to those living in the United States (Miyamoto & Ryff, 2011). Thus, researchers might consider whether the factor structures would look similar when considering valence of emotions (Becerra et al., 2020) or discrete emotions (Caprara et al., 2013; Gutentag et al., 2023). Moreover, although we found measurement invariance with respect to relative age-differences in the sample, it would be important to test the factor structure for emotion beliefs across cultures.

One of the aims of this investigation was to evaluate a factor structure and offer researchers a way to comprehensively and parsimoniously examine emotion beliefs. We have a few recommendations for using this two-factor structure. First, researchers should use this factor structure when assessing beliefs in daily life or when they do not have a research question that focuses on a specific emotion belief, keeping in mind limitations about generalizability described above.

We also recommend that researchers administer the individual emotion belief items as was done in the present studies. To calculate scores for the two factors, one straightforward way is to aggregate respective items (at the within- and between-person levels). Given that the factors loadings differed across the two samples, researchers could obtain factor scores (DiStefano et al., 2009) or use exploratory structural equation modeling (Marsh et al., 2014) to examine their research questions. More research is needed to evaluate the convergence of these alternative approaches in various samples.

Finally, our work holds potential clinical implications. Supporting past work (Petrova et al., 2024; Veilleux, Warner, et al., 2021), the beliefs that individuals hold about their own emotions are highly contextual to their situation. Many forms of clinical and therapeutic practices emphasize the importance of taking a contextual approach (i.e., acceptance and commitment therapy; Hayes et al., 2006; dialectical behavioral therapy; Lynch et al., 2006). Given the emerging evidence for how contextually situated emotion beliefs may be, these findings support existing clinical practices focused on emotion beliefs as a target of change (i.e., emotion regulation module of dialectical behavioral therapy; Linehan, 2014). However, additional research is needed to test the structure of emotion beliefs in clinical samples.

Conclusion

People can hold a variety of beliefs that shape their experiences and behaviors, including beliefs about their emotions. Using data from two large intensive longitudinal samples, we found support for multiple types of emotion beliefs falling within a two-factor structure at both the within- and between-person level, reflecting beliefs regarding situational relevance (i.e., justified, fit, helpful, source) and emotion structure (i.e., duration and complexity), with controllability loading onto both factors. These findings are a critical step in the study of emotion beliefs, providing a way to examine beliefs together and allowing for easier interpretation of how multiple types of emotion beliefs are relevant for emotion processes and well-being.

References

Albarracín, D., & Wyer, R. S., Jr. (2000). The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology*, *79*(1), 5–22. https://doi.org/10.1037/0022-3514.79.1.5

Archer, A., & Mills, G. (2019). Anger, affective injustice, and emotion regulation. *Philosophical Topics*, *47*(2), 75–94. https://doi.org/10.5840/philtopics201947216

Bastian, B., Kuppens, P., Hornsey, M. J., Park, J., Koval, P., & Uchida, Y. (2012). Feeling bad about being sad: The role of social expectancies in amplifying negative mood. *Emotion*, *12*(1), 69–80. https://doi.org/10.1037/a0024755

Becerra, R., Preece, D. A., & Gross, J. J. (2020). Assessing beliefs about emotions: Development and validation of the Emotion Beliefs Questionnaire. *PLOS ONE*, *15*(4), Article e0231395. https://doi.org/10.1371/journal.pone.0231395

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238–246. https://doi.org/10.1037/0033-2909.107.2.238

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Guilford Press.

Caprara, G. V., Di Giunta, L., Pastorelli, C., & Eisenberg, N. (2013). Mastery of negative affect: A hierarchical model of emotional self-efficacy beliefs. *Psychological Assessment*, *25*(1), 105–116. https://doi.org/10.1037/a0029136

Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology*, *79*(4), 644–655. https://doi.org/10.1037/0022-3514.79.4.644

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, *1*(2), 245–276. https://doi.org/10.1207/s15327906mbr0102_10

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, *14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Chow, P. I., & Berenbaum, H. (2012). Perceived utility of emotion: The structure and construct validity of the Perceived Affect Utility Scale in a cross-ethnic sample. *Cultural Diversity & Ethnic Minority Psychology*, *18*(1), 55–63. https://doi.org/10.1037/a0026711

Cliff, N. (1988). The eigenvalues-greater-than-one rule and the reliability of components. *Psychological Bulletin*, *103*(2), 276–279. https://doi.org/10.1037/0033-2909.103.2.276

Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation*, *10*(1), Article 7. https://doi.org/10.7275/jyj1-4868

Crawford, C. M., Griffith, J. M., Hankin, B. L., & Young, J. F. (2021). Implicit beliefs about emotions in youth: Associations with temperamental negative emotionality and depression. *Journal of Social and Clinical Psychology*, *40*(2), 121–144. https://doi.org/10.1521/jscp.2021.40.2.121

Cudeck, R., & Browne, M. W. (1992). Constructing a covariance matrix that yields a specified minimizer and a specified minimum discrepancy function value. *Psychometrika*, *57*(3), 357–369. https://doi.org/10.1007/BF02295424

Daniel, K. E., Goodman, F. R., Beltzer, M. L., Daros, A. R., Boukhechba, M., Barnes, L. E., & Teachman, B. A. (2020). Emotion malleability beliefs and emotion experience and regulation in the daily lives of people with high trait social anxiety. *Cognitive Therapy and Research*, *44*(6), 1186–1198. https://doi.org/10.1007/s10608-020-10139-8

De Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Dweck, C. S., & Gross, J. J. (2013). Beliefs about emotion: Links to emotion regulation, well-being, and psychological distress. *Basic and Applied Social Psychology*, *35*(6), 497–505. https://doi.org/10.1080/01973533.2013.840632

DiStefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research & Evaluation*, *14*(1), Article 20. https://doi.org/10.7275/da8t-4g52

Ford, B. Q., & Gross, J. J. (2019). Why beliefs about emotion matter: An emotion-regulation perspective. *Current Directions in Psychological Science*, *28*(1), 74–81. https://doi.org/10.1177/0963721418806697

Ford, B. Q., Lwi, S. J., Gentzler, A. L., Hankin, B., & Mauss, I. B. (2018). The cost of believing emotions are uncontrollable: Youths' beliefs about emotion predict emotion regulation and depressive symptoms. *Journal of Experimental Psychology: General*, *147*(8), 1170–1190. https://doi.org/10.1037/xge0000396

Gross, J. J., Carstensen, L. L., Pasupathi, M., Tsai, J., Götestam Skorpen, C., & Hsu, A. Y. C. (1997). Emotion and aging: Experience, expression, and control. *Psychology and Aging*, *12*(4), 590–599. https://doi.org/10.1037/0882-7974.12.4.590

Growney, C. M., Springstein, T., & English, T. (2023). Age, resources, and emotion regulation need in daily-life emotional contexts. *The Journals of Gerontology: Series B, Psychological Sciences and Social Sciences*, *78*(7), 1142–1151. https://doi.org/10.1093/geronb/gbad018

Growney, C. M., Springstein, T., & English, T. (2025). Emotion dynamics across the adult lifespan. *Affective Science*, Advance online publication. https://doi.org/10.1007/s42761-025-00319-8

Gutentag, T., Kalokerinos, E. K., & Tamir, M. (2023). Beliefs about the ability to control specific emotions. *Motivation and Emotion*, *47*(3), 448–460. https://doi.org/10.1007/s11031-022-09991-w

Hareli, S., Kafetsios, K., & Hess, U. (2015). A cross-cultural study on emotion expression and the learning of social norms. *Frontiers in Psychology*, *6*, Article 1501. https://doi.org/10.3389/fpsyg.2015.01501

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, *44*(1), 1–25. https://doi.org/10.1016/j.brat.2005.06.006

Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, *36*(5), 427–440. https://doi.org/10.1007/s10608-012-9476-1

Hong, E. J., & Kangas, M. (2022). The relationship between beliefs about emotions and emotion regulation: A systematic review. *Behaviour Change*, *39*(4), 205–234. https://doi.org/10.1017/bec.2021.23

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, *30*(2), 179–185. https://doi.org/10.1007/BF02289447

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Johnston, T. E., Gross, J. J., Chen, W., McEvoy, P., Becerra, R., & Preece, D. A. (2025). Emotion beliefs and emotion regulation strategy use. *Personality and Individual Differences*, *240*, Article 113066. https://doi.org/10.1016/j.paid.2025.113066

Karnaze, M. M., & Levine, L. J. (2018). Data versus Spock: Lay theories about whether emotion helps or hinders. *Cognition and Emotion*, *32*(3), 549–565. https://doi.org/10.1080/02699931.2017.1326374

Karnaze, M. M., & Levine, L. J. (2020). Lay theories about whether emotion helps or hinders: Assessment and effects on emotional acceptance and recovery from distress. *Frontiers in Psychology*, *11*, Article 183. https://doi.org/10.3389/fpsyg.2020.00183

Kisley, M. A., Shulkin, J., Meza-Whitlatch, M. V., & Pedler, R. B. (2024). Emotion beliefs: Conceptual review and compendium. *Frontiers in Psychology*, *14*, Article 1271135. https://doi.org/10.3389/fpsyg.2023.1271135

Kneeland, E. T., Cunningham, C., Lattuada, I., Cwalina, M., & Shanahan, M. (2024). How I think about how I feel: Personal beliefs about emotion prospectively predict suicide-related outcomes and depression symptoms. *Journal of Psychiatric Research*, *179*, 330–340. https://doi.org/10.1016/j.jpsychires.2024.09.033

Kneeland, E. T., Goodman, F. R., & Dovidio, J. F. (2020). Emotion beliefs, emotion regulation, and emotional experiences in daily life. *Behavior Therapy*, *51*(5), 728–738. https://doi.org/10.1016/j.beth.2019.10.007

Kneeland, E. T., & Kisley, M. A. (2023). Lay perspectives on emotion: Past, present, and future research directions. *Motivation and Emotion*, *47*(3), 295–307. https://doi.org/10.1007/s11031-023-10015-4

Kyriazos, T. A. (2018). Applied psychometrics: Sample size and sample power considerations in factor analysis (EFA, CFA) and SEM in general. *Psychology*, *9*(8), 2207–2230. https://doi.org/10.4236/psych.2018.98126

Leahy, R. L. (2016). Emotional schema therapy: A meta-experiential model. *Australian Psychologist*, *51*(2), 82–88. https://doi.org/10.1111/ap.12142

Linehan, M. M. (2014). *DBT skills training handouts and worksheets* (2nd ed.). Guilford Press.

Livingstone, K. M., Castro, V. L., & Isaacowitz, D. M. (2020). Age differences in beliefs about emotion regulation strategies. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, *75*(2), 316–326. https://doi.org/10.1093/geronb/gby022

Lynch, T. R., Chapman, A. L., Rosenthal, M. Z., Kuo, J. R., & Linehan, M. M. (2006). Mechanisms of change in dialectical behavior therapy: Theoretical and empirical observations. *Journal of Clinical Psychology*, *62*(4), 459–480. https://doi.org/10.1002/jclp.20243

Mankus, A. M., Boden, M. T., & Thompson, R. J. (2016). Sources of variation in emotional awareness: Age, gender, and socioeconomic status. *Personality and Individual Differences*, *89*, 28–33. https://doi.org/10.1016/j.paid.2015.09.043

Marsh, H. W., Morin, A. J., Parker, P. D., & Kaur, G. (2014). Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology*, *10*(1), 85–110. https://doi.org/10.1146/annurev-clinpsy-032813-153700

McCormick, M. (2011). Taking control of belief. *Philosophical Explorations*, *14*(2), 169–183. https://doi.org/10.1080/13869795.2011.569745

Miyamoto, Y., & Ryff, C. D. (2011). Cultural differences in the dialectical and non-dialectical emotional styles and their implications for health. *Cognition and Emotion*, *25*(1), 22–39. https://doi.org/10.1080/02699931003612114

Molenaar, P. C., & Campbell, C. G. (2009). The new person-specific paradigm in psychology. *Current Directions in Psychological Science*, *18*(2), 112–117. https://doi.org/10.1111/j.1467-8721.2009.01619.x

Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.).

Ortner, C. N. M., Briner, E. L., & Marjanovic, Z. (2017). Believing is doing: Emotion regulation beliefs are associated with emotion regulation behavioral choices and subjective well-being. *Europe's Journal of Psychology*, *13*(1), 60–74. https://doi.org/10.5964/ejop.v13i1.1248

Petrova, K., Zielke, J. N., Mehta, A., & Gross, J. J. (2024). Occurrent beliefs about emotions predict emotion regulation in everyday life. *Emotion*, *24*(4), 992–1002. https://doi.org/10.1037/emo0001317

Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, *41*, 71–90. https://doi.org/10.1016/j.dr.2016.06.004

Qu, Y., & Telzer, E. H. (2017). Cultural differences and similarities in beliefs, practices, and neural mechanisms of emotion regulation. *Cultural Diversity & Ethnic Minority Psychology*, *23*(1), 36–44. https://doi.org/10.1037/cdp0000112

Raiche, G., & Magis, D. (2022). *nFactors: Parallel analysis and other non graphical solutions to the Cattell Scree Test* (R package Version 2.4.1.1) [Computer software]. https://CRAN.R-project.org/package=nFactors

Revelle, W. (2024). *psych: Procedures for psychological, psychometric, and personality research* (R package Version 2.4.12) [Computer software]. Northwestern University. https://CRAN.R-project.org/package=psych

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Sass, D. A., & Schmitt, T. A. (2010). A comparative investigation of rotation criteria within exploratory factor analysis. *Multivariate Behavioral Research*, *45*(1), 73–103. https://doi.org/10.1080/00273170903504810

Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological momentary assessment. *Annual Review of Clinical Psychology*, *4*(1), 1–32. https://doi.org/10.1146/annurev.clinpsy.3.022806.091415

Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of Personality and Social Psychology*, *92*(4), 731–744. https://doi.org/10.1037/0022-3514.92.4.731

Team, R. C. (2023). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org

Veilleux, J. C., Chamberlain, K. D., Baker, D. E., & Warner, E. A. (2021). Disentangling beliefs about emotions from emotion schemas. *Journal of Clinical Psychology*, *77*(4), 1068–1089. https://doi.org/10.1002/jclp.23098

Veilleux, J. C., Pollert, G. A., Skinner, K. D., Chamberlain, K. D., Baker, D. E., & Hill, M. A. (2021). Individual beliefs about emotion and perceptions of belief stability are associated with symptoms of psychopathology and emotional processes. *Personality and Individual Differences*, *171*, Article 110541. https://doi.org/10.1016/j.paid.2020.110541

Veilleux, J. C., Warner, E. A., Baker, D. E., & Chamberlain, K. D. (2021). Beliefs about emotion shift dynamically alongside momentary affect. *Journal of Personality Disorders*, *35*(Suppl A), 83–113. https://doi.org/10.1521/pedi_2020_34_491

Veilleux, J. C., Warner, E. A., Chamberlain, K. D., Brott, K. H., Schreiber, R. E., & Clift, J. B. (2023). Contextual variation in beliefs about emotion and associated emotion regulation efforts. *Motivation and Emotion*, *47*(3), 308–322. https://doi.org/10.1007/s11031-022-09992-9

Wellman, H. M., & Woolley, J. D. (1990). From simple desires to ordinary beliefs: The early development of everyday psychology. *Cognition*, *35*(3), 245–275. https://doi.org/10.1016/0010-0277(90)90024-E

Willroth, E. C., Young, G., Tamir, M., & Mauss, I. B. (2023). Judging emotions as good or bad: Individual differences and associations with psychological health. *Emotion*, *23*(7), 1876–1890. https://doi.org/10.1037/emo0001220

Yoo, J., Martin, J., Niedenthal, P., & Miyamoto, Y. (2022). Valuation of emotion underlies cultural variation in cardiovascular stress responses. *Emotion*, *22*(8), 1801–1814. https://doi.org/10.1037/emo0000964

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