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Development of the Trait Response to Emotion Dimensional Measure for Use in Minoritized Populations

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Anita Adams, Student

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Dr. Michael Bardo, Director of Graduate Studies

Development of the Trait Response to Emotion Dimensional Measure for Use in Minoritized Populations

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DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Arts and Sciences
at the University of Kentucky

By

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Lexington, Kentucky

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2024

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ABSTRACT OF DISSERTATION

Development of the Trait Response to Emotion Dimensional Measure for Use in Minoritized Populations

Trait responses to emotion (TREs) are personality traits that develop from how one consistently responds to and copes with emotions. TRE development is influenced by demographic factors, such as age, gender, and early life adversity, and TREs can influence how one copes with a variety of stressors. TRE theory and measurement is relatively new, and although TREs have been validated in majority race samples, TRE theory and measurement have not been validated in minority race samples, particularly in African American populations. This dissertation is taking the first preliminary steps for the development of a cross-cultural trait response to emotion dimensional measure. The primary aim for Study 1 of this dissertation was to determine if the empirical relationships among latent trait response to emotion dimensions (e.g., approach-avoidance, control-dyscontrol, engagement-disengagement) observed in majority European American samples existed within a majority African American sample. Results suggested that at both the scale and item-level, the TRE latent dimensional structure replicated in both African American and European American samples; however, there were nuances in how the latent TRE dimensions were characterized between groups. Study 2 of this dissertation dived further into analyzing those differences between groups using cognitive interviewing with small, race-matched focus groups recruited from the Lexington community and the University of Kentucky. From these focus groups, cognitive interviewing revealed similarities in item understanding and identified social contexts and life experiences between African American and European American groups that influenced how they responded to and interpreted TRE questions. Consideration of multiple perspectives, principally minoritized ones, when creating personality measures is crucial for creating cross-cultural measures. Most importantly, this dissertation's investigation and consideration of minoritized viewpoints is paramount for continuing to push TRE and personality theory and measurement into a more equitable and diverse space.

KEYWORDS: Personality Traits, Emotions, Cross Cultural Measure Development, Racial/Ethnic Minority Populations, Multidimensional Scaling, Cognitive Interviewing.

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INTRODUCTION

Emotions are an integral part of the human experience and influence how one perceives the world and interacts with others (Stanley & Burrows, 2001). How one experiences, thinks about, and responds to one's emotions are personality traits called trait responses to emotion. Trait responses to emotion (TREs) are personality traits that develop from how one consistently responds to and copes with emotions (Segerstrom & Smith, 2019). TRE development can vary based on psychosocial and demographic factors, such as early life adversity, age, and gender (Adams & Segerstrom, *in prep*; Adams et al., *under revision*), and TREs can influence how one emotionally responds to every day and even global events, such as the COVID-19 pandemic (Adams, Meyr, & Segerstrom, *in prep*). TRE theory and measurement are relatively new and have been validated across multiple majority race American samples; however, TRE theory and measurement have not yet been validated in historically marginalized and minoritized samples. This lack of validation in such samples is problematic. Majority ethnic samples should not and do not always represent the experiences of minoritized groups. However, personality and psychological theory and measurement have historically operated and implied that majority groups are representative of all groups with lack of validation in minoritized samples before adopting new theories and measures. Thus, to strengthen and further validate TRE theory and measurement, the present study aimed to investigate if and how TRE latent dimensional structure exists within a majority African American sample compared to a majority European American sample.

Validation of Personality Theory and Measures

Historically speaking, personality theorists are trained on the importance of validating theory and measurement using a variety of methods to establish construct, criterion, discriminant, face, and predictive validity, to name a few. Despite there being many distinct ways to validate a personality measure or theory, usually, the common way to establish different types of validity involves recruitment of large, distinct samples (Flake, Pek, & Hehman, 2017; Simms & Watson, 2007; Smith & Zapolski, 2009). These large samples help to increase power and increase the likelihood of identifying distinct patterns of factors that exist across samples to reduce the chances that one's results were sample-dependent (Boag, 2015; Costa & McCrae, 2008; Laher, 2010). Once a personality theory or measure has been validated in the country of origin where it was first created, many personality theorists and measures will also use cross-cultural validation procedures to provide further evidence that a particular personality theory or measure is generalizable to the human population at large. For instance, the five-factor model has been validated in several cultures and has often been heralded as the personality theory that has the strongest evidence for being a cross-cultural phenomenon, at least within the Western world and in some East Asian countries, such as Korea and Romania (Ispas et al., 2014; McCrae et al., 1998; McCrae & Terracciano, 2015; Piedmont & Chae, 1997; Rolland, 2002). Once a personality theory or measure has been deemed generalizable in its host country and in other countries, the theory or measure is deemed generalizable to *all* people within a culture or context; however, if personality theory is based in the idea of variation in individual differences, is it fair to assume that a personality theory or measure is applicable to *all* people, including subcultures and groups within a society, because it was validated with the majority population of that society?

It may not be, but often, theories and measures are validated in samples that are not necessarily "diverse" or wholly reflective of subgroups and cultures that exist within the population of interest. For instance, a closer look at the original samples utilized to validate the NEO PI-R indicates that samples were chosen to be close to US Census projections for 1995, which would still result in a skew toward a majority European American sample. Additionally, the factor structure for the NEO PI-R was investigated for age and gender groups to determine if the structure was preserved, but race/ethnicity was not considered (Costa & McCrae, 1992). While this may have resulted in a well-validated personality measure for majority race men and women, it is more difficult to ascertain that the factor structure of the NEO PI-R would be wholly the same for ethnic minority and gender diverse groups. Even with cross-cultural validation studies, such as within a Romanian sample, only age and gender (defined as men or women) were reported and evaluated as demographic factors of interest despite the presence of other minority ethnic and gender diverse groups (Central Intelligence Agency, 2023; Ispas et al., 2014). Census matching samples is important as it serves to ensure that the proportion of age, gender, and ethnic groups within the sample are equivalent to the population of interest; however, census matching a sample where a certain demographic comprises 80%+ of the population of interest is still a significantly skewed sample. Such skewness can obscure important differences that may exist within smaller groups, and those differences may be difficult to parse because of lack of power from having a smaller proportion of individuals within these groups.

Personality Theory and Demographics

Differences matter. Demographic characteristics, such as age, gender, early life experiences, and socioeconomic context can influence personality trait development and expression (Goldberg et al., 1998). Principally, early life adversity can influence maladaptive personality development, such as psychopathy, borderline, and antisocial traits (Delisi, Drury, & Elbert, 2019; Grusnick et al., 2020; Moreira et al., 2020; Tackett et al., 2009; Vermetten & Spiegel, 2014). Early life adversity also has a significant positive relationship with neuroticism and significant negative relationships with conscientiousness, extraversion, and openness to experience. The number or severity of adverse childhood experiences can increase the strength of these relationships (Fletcher & Schurer, 2015; Grusnick et al., 2020; McElroy & Hevey, 2014). Carrying minority status in the United States, especially for African Americans, increases the likelihood of experiencing early life adversity and adversity more generally, primarily through systemic and individual-level discrimination (McDonald, Terry, & Tehranifar, 2014). These discriminatory experiences can negatively influence personality trait development, especially if one is repetitively exposed to discrimination. For instance, perceived discrimination for African Americans has a significant positive relationship with neuroticism and significant negative relationships with agreeableness and conscientiousness (Sutin, Stephan, & Terracciano, 2017). More discrimination experiences have been indirectly linked to worse physical and mental health outcomes for African Americans through elevated neuroticism and lower agreeableness (McClendon et al., 2019). However, although many African Americans experience discrimination, there is variation in personality development and subsequent psychopathological and health-based outcomes. Oftentimes, this variability is credited to environments (Chen & Miller,

2012); however, personality traits can also explain some of the variance in outcomes from discriminatory experiences. For instance, specific facets of depression, impulsiveness, and trust have been identified as robust pathways for African Americans (McClendon et al., 2019). Another robust personality pathway may be trait responses to emotion (TRE).

Trait Responses to Emotion

Trait responses to emotion (TRE) are personality traits that emerge from the consistent ways that one copes with one's emotions over time. Initially, these traits were theoretically subsumed into latent dimensions based on biological underpinnings and additional factors identified in the personality and emotion literature, such as motivation, emotion type, and emotion intensity. Combined, these factors elicited particular cognitive and behavioral responses that fell into theoretical categories like control, dyscontrol, approach, escape, and avoidance. For instance, urgency, a personality trait where one engages in impulsive behaviors when experiencing strong emotions, could be considered a behavioral response that contributes to dyscontrolled engagement (e.g., tendency to act impulsively to distract from and manage one's emotions) in maladaptive behaviors through negative reinforcement. This negative reinforcement occurs because these impulsive actions help to distract from the real source of the distress (e.g., the emotion), reducing the unwanted emotion and increasing the likelihood of one utilizing a dyscontrolled response to uncomfortable emotions in the future. Another example would be how alexithymia, a personality trait characterized by difficulty describing and identifying emotions, could be considered a cognitive processing style that contributes to avoiding recognition and awareness of emotions. Taken together, TRE theory included

two main latent dimensions: approach to avoidance and control to dyscontrol (Segerstrom & Smith, 2019). Through multidimensional scaling (MDS), the approach to avoidance and control to dyscontrol dimensions were confirmed; additionally, a third TRE dimension was identified, engagement to disengagement. The engagement dimension is distinctive from approach to avoidance and control to dyscontrol because it teases apart the expressiveness spectrum that was subsumed within the other dimensions. The engagement dimension focuses on behavioral and cognitive responses that contribute to one's disposition to disengage or engage with emotions through trait emotion suppression or expression tendencies (Adams et al., *under revision*).

Approach TREs encompass personality traits that involve seeking out, processing, and expressing emotions. Avoidance TREs are personality traits that develop from negative reinforcement from escape tendencies from experiencing uncomfortable emotions. Escape involves engaging in suppressing or distracting oneself from emotions during a situation that elicited uncomfortable emotions to prevent further discomfort, which results in immediate relief. That feeling of relief is reinforcing and, over time, contributes to the development of avoidance TREs. Avoidance TREs encompass traits that involve taking preemptive action to prevent being in situations that may cause unwanted or uncomfortable emotions (Segerstrom & Smith, 2019). TREs anchoring the approach pole include the desire to experience more emotion, the use of coping strategies including focusing on validating and accepting emotions, and more cognitive processing. TREs anchoring the avoidance pole include distraction from experiencing emotions, more difficulty with describing and identifying emotions, and avoiding thinking about or processing emotions (Adams et al., *under revision*).

Control TREs are personality traits that involve engaging in goal-driven behaviors and behaviors in line with long-term interests while experiencing intense emotions. Dyscontrol TREs are personality traits that involve engaging in impulsive behaviors while experiencing intense emotions (Cyders & Smith, 2008; Segerstrom & Smith, 2019). TREs anchoring the control pole include tolerating and concealing emotions. TREs anchoring the dyscontrol pole include engaging in impulsive behaviors when experiencing emotions (Adams et al., *under revision*).

Engagement TREs are personality traits that involve one's willingness to express positive and negative emotions regardless of social context. Disengagement TREs are personality traits that involve concealing or suppressing positive and negative emotions and utilizing distractions to reduce emotional discomfort. TREs anchoring the engagement pole include willingness to express emotions regardless of social context. TREs anchoring the disengagement pole include efforts to suppress emotional expressions and distract from emotions (Adams et al., *under revision*).

The structure of TRE latent dimensions has been empirically validated across multiple studies and samples (Adams et al., *under revision*; Adams et al., *in prep*). However, the ethnic makeup of these samples was census-matched, meaning that although the samples were generally equivalent to the ethnic makeup of the United States, the samples were about 80% European American. One could argue that these findings empirically validate TRE and suggests that TRE latent dimension theory is generalizable within American culture. However, it is also an equally fair argument that with the samples being skewed toward European Americans that differences or even a

lack of latent TRE dimensional structure within minoritized groups who were included in these samples may have been obscured.

TREs are influenced by demographic characteristics, principally by early life adversity, and because minoritized groups, especially African Americans, are more likely to experience discrimination-based *and* other forms of adversity in comparison to European Americans, it is important to determine if differences in TRE latent dimensional structure exists because TREs can have positive or negative effects on psychopathological and physical health outcomes (Adams & Segerstrom, *in prep*; McDonald et al., 2014).

Study 1

The current study aimed to determine if the TRE latent dimensional structure exists within a primarily African American online community sample in comparison to a primarily European American online community sample. Determining the existence of TRE latent dimensional structure within a primarily African American sample will strengthen TRE personality theory by empirically determining rather than assuming that said theory exists within a minoritized population. Additionally, this study will also serve as a preliminary first step for future creation of a cross-cultural measure of TRE latent dimensions; if the TRE latent dimensional structure does not exist within a primarily African American sample, then evidence would suggest that TRE latent dimensional theory and thus, a cross-cultural TRE latent dimension measure, may not be generalizable to African Americans.

METHODS

This study was exploratory in nature, so no confirmatory hypotheses were generated for this study. For the European American sample, European American participants from previous studies conducted on TREs were aggregated into one analytic sample (Adams et al., *in prep;* Adams et al., *under revision*). For the African American sample, participants from previous studies conducted on TREs were also aggregated into one analytic sample (Adams et al., *in prep*; Adams et al., *under revision*); however, the analytic sample size for African Americans was much smaller than needed for analyses. Thus, more African American participants were recruited through a survey link posted on the TurkPrime website. On the first page of the survey, participants were able to read the consent form that included information about the tasks for the study, confidentiality, and compensation. They could then give their consent to participate before gaining access to the web-based battery of surveys on TurkPrime. Participants were shown the demographics survey before the trait response to emotion and personality anchoring measures were randomized by display order for each participant to prevent order effects. The study's protocol, aims, methods, materials, and sampling and analysis plan were pre-registered through the Open Science Framework (https://osf.io/96myj).

Participants

The participants for the study were drawn from anonymous CloudResearch (MTurk) workers via online surveys for TRE research studies posted to the CloudResearch website between February, 2020 to October, 2023. CloudResearch is a renamed version of TurkPrime and an upgraded version of the crowdsourcing website,

MTurk, which is owned by Amazon and serves as a platform for surveys made by researchers and businesses to be completed by users (known as MTurk workers) for compensation. CloudResearch has settings in place for researchers to exclude bots, "farmers", and "low quality" MTurk workers (e.g., workers who submit bad data) to ensure high-quality responses and data.

Participants were 245 African American CloudResearch workers and 543 European American CloudResearch workers who completed the surveys for US $5 in compensation. African American participants ranged in age from 19-77 years old (M = 39.8, SD = 11.5), and European American participants ranged in age from 20-73 years old (M = 41.0, SD = 11.8). African American participants had more variation in education, with about 22% of the African American participants having completed some college and 38% having earned a Bachelor's degree. Additionally, more than half of the African American participants fell in a lower income bracket (e.g., $0 - $50,000/year = 58.8%). European American participants were highly educated, with more than half of European American participants holding an Associate or Bachelor degree (55%), but about half of the European American participants fell in a lower income bracket (e.g., $0 - $50,000/year = 50.7%). The African American sample was 42.5% male and 53.1% female, and the European American sample was 51.9% male and 45.5% female. Taken together, the African American and European American samples were relatively similar across demographic factors. All surveys' availability were limited to the United States to ensure results were applicable to and relatively representative of African American and European American residents because it is possible that the trait response to emotion

dimensional structure could be different depending on one's country of origin. See Table 1 for a full report of descriptive statistics.

Table 1. *Descriptive Statistics*

	African American Mean (SD) or %	**European American Mean (SD) or %**	**Test of Difference**
Age	39.82 (11.5)	41.04 (11.8)	$t(774) = 1.161$, $p = .246$
Gender			$c^2(24) = 19.229$, $p = .740$
Cis Male	49.2	51.9	
Cis Female	50.9	45.5	
Trans Female	0.4	-	
Non-binary	0.8	0.7	
Gender fluid	0.4	-	
Other	2.4	1.5	
Prefer not to say	-	0.2	
Income			$c^2(40) = 29.832$, $p = .880$
0-$9,999	4.9	3.5	
$10-$19,999	6.5	7.9	
$20-$29,999	10.5	11.3	
$30-$39,999	14.2	15.1	
$40-$49,999	10.9	12.9	
$50-$59,999	11.3	10.0	
$60-$69,999	13.0	8.9	
$70-$79,999	6.9	7.4	
$80-$89,999	5.7	5.5	
$90-$99,999	4.5	5.0	
$100k or more	10.9	12.5	
Education			$c^2(20) = 14.112$, $p = .825$
Less than high school	0.4	0.7	
High school or equivalent (e.g., GED)	13.4	16.2	
Some college but no degree	21.9	17.7	
Associate Degree	12.1	12.4	
Bachelor Degree	37.7	42.6	
Graduate Degree	13.8	10.3	

Procedure

The University of Kentucky Institutional Review Board (IRB) approved all studies' procedures prior to the start of data collection. Participants were recruited for all surveys through survey links that were posted on the CloudResearch website between February, 2020 and October, 2023. On the first page of the surveys, participants read the consent form that included information about study tasks, confidentiality, and compensation. Participants then gave their consent to participate. Measures were administered via a battery that was made available on CloudResearch.

Measures

Demographics.

Participants provided demographic information including age, gender, SES, education, and race/ethnicity.

Trait Responses to Emotion.

Participants completed a battery of trait response to emotion measures.

Control.

Urgency was assessed with the Positive Urgency (PUR; Cyders et al., 2007) and Negative Urgency (NUR) scales of the revised version of the UPPS Impulsive Behavior Scale (UPPS-R; Whiteside & Lynam, 2001). The PUR is a 14-item measure that uses a 4-point Likert-type scale ranging from 1 (agree strongly) to 4 (disagree strongly) to assess urgency when experiencing positive emotions (e.g., "When I get really happy about something, I tend to do things that can have bad consequences"). The scale had good internal consistency for African American participants ($\omega = .95$) and for European

American participants (ω = .95). The NUR is a 12-item subscale of the UPPS-R that also uses a 4-point Likert-type scale ranging from 1 (agree strongly) to 4 (disagree strongly) to assess urgency when experiencing negative emotions (e.g., "When I feel bad, I will often do things I later regret in order to make myself feel better now"). The scale had good internal consistency for African American participants (ω = .92) and for European American participants (ω = .93).

Approach and Avoidance.

Approach and avoidance tendencies were assessed with 5 scales: the Need for Affect Scale (Maio & Esses, 2001), the Acceptance and Action Questionnaire-II (Bond et al., 2011), the Acceptance of Emotions Scale (Weihs, Enright, & Simmens, 2008), the Emotional Approach Coping Scale (Stanton et al., 2000), and the Toronto Alexithymia Scale-II (Bagby, Parker, & Taylor, 1993).

The Need for Affect Scale is a 26-item measure that uses a 7-point response scale ranging from -3 (strongly disagree) to 3 (strongly agree) with 13 items that assess motivation to approach emotions (e.g., "It is important for me to be in touch with my feelings") and 13 items to assess the motivation to avoid emotions (e.g., "I do not know how to handle my emotions, so I avoid them"). Both subscales had good internal consistency for African American participants (ω = .81 for motivation to approach emotions and ω = .90 for motivation to avoid emotions) and for European American participants (ω = .90 for motivation to approach emotions and ω = .92 for motivation to avoid emotions).

The Acceptance and Action Questionnaire-II (AAQ-II) is a 7-item measure that uses a 7-point response scale ranging from 1 (never true) to 7 (always true) that assesses

psychological inflexibility or experiential avoidance (e.g., “I’m afraid of my feelings”). It is a one-factor measure that is scored by summing the 7 items; higher scores equal more psychological inflexibility. The AAQ-II had good internal consistency for African American participants (ω = .94) and for European American participants (ω = .95).

The Acceptance of Emotions Scale (AE) is a 13-item measure where responses are based on the percentage of time that each statement is true in increments of 10, ranging from 0 (never/not at all) to 100 (always/perfectly). It assesses the extent that individuals are accepting of their feelings (e.g., “I naturally and easily attend to my feelings”), and the total score is the mean of the ratings on the 13 items, where higher scores indicate more emotional acceptance. The AE scale had good internal consistency for African American participants (ω = .96) and for European American participants (ω = .96).

Emotion Approach Coping (EAC) was assessed with the dispositional version of the Emotional Approach Coping Scale (Stanton et al., 2000), which measures people’s characteristic ways of managing emotions in stressful encounters. The Emotional Approach Coping Scale is an 8-item measure that uses a 4-point response option ranging from 1 (I usually don’t do this at all) to 4 (I usually do this a lot) and measures two domains for coping through emotional approach: emotional processing (e.g., “I take time to figure out what I’m really feeling”) and emotional expression (e.g., “I let my feelings come out freely”). The scale had good internal consistency for both subscales for African American participants (ω = .87 for the emotional processing subscale and ω = .91 for the emotional expression subscale) and for European American participants (ω = .89 for the emotional processing subscale and ω = .93 for the emotional expression subscale).

The Toronto Alexithymia Scale-II is a 20-item measure that uses a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) that assesses alexithymia. The scale includes three subscales: difficulty describing feelings (e.g., "It is difficult for me to find the right words for my feelings"), difficulty identifying feeling (e.g., "I am often confused about what emotion I am feeling"), and externally-oriented thinking (e.g., "I prefer to analyze problems rather than just to describe them"). The scale had good internal consistency for two subscales (ω = .80 for the difficulty describing feelings subscale and ω = .89 for the difficulty identifying feelings subscale), and low internal consistency for the externally oriented thinking subscale (ω = .51) for African American participants. The scale had good internal consistency for two subscales (ω = .85 for the difficulty describing feelings subscale and ω = .90 for the difficulty identifying feelings subscale), and adequate internal consistency for the externally oriented thinking subscale (ω = .71) for European American participants.

Engagement and Disengagement.

Emotion engagement and disengagement was further assessed with 4 scales: the Berkeley Expressivity Questionnaire (Gross & John, 1998), the Emotional Expressiveness Questionnaire (King & Emmons, 1990), the Emotion Regulation Questionnaire Suppression Subscale (Gross & John, 2003), and the Affective Style Questionnaire (Hofmann & Kashdan, 2010).

The Berkeley Expressivity Questionnaire is a 16-item measure that uses a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree) that assesses three facets of emotional expressivity: negative expressivity (e.g., "Whenever I feel negative emotions, people can easily see exactly what I am feeling"), positive expressivity (e.g., "When I'm

happy, my feelings show"), and impulse strength (e.g., "I experience my emotions very strongly"). The scale had good internal consistency for the positive expressivity (ω = .80) and impulse strength (ω = .81) subscales and adequate internal consistency for the negative expressivity subscale (ω = .74) for African American participants. The scale had good internal consistency for all subscales for European American participants (ω = .84 for the positive expressivity subscale, ω = .84 for the negative expressivity subscale, and ω = .84 for the impulse strength subscale).

The Emotional Expressiveness Questionnaire is a 16-item measure that uses a 7-point scale ranging from 1 (does not agree at all) to 7 (strongly agrees) that assesses the expression of positive (e.g., "I laugh a lot") and negative emotions (e.g., "When I am angry people around me usually know") and intimacy (e.g., "I often tell people that I love them"). High scores on the EEQ indicate higher emotion expression. The scale had adequate internal consistency for all subscales for African American participants (ω = .72 for the positive emotions subscale, ω = .67 for the negative emotions subscale, and ω = .66 for the intimacy subscale). The scale had good internal consistency for the positive emotions subscale (ω = .80) and adequate internal consistency for two subscales for European American participants (ω = .76 for the negative emotions subscale and ω = .75 for the intimacy subscale).

The expressive suppression subscale of the Emotion Regulation Questionnaire is a 4-item measure that uses a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree) that assesses individual differences in expressive suppression (e.g., "I keep my emotions to myself"). The expressive suppression subscale had good internal consistency

for African American participants (ω = .84) and for European American participants (ω = .89).

The Affective Style Questionnaire is a 20-item measure that uses a 5-point scale ranging from 1 (not true of me at all) to 5 (extremely true of me) that assesses individual differences in emotion regulation techniques. The scale includes three subscales: concealing (e.g., "People usually can't tell how I am feeling inside"), adjusting (e.g., "I have my emotions well under control"), and tolerating (e.g., "I can tolerate having strong emotions"). The scale had good internal consistency for two subscales (ω = .86 for the concealing subscale and ω = .91 for the adjusting subscale) and adequate internal consistency for the tolerating subscale (ω = .77) for African American participants. The scale also had good internal consistency for two subscales (ω = .89 for the concealing subscale and ω = .92 for the adjusting subscale) and adequate internal consistency for the tolerating subscale (ω = .79) for European American participants.

Affectivity.

Affectivity was assessed with the modified Differential Emotions Scale (Fredrickson, Tugade, Waugh, & Larkin, 2003). The modified Differential Emotions Scale (mDES) is a 20-item measure that uses a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely) to assess the degree and frequency of positive and negative emotions. The scale includes two subscales: positive emotions (e.g., "What is the most amused, fun-loving, or silly you felt?") and negative emotions (e.g., "What is the most angry, irritated, or annoyed you felt?"). The scale had good internal consistency for both subscales (ω = .94 for the positive emotions subscale and ω = .95 for the negative emotions subscale) for African American participants and for European American

participants (ω = .94 for the positive emotions subscale and ω = .96 for the negative emotions subscale.

Anchoring Scales.

The BIS/BAS Scale (Carver & White, 2013) and the Brief Self-Control Scale (Tangney, Baumeister, & Boone, 2004) served as anchoring scales for the approach/avoidance and control/dyscontrol dimensions, respectively.

The BIS/BAS scale is a 24-item measure that uses a 4-point scale ranging from 1 (very true for me) to 4 (very false for me) to measure two motivational systems, the behavioral inhibition system (BIS) and the behavioral activation system (BAS). The BIS corresponds to motivation to avoid aversive outcomes (e.g., "Criticism or scolding hurts me quite a bit"), and the BAS corresponds to motivation to approach goal-oriented outcomes and has three subscales: drive (e.g., "I go out of my way to get things I want"), fun-seeking (e.g., "I'm always willing to try something new if I think it will be fun"), and reward-responsiveness (e.g., "When I'm doing well at something, I love to keep at it"). The BAS drive subscale had good internal consistency (ω = .87), and two of the BAS subscales and the BIS subscale had adequate internal consistency (ω = .75 for the BAS fun-seeking subscale, ω = .77 for the BAS reward-responsiveness subscale, and ω = .61 for the BIS subscale) for African American participants. Two of the BAS subscales and the BIS subscale had good internal consistency (ω = .87 for BAS drive subscale, ω = .82 for BAS reward responsiveness subscale, and ω = .91 for the BIS subscale), and the BAS fun-seeking subscale had adequate internal consistency (ω = .79) for European American participants.

The Brief Self-Control Scale is a 13-item measure that uses a 5-point scale ranging from 1 (Not at all like me) to 5 (very much like me) to assess dispositional self-regulatory behaviors (e.g., "I am good at resisting temptation"). The scale had good internal consistency for African American participants ($\omega = .89$) and for European American participants ($\omega = .91$).

Analytic Approach

Sample size was set *a priori* to accurately estimate the correlations in our model to achieve statistical significance. The stability of correlations is impacted by sample size and the reliability of the measures utilized in a study (Schönbrodt & Perugini, 2013). Because the study employed reliable measures, target sample size was 250 for both the African American and the European American samples. This sample size would yield stable correlation estimates (i.e., fewer fluctuations associated with small changes in the sample), allowing for accurate estimation of "distance" among constructs (i.e., how similar or dissimilar constructs are to each other). Distributions of all demographic and trait responses to emotion measures (e.g., means, standard deviations, skew, kurtosis, minima, maxima, ranges, and frequency distributions) were examined. Nonparametric correlations were used as the basis for multidimensional scaling (MDS) at both the scale-level and the item-level because the Positive Urgency and Toronto Alexithymia Scale-Difficulty Identifying Feelings subscale were negatively skewed for both African American and European American samples.

Missing data were handled on a case-by-case basis. For instance, if a participant was missing data for the majority of items on a measure (e.g., if $\omega < .70$ for the measure and 50% or more of the items were missing; Schafer & Graham, 2002), their total score

for that measure was not included in analyses; however, if they had completed all items on other measures, their scores on those measures were included in subsequent analyses. If a participant had missing data for items across most measures or across all measures (e.g., 75% of measures are incomplete), their data were not used in analyses. Of the 1223 initial participants, 339 participants had missing data and were not included in analyses. From the 245 African American participants and the 543 European American participants included in analyses, missing data rules resulted in a range of missing values across all scales (e.g., from 1 to 5 missing values) and all items (e.g., from 1 to 4 missing values) for both samples.

To create the latent dimensional structure at both the scale and item level for both African American and European American participants, multidimensional scaling was utilized. Multidimensional scaling can reduce the many traits that can be categorized as trait responses to emotion to a few important latent dimensions. This dimensional approach also can potentially provide greater clarity about *how* certain trait responses to emotion relate or are not related to each other and *how* particular trait responses to emotion characterize each latent dimension. The first step in multidimensional scaling was to convert scale and item scores to z scores. A general propensity to response to emotion was assessed by examining item-total correlations and the mean correlation among the measures. Additionally, items that had low item-total correlations within their respective scales (e.g., $\leq .30$) were dropped only for item-level MDS analyses because they were less likely to reflect the construct measured by the scale. The second step investigated qualitative differences in trait responses to emotion using MDS. The multidimensional model was constructed using ALSCAL at the scale-level and

PROXSCAL at the item-level in SPSS (Version 27). Distances between emotion trait response measures and individual items was calculated 1 minus the correlation between the two measures or the two items and treated as interval data. There are 21 total measures (including subscales), allowing up to 4-dimensional models (Kruskal & Wish, 1978).

Model fit at the scale-level was assessed by stress values, a measure comparable to the square root of the residual sum of squares when the model is used to estimate the initial distance matrix. Stress values that are close to zero indicate good model fit. How many dimensions best represented the model for trait responses to emotion at the scale level for African American and European American samples was based on whether stress continued to decrease by at least .05 with the addition of another dimension. If the stress value no longer decreased by at least .05 with the addition of dimensions past n, then we could determine that n dimensions best represented the model for trait responses to emotion at the scale level. Based on Kruskal's guidelines, good model fit was indicated by stress $\leq .05$ (Kruskal, 1964). Once the dimensional structure was confirmed at the scale-level, item-level analyses only included up to that confirmed n of dimensions as PROXSCAL analyses required having a defined number of dimensions to best orient where items would fit along the defined dimensions.

RESULTS

For African American participants, Kruskal's stress values for two to four-dimension solutions were .14, .09, and .08, respectively. For European American participants, Kruskal's stress values for two to four-dimension solutions were .12, .07, and .06, respectively. Because higher dimension models did not substantially reduce

stress, a three-dimensional solution was selected for both African American and European American participants. Although Kruskal's guidelines state a stress value less than .10 and greater than .05 indicates "fair fit", a Monte Carlo study characterized stress of .051 as "low random error" and .190 as "moderate random error" for this design (MacCallum, 1981). Taken together, the final stress value of .09 for African American participants for a three-dimensional solution therefore represents fair fit and reasonably low random error. The final stress value of .07 for European American participants for a three-dimensional solution represents fair fit and reasonably low random error. The three dimensions that characterized the dimensional structure of trait response to emotion for African American participants were avoidance, control, and disengagement. For European American participants, the three dimensions were avoidance, dyscontrol, and engagement. Figures 1 and 2 show the Approach/Avoidance vs Control/Dyscontrol dimensions for African American and European American participants, respectively.

Figure 1. *Multidimensional scaling of trait responses to emotion and anchoring personality measures with the approach and control dimensions for African American participants.*

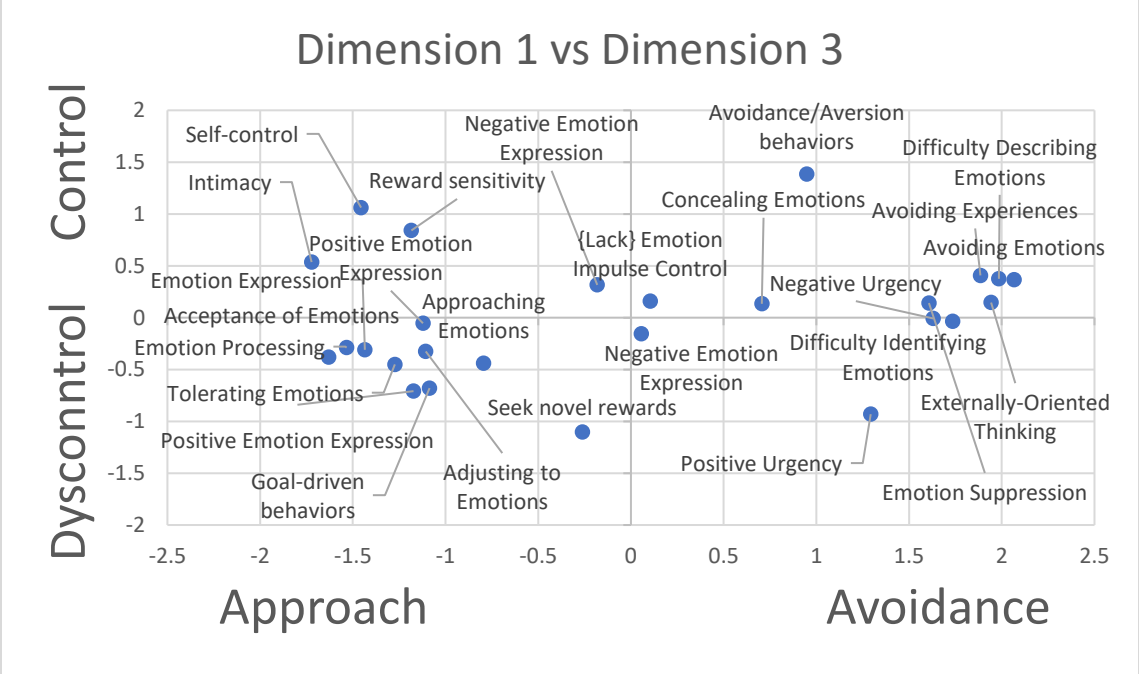
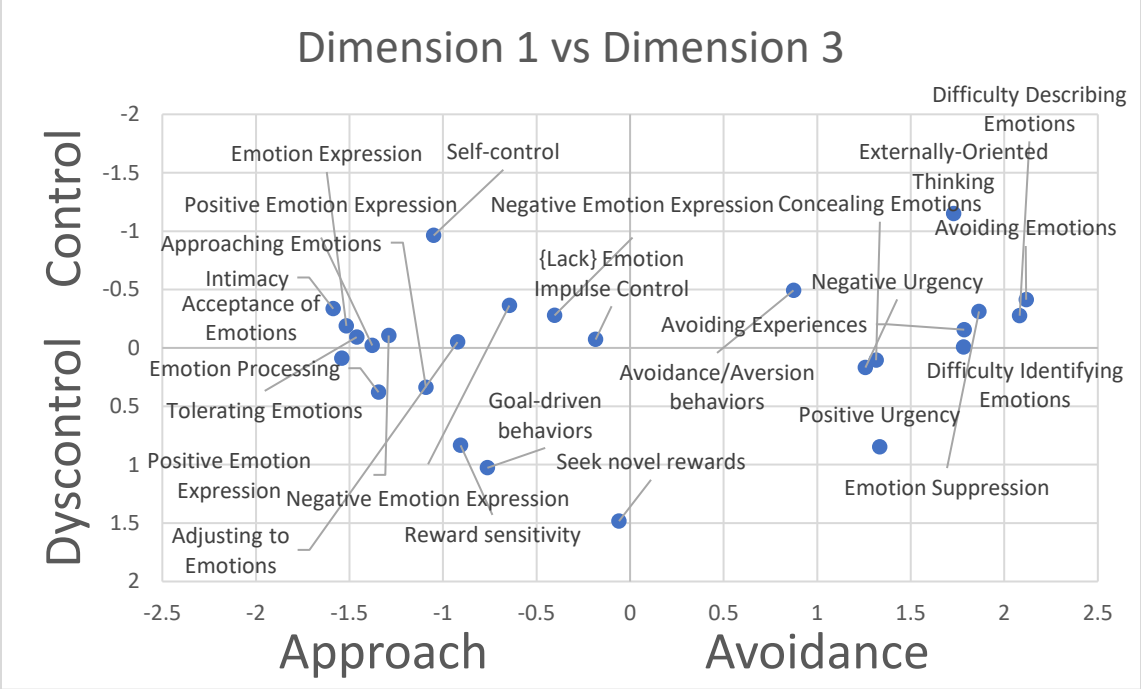


Figure 2. *Multidimensional scaling of trait responses to emotion and anchoring personality measures with the approach and control dimensions for European American participants.*



Scale Level

Table 2 includes the mean scores at the scale-level between African American and European American participants. There were some significant differences between African American and European American participants for the Positive Urgency scale, the Need for Affect: Emotion Avoidance subscale, the Acceptance and Action Questionnaire-II, the Acceptance of Emotions Scale, the Berkeley Expressivity Questionnaire: Negative Expressivity subscale, the Emotional Expressiveness Questionnaire: Positive Emotion Expression and Negative Emotion Expression subscales, the Emotion Regulation Questionnaire: Emotion Suppression subscale, the Affective Style Questionnaire: Concealing subscale, and the Toronto Alexithymia Scale: Difficulty Identifying and Describing Feelings subscales.

Table 2. *Mean Scores on TRE scales between African American and European American participants.*

Scale: Subscales	**African American Mean (SD)**	**European American Mean (SD)**	**Test of Difference**
Positive Urgency	1.436 (.603)	1.343 (.467)	$t(772) = -2.335$, $p = .020$*
Negative Urgency	1.850 (.649)	1.840 (.650)	$t(770) = -.195$, $p = .845$
Need for Affect: Emotion Approach Subscale	.454 (.873)	.338 (1.006)	$t(774) = -1.526$, $p = .128$
Need for Affect: Emotion Avoidance Subscale	-.485 (1.196)	-.792 (1.213)	$t(770) = -3.237$, $p = .001$***
Acceptance and Action Questionnaire-II (Avoidance Behaviors)	3.143 (1.574)	2.790 (1.426)	$t(775) = -3.064$, $p = .002$**
Acceptance of Emotions Scale	67.135 (22.395)	62.289 (22.024)	$t(772) = -2.790$, $p = .005$**
Emotion Approach Coping: Emotional Processing	3.073 (.769)	2.970 (.760)	$t(773) = -1.733$, $p = .083$

Table 2 (continued).

Emotion Approach Coping: Emotional Expression	2.687 (.888)	2.670 (.845)	$t(774) = -.243$, $p = .808$
Berkeley Expressivity Questionnaire: Negative Expressivity	3.484 (1.158)	3.732 (1.249)	$t(775) = 2.589$, $p = .010$**
Berkeley Expressivity Questionnaire: Positive Expressivity	5.117 (1.169)	5.003 (1.186)	$t(774) = -1.230$, $p = .219$
Berkeley Expressivity Questionnaire: Impulse Strength	4.432 (1.335)	4.405 (1.272)	$t(773) = -.261$, $p = .794$
Emotional Expressiveness Questionnaire: Positive Emotion Expression	4.675 (1.068)	4.353 (1.121)	$t(770) = -3.710$, $p < .001$***
Emotional Expressiveness Questionnaire: Intimacy	5.143 (1.150)	5.202 (1.196)	$t(771) = .637$, $p = .525$
Emotional Expressiveness Questionnaire: Negative Emotion Expression	3.688 (1.182)	3.491 (1.124)	$t(775) = -2.202$, $p = .028$*
Emotion Regulation Questionnaire: Emotion Suppression	4.064 (1.492)	3.503 (1.473)	$t(774) = -4.851$, $p < .001$***
Affective Style Questionnaire: Concealing Emotions	3.102 (.887)	2.737 (.858)	$t(771) = -5.370$, $p < .001$***
Affective Style Questionnaire: Adjusting Emotions	3.265 (.957)	3.132 (.918)	$t(771) = -1.831$, $p = .067$
Affective Style Questionnaire: Tolerating Emotions	3.276 (.813)	3.297 (.788)	$t(773) = .351$, $p = .726$
Toronto Alexithymia Scale: Difficulty Identifying Feelings	1.691 (.788)	1.543 (.703)	$t(772) = -2.594$, $p = .010$**
Toronto Alexithymia Scale: Difficulty Describing Feelings	2.323 (.923)	2.068 (.920)	$t(774) = -3.547$, $p < .001$***

Table 2 (continued).

Toronto Alexithymia Scale: Externally Oriented Thinking	2.350 (.583)	2.350 (.647)	$t(772) = -.012$, $p = .991$

***p<.001, **p<.01, *p<.05

Table 3 includes the correlations of TRE latent dimensions between African American and European American participants. All dimensions were significantly correlated between African American and European American participants, suggesting that the latent dimensional structure between African American and European American participants is similar. The control and engagement dimensions were highly negatively correlated because of the difference in dimension orientation between samples. For the control to dyscontrol dimension, the positive pole was control for African Americans but dyscontrol for European Americans. For the engagement to disengagement dimension, the positive pole was disengagement for African Americans but engagement for European Americans.

Table 3. *Correlations of TRE latent dimensions (scale-level) between African American and European American participants.*

1. Approach	.981***
2. Control	-.957***
3. Engagement	-.603***

***p<.001

The approach to avoidance dimension between African American and European American participants was highly correlated; thus, differences observed at the poles for these dimensions were small. For African American participants, measures reflecting emotional avoidance, such as emotion avoidance and alexithymia traits like difficulty

describing emotions and externally oriented thinking received the highest scores, and those reflecting emotional approach, such as emotion approach, intimacy expression, and emotion processing received the lowest scores. Similarly for European American participants, measures reflecting emotional avoidance, such as emotion avoidance and alexithymia traits like difficulty describing emotions received the highest scores; however, in contrast to African American participants, emotion suppression rather than externally oriented thinking also received a high score (Emotion suppression absolute difference (ABS) = .258; Externally oriented thinking ABS = .214). Also similarly for European American participants, measures reflecting emotional approach, such as intimacy expression and emotion approach received the lowest scores; however, in contrast to African American participants, emotion expression instead of emotion processing received the lowest scores (Emotion expression ABS = .081; Emotion processing ABS = .189).

Similar to the approach to avoidance dimension, the control to dyscontrol dimension was highly correlated between African American and European American participants; thus, differences observed at the poles for these dimensions were also small. For African American participants, measures reflecting control when dealing with emotions, such as inhibition, self-control, and engaging in goal-directed behaviors (e.g., acting in line with one's goals), received the highest scores, and those reflecting dyscontrol tendencies when dealing with emotions, such as positive urgency and emotion expression (particularly positive emotion expression), received the lowest scores. Similarly for European American participants, measures reflecting dyscontrol tendencies included positive urgency. In contrast to African American participants, control

tendencies for European American participants were reflected in externally oriented thinking (Externally oriented thinking ABS = 1.005). This large difference suggests that between African American and European American participants, European American participants are more likely to utilize detached cognitive coping styles to control their emotions in contrast to African American participants.

For the engagement to disengagement dimension for African American participants, although measures at the poles/extremes of these dimensions were relatively similar, there were larger differences closer to the "middle" of dimensional space that contributed to the relatively lower correlation between African American and European American participants. Disengagement was better represented for African American participants by concealing emotions and alexithymic traits, such as difficulty describing emotions (Concealing ABS = .315; Difficulty describing emotions ABS = .313). For European American participants, avoiding experiences and alexithymic traits, such as difficulty identifying emotions, better represented disengagement (Avoiding experiences ABS = .438; Difficulty identifying emotions ABS = .359). There were also differences in engagement tendencies such that engagement was better represented for African American participants through negative and positive emotion expression (Negative emotion expression ABS = .321; Positive emotion expression ABS = .290). In contrast, negative urgency better represented engagement for European American participants (Negative urgency ABS = .289), suggesting that although both African American and European American participants express negative emotions, European American participants are more likely to engage in impulsive behaviors when experiencing negative emotions compared to African American participants.

Item Level

Table 4 includes the correlations of TRE latent dimensions at the item-level between African American and European American participants. Only the control dimension was significantly correlated between African American and European American participants, suggesting that at the item level, the latent TRE dimensions for the approach and engagement dimensions were not similar between African American and European American participants. Although the overall scales were in the same dimensional space between African American and European American participants, the items that drove the scale-level placements in the approach-avoidance and engagement-disengagement dimensions were different between African American and European American participants.

Table 4. *Correlations of TRE latent dimensions (item-level) between African American and European American participants.*

1. Approach	.096
2. Control	-.426***
3. Engagement	-.086

***p<.001

The most discrepant items between African American and European American participants are available in Table 5. For the approach to avoidance dimension for African American participants, items that indicated emotional avoidance and hiding emotions received the highest scores, and those reflecting emotional approach, such as expressing emotions and processing emotions received the lowest scores. Similarly for European American participants, items that indicated emotional avoidance received the highest scores; in contrast from African American participants, struggles with showing

and feeling emotions also received the highest scores. Also similar to African American participants, items reflecting emotional approach, such as processing emotions, received the lowest scores for European American participants; in contrast, items that endorsed paying attention to emotions also received the lowest scores (ABS = 1.041).

For the control to dyscontrol dimension for African American participants, items that reflected control, such as emotion regulation skills, emotion tolerance, and concealing emotions received the highest scores, and those reflecting dyscontrol, such as positive urgency and alexithymic traits like difficulty identifying emotions, received the lowest scores. Similarly for European American participants, emotion regulation skills and concealing emotions defined control tendencies; however, the items that represented emotion regulation skills and concealing emotions differed (Emotion regulation skills ABS = .369; Concealing emotions ABS = .581). Although there is a smaller difference for dyscontrol between African American and European American participants, more negative urgency items reflected dyscontrol for European American participants in contrast to African American participants (ABS = .135).

For the engagement to disengagement dimension for African American participants, in contrast to scale level orientations, items that reflected engagement, such as emotion expression and positive urgency, received the highest scores, and those reflecting disengagement, such as alexithymia and emotion avoidance, received the lowest scores. Similarly for European American participants, items that reflected engagement, such as emotion expression in general and positive urgency, received the highest scores; however, in contrast to African American participants, impulsive emotion expression also received high scores (ABS = 1.234). Also similar to African American

participants, items reflecting disengagement, such as alexithymia and emotion avoidance, received the lowest scores for European American participants.

Table 5. *Items with most discrepant scores between African American and European American participants.*

Scale and Item Number	**Item**	**TRE latent dimension**	**African American Dimensional Position**	**European American Dimensional Position**	**Absolute Difference**
AAQ6	It seems like most people are handling their lives better than I am.	Approach-Avoidance	.608	-.665	1.273
EAC5	I let my feelings come out freely.	Approach-Avoidance	.553	-.630	1.183
NFA11	Emotions are dangerous – they tend to get me into situations that I would rather avoid.	Approach-Avoidance	-.514	.651	1.165
BEQ2	I sometimes cry during sad movies.	Approach-Avoidance	-.537	.583	1.120
NFA21	I wish I could feel less emotion.	Approach-Avoidance	-.365	.682	1.047
EAC2	I delve into my feelings to get a thorough understanding of them.	Control-Dyscontrol	-.005	-.607	.602
BEQ3r	People often do not know what I am feeling.	Control-Dyscontrol	.644	.063	.581

Table 5 (continued).

EEQ3	I often touch friends during conversations.	Control-Dyscontrol	.606	.049	.557
AAQ5	Emotions cause problems in my life.	Control-Dyscontrol	-.509	-.033	.476
NU4	When I feel bad, I will often do things I later regret in order to make myself feel better now.	Control-Dyscontrol	-.155	.637	.482
EEQ9	Watching television or reading a book can make me laugh out loud.	Engagement-Disengagement	-.584	.650	1.234
TAS11	I find it hard to describe how I feel about people.	Engagement-Disengagement	-.582	.624	1.206
PU9	When overjoyed, I feel like I can’t stop myself from going overboard.	Engagement-Disengagement	.657	-.533	1.190

Table 5 (continued).

EEQ13	When I am alone, I can make myself laugh by remembering something from the past.	Engagement-Disengagement	-.696	.446	1.142
TAS7	I am often puzzled by sensations in my body.	Engagement-Disengagement	.504	-.629	1.133

Note. AAQ=Acceptance & Action Questionnaire-2; ASQ=Affective Style Questionnaire; BEQ=Berkeley Expressivity Questionnaire; EAC=Emotional Approach Coping Scale; EEQ=Emotional Expressiveness Questionnaire; NFA=Need for Affect Questionnaire; NU=Negative Urgency Measure; PU=Positive Urgency Measure; TAS=Toronto Alexithymia Scale-II. Items with an "r" at the end of their name indicate the item is reverse-scored. Because the poles for control-dyscontrol at the item-level were opposite between samples, the absolute value for each sample was calculated before computing the absolute difference.

Descriptive Statistics

Tables 6 and 7 contain the correlations among study variables for the African American and European American participants, respectively. The three dimensions that characterized the structure of trait responses to emotion (e.g., approach, control, and engagement) should be orthogonal to each other; however, the disengagement and control dimensions, the avoidance and disengagement dimensions, and the control and avoidance dimensions were all positively correlated for African American participants. Additionally, the engagement and avoidance dimensions and the dyscontrol and avoidance dimensions were negatively correlated, and the engagement and dyscontrol dimensions were positively correlated for European American participants. Most of the correlations were sufficiently small (e.g., $r < .20$); however, the correlations between control and avoidance for African American participants and dyscontrol and avoidance

for European American participants were moderate to large (e.g., $r = .762$, $p < .001$ for control and avoidance with African American participants, and $r = -.478$, $p < .001$ for dyscontrol and avoidance for European American participants). These correlations may have been due to missing data not being "missing completely at random" (MCAR), which can create spurious correlations; however, imputing missing data based on the trait responses to emotion scores using expectation-maximization did not significantly reduce the correlation coefficients between the dimensions.

Table 6. *Correlations of Study Variables for African American Participants (N = 227)*

	2	3
1. Avoidance	.188**	.762**
2. Disengagement		.172**
3. Control		

***p<.01*

Table 7. *Correlations of Study Variables for European American Participants (N = 522)*

	2	3
1. Avoidance	-.160*	-.478**
2. Engagement		.155**
3. Dyscontrol		

***p<.01*

DISCUSSION

Driven by the theoretical and empirical relationships among trait responses to emotion discovered within predominantly European American samples, this study aimed to strengthen trait response to emotion theory by determining if the empirical relationships of these trait responses to emotion existed within a predominantly African

American sample. Between an African American and European American sample, a 3-dimensional model of trait responses to emotion was validated in both samples. For African American participants, the positive poles of the three latent trait response to emotion dimensions were avoidance, control, and disengagement. For European American participants, the positive poles of the three latent trait response to emotion dimensions were avoidance, dyscontrol, and engagement.

For the first dimension, approach to avoidance, the positive pole for the dimension was avoidance for both African American and European American participants but the constructs at both the scale and item-level differed between samples. At the scale level for African American participants, alexithymic traits, particularly externally oriented thinking, defined the avoidance pole; in contrast, at the scale level for European American participants, alexithymic traits were less prevalent, and emotion suppression was a defining construct. At the item level for African American participants, items that involved taking different perspectives and hiding emotions defined the avoidance pole (e.g., "I can avoid getting upset by taking a different perspective" and "I am good at hiding my feelings"); in contrast, at the item level for European American participants, items that involved struggles with managing emotions in uncomfortable social situations defined the avoidance pole (e.g., "Emotions are dangerous – they tend to get me into situations that I would rather avoid"). It appears as if African Americans avoid emotions by using more cognitive and detached coping styles, and European Americans engage in escape tendencies where they will attempt to regulate their reactions while still internally navigating and thus, wanting to perpetually avoid, uncomfortable emotions to the degree of labeling them as "dangerous." Similarly for the approach pole,

at the scale level, African American participants were more likely to engage in emotion processing tendencies, and at the item level, they were more likely to be willing to approach emotions through outward expressions, principally with anger (e.g., "When I am angry, people around me usually know"); in contrast, particularly at the item level, European American participants were more likely to be internal with their emotional approach tendencies by being more mindful of their emotions (e.g., "I comfortably take care of and pay attention to my feelings").

For the second dimension, control to dyscontrol, the positive pole of the dimension differed between African American and European American participants. The positive pole for African American participants was control, and the positive pole for European American participants was dyscontrol. At the scale level, dyscontrol for both African American and European American participants was defined by positive urgency and engaging in fun-seeking behaviors. Additionally, at both the scale and item level, control for both African American and European American participants was defined by engaging in inhibitory behaviors and self-control and being able to conceal emotions and utilize emotion regulation skills. The differences between African American and European American participants for the control to dyscontrol dimension appeared at the item level for the dyscontrol pole. For African American participants, dyscontrol was principally defined by positive urgency items (e.g., "When I am in a great mood, I tend to get into situations that could cause me problems) and for European American participants, dyscontrol was principally defined by negative urgency items (e.g., "Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse"). In other words, African American participants were more likely

to engage in impulsive behaviors when experiencing strong positive emotions and European American participants were more likely to engage in impulsive behaviors when experiencing strong negative emotions.

For the third dimension, engagement to disengagement, at the scale level for both African American and European American participants, the disengagement pole was primarily defined by concealing and adjusting emotional expressions, and the engagement pole was primarily defined by impulsive and negative emotion expressivity. Similarly at the item level for both African American and European American participants, the disengagement dimension was defined by alexithymic traits and emotion avoidance tendencies, and the engagement dimension was defined by emotion expression and positive urgency. Unlike with the other dimensions, it appears as if emotion engagement and disengagement tendencies at the poles do not differ between African Americans and European Americans; however, there were differences toward the "middle" of the dimension that were driving the lower correlation for the engagement dimension between African American and European American participants. These similarities at the extremes of engagement and disengagement may be a function of larger American cultural rules for emotion expression tendencies superseding subculture emotion display rules, where the dominant culture influences which emotions are considered appropriate and inappropriate to display (Matsumoto & Hwang, 2012; Matsumoto & Hwang, 2019; Matsumoto, 2013; Safdar et al., 2009).

Although the approach-avoidance, control-dyscontrol, and engagement-disengagement dimensions should be orthogonal from each other, for both African American and European American participants, there were significant correlations

between dimensions. For African American participants, there was a significant correlation between control and avoidance. For European American participants, there was a significant correlation between dyscontrol and avoidance. These correlations may be representing the unique shared relationship that these dimensions have within African American and European American participants because of shared constructs that define them. For instance, the avoidance pole for African Americans was defined by engaging in cognitive, detached strategies; these cognitive, detached strategies could align quite well with a control-oriented coping style, where one may be more likely to become emotionally detached as a way to effectively behave in line with their long-term goals. On the other hand, the avoidance dimension for European Americans was defined by engaging in emotion suppression tendencies and the dyscontrol dimension was defined by negative urgency. Over time, emotion suppression can cause issues with emotion dysregulation, which can contribute to issues with controlling impulsive actions when experiencing strong emotions that cannot be easily suppressed (Beauchine, Gatzke-Kopp, & Mead, 2007; Daros et al, 2019; D'Agostino et al., 2017).

The next steps for this work include better determining how the items that were utilized in our study may have influenced the nuances that were observed between African American and European American participants. Was it the way the items themselves were written or particular life experiences that influenced why participants responded the way they did to the questions? Additionally, now that the dimensional structure has been replicated in an African American sample, there is evidence to suggest that a cross cultural measure of TRE dimensional structure could be developed. Thus, recruiting and discussing with an African American and a European American focus

group using cognitive interviewing techniques will tackle both objectives of better understanding how participants respond to TRE items and continuing to develop a cross-cultural TRE dimensional measure.

INTRODUCTION (STUDY 2)

Although the trait response to emotion dimensional structure was comprised of the same three latent dimensions of approach-avoidance, control-dyscontrol, and engagement-disengagement for both African American and European American participants, there were differences at the scale and item level between these two racial groups. For instance, the dyscontrol dimension was defined by positive urgency at the item level for African American participants; in contrast, the dyscontrol dimension was defined by negative urgency at the item level for European American participants. These nuances suggest that although trait response to emotion dimensional structure is overall the same for both African American and European American people, *how* and *why* certain trait responses to emotion are more definitional within these racial groups is unclear. One way to determine what could be contributing to differences in scale and item level trait response to emotion patterns between African American and European American people is through cognitive interviewing.

Cognitive interviewing is an important step in scale development that allows researchers to empirically study how participants are understanding and interpreting items in a measure so that items can be modified accordingly to make them more understandable and easier to answer. Additionally, cognitive interviewing focuses on the respondent's life experiences and cultural contexts that could influence how they are interpreting and responding to items (Willis & Miller, 2011). Thus, to better understand

observed differences in responses to TRE items and to ensure that items are not unintentionally skewed toward one racial group's experiences, the present study used cognitive interviewing to investigate and compare how African American and European American participants responded to TRE questions being considered for inclusion for a future cross-cultural TRE measure.

Cognitive Interviewing

Cognitive interviewing is a psychologically oriented, qualitative method for empirically studying how people process and respond to items within measures (Drennan, 2002; Willis & Miller, 2011). Cognitive interviewing usually occurs as part of the "pretesting" phase in scale development and entails administering draft survey questions while collecting additional verbal information *about* the survey responses from the respondent's perspective, which helps researchers better determine how items should be modified to ensure participants are understanding the questions and that the question is generating the information that its author intends (Beatty & Willis, 2007; Drennan, 2002; Willis & Miller, 2011).

Cognitive interviewing uses cognitive theory to understand human information processing and encompasses four basic cognitive processes and stages invoked when a respondent answers a survey question: comprehension of the question, memory retrieval of information used to prepare an answer to the question, decision/estimation process that may influence respondent's processing and reporting of a response, and the response process itself, where the respondent produces an answer to the survey question. Additionally, cognitive interviewing allows for intensive focus on sociocultural factors that can also influence the survey response process and can be used to address issues

where generic cross-cultural items may be problematic because the suitability of questions and meanings of translated items may differ between racial groups. For instance, researchers can use cognitive interviewing to better focus on how a respondent's life experiences and cultural contexts can influence the participant's interpretation and response to a survey item (Drennan, 2002; Willis & Miller, 2011).

Cognitive interviewing is usually conducted in a semi-structured, in-depth interview format with small groups of no more than 10 participants at a time. Participants are often asked to engage in "thinking aloud" and "verbal probing" with the investigator. "Thinking aloud" is when the interviewer requests that the respondents think out loud as they ponder the question and provide an answer. Verbal probing are questions designed to elicit additional relevant information about the question and aspects of the participant's thought process and understanding of item content (Drennan, 2002; Willis & Miller, 2011). There are multiple types of verbal probing questions, including anticipated probes (e.g., scripted questions based on anticipation of a problem with the question), spontaneous probes (e.g., unscripted questions from the interviewer who may be searching for potential problems with the question), conditional probes (e.g., pre-determined questions that only trigger if a particular participant behavior occurs, such as hesitating before answering a question), and emergent probes (e.g., questions that an interviewer asks in response to an participant's response that indicates an apparent problem; Beatty & Willis, 2007).

Verbal probing can also consist of requesting that respondents paraphrase questions, asking respondents to define the meanings of words used in questions, having respondents explain their answers, and identifying areas of the questionnaire that pose

difficulty in understanding, interpretation, or completion (Drennan, 2002). It is usually best to use a variety of verbal probes during cognitive interviewing to help with addressing the mix of problems that are both expected and encountered (Beatty & Willis, 2007). Researchers can garner a sense of their respondents' understanding of questions through a combination of varied probing questions and having participants think aloud when answering questions, which can help reduce researcher uncertainty about how respondents will answer questions, reduce response error, and increase researcher understanding about the interpretive process respondents use when relating survey questions to their own life experiences and circumstances (Drennan, 2002; Willis & Miller, 2011).

Cognitive interviewing is a crucial step in questionnaire development because it not only helps researchers to better understand how respondents are understanding item content, but it also helps to reduce unintentional bias at the item-level. Discussing item content with participants helps to ensure that the items included in the final measure have a similar meaning across different groups; if the items are performing differently between groups, cognitive interviews with diverse focus groups can help to offer a clearer understanding of "why" these items are not functioning as intended. Then, these flagged items can be edited to better capture responses from a wider variety of people (El Mallah, 2022).

Additionally, cognitive interviewing allows for researchers to identify and eliminate problems with question wording to reduce participant confusion about the item and create the "best informed" questions possible (Beatty & Willis, 2007). For instance, an item like "emotions cause me to go overboard" may make sense to the question's

author and those who belong to a culture or background where the phrase “go overboard” is common and understood. However, this item would likely perform poorly with others who do not share the author’s background or culture because the meaning of “go overboard” would be lost and could lead to confusion. Cognitive interviewing with diverse groups of people would help to capture the issue with that item’s wording and allow the researcher to modify the wording accordingly to be less confusing for potential respondents. Finally, cognitive interviewing allows for researchers to better understand which items to keep, eliminate, or reword based on participant feedback and the range of life and cultural experiences that diverse participants can offer. Researchers can then develop a deeper cultural understanding of the relevance and comprehension of questionnaires for different groups of people and tailor their items so that all perspectives are reflected (Drennan, 2002). When developing the trait response to emotion dimensional measure, it is crucial that cognitive interviewing is utilized to establish construct validity and to create a stronger, cross-cultural measure.

Study 2

The current study aimed to begin to better understand why there are nuanced item-level differences in the trait response to emotion dimensional structure between African American and European American people. These differences may be because of cultural and life experiences for these groups or may be because of confusion with the item’s wording. Cognitive interviewing will help to better target what may be a likely reason for these observed differences and guide next steps for these items, such as rewording, adding new ones, or even deleting them. Cognitive interviewing will also help to develop stronger, less biased items that a more likely to capture a diverse range of

people's emotion experiences, aiding in creating a future cross-cultural TRE dimension measure. Because Study 2 is a continuation of Study 1's preliminary findings, African American and European American focus groups were the only groups recruited so that responses that focus group members gave were relevant and generalizable to the racial groups that participated in Study 1. Also similar to Study 1, Study 2 was exploratory in nature, so no confirmatory hypotheses were generated for this study.

METHOD

The study's protocol, aims, methods, materials, and thematic analysis plan were pre-registered through the Open Science Framework (https://osf.io/d7q2v).

Participants

The participants for the focus groups were recruited from the Lexington community and the University of Kentucky between December 2023 and February 2024. There were 4 African American participants and 5 European American participants who completed the hour and a half focus groups for US $20 in compensation. See Tables 8 and 9 for the breakdown of the participant demographic information (e.g., age and gender) for both focus groups.

Table 8. *Demographic Information for African American Focus Group Participants (N = 4)*

Participant	**Age**	**Gender**
Participant 1	18+	Female
Participant 2	18+	Female
Participant 3	30	Male
Participant 4	18+	Female

Note. Participants indicated as 18+ did not indicate their actual age during eligibility conversations but did confirm that they were over the age of 18.

Table 9. *Demographic Information for European American Focus Group Participants (N = 5)*

Participant	**Age**	**Gender**
Participant 1	59	Female
Participant 2	19	Female
Participant 3	20	Female
Participant 4	18+	Male
Participant 5	18+	Female

Note. Participants indicated as 18+ did not indicate their actual age during eligibility conversations but did confirm that they were over the age of 18.

Procedure

The University of Kentucky Institutional Review Board (IRB) approved all of the studies' procedures prior to the start of data collection. Participants were recruited for cognitive interviewing focus groups from flyers in the Lexington community (e.g., public libraries, coffee shops) and listserv messages posted to the University of Kentucky psychology and neuroscience departments between December 2023 to February 2024.

Once eligibility criteria were met, participants were emailed a copy of the consent form that included information about study tasks, confidentiality, and compensation.

When they arrived for the focus group session, participants were asked to create a pseudonym or nickname to be referred to during the duration of the group and also received a hard copy of the consent form to sign. Once participants gave their consent to participate, participants were audio recorded using an Aiworth 5220 Digital Voice Recorder while they discussed their initial thoughts and reactions to a list of 15 TRE items. These items were selected from the battery of TRE measures in Study 1. Cognitive interviewing with these items could be helpful for determining where these differences could be coming from between African American and European American people. Focus groups took about an hour and a half to two hours to complete, and there was a 5 minute break scheduled for each focus group about halfway through the item list. Once participants completed the focus group, they received compensation (e.g., US $20) for their participation.

Measures

Focus group questions.

Fifteen items from a variety of trait response to emotion measures used in Study 1 were selected for inclusion in the cognitive interviewing focus groups. The items were on a 7-point response scale ranging from “Strongly disagree” to “Strongly agree.” Participants were shown each item one at a time and shared their initial reactions and thoughts for each one. Participants also would occasionally engage each other in discussion about a particular point that another participant made about the item. Both

African American and European American focus groups were shown the same fifteen items in the same order. The items are listed in Table 10.

Table 10. *Selected TRE Items for African American and European American focus groups.*

Instructions. Please consider how you *generally* think about and experience emotions and indicate how much you agree with the following statements.
1. I could easily fake emotions.
2. I can get out of a bad mood very quickly.
3. When I am in a great mood, I tend to get into situations that could cause me problems.
4. I have trouble controlling my impulses.
5. I can hide my anger well if I have to.
6. Watching television or reading a book can make me laugh out loud.
7. I find it hard to describe how I feel about people.
8. When overjoyed, I feel like I can't stop myself from going overboard.
9. When I am alone, I can make myself laugh by remembering something from the past.
10. I am often puzzled by sensations in my body.
11. It seems like most people are handling their lives better than I am.
12. I let my feelings come out freely.
13. Emotions are dangerous – they tend to get me into situations that I would rather avoid.
14. I sometimes cry during sad movies.
15. I wish I could feel less emotion.

Note. The 7-point Likert scale for each item was as follows: Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly Agree.

Transcription Process

Focus groups were audio recorded using an Aiworth 5220 Digital Voice Recorder and were transcribed using Otter.ai, a secure, open-source transcription service available via web browser. Once the audio recordings were transcribed and checked for readability (with appropriate edits being made to transcripts as needed, such as grammar/spelling corrections and accurate indications for which participant spoke at each time), the transcripts were analyzed for understanding of item content. Missing data were handled on a case-by-case basis. For instance, if a participant's response was inaudible, then that

portion of the participant's response was not included in analyses; however, as long as the rest of the participant's responses were audible, those responses were included in analyses. If a participant had missing audio equal to more than an hour of time, their data were not used in analyses. Of the 9 participants who enrolled in the focus groups, 0 had missing data and were excluded from analyses.

RESULTS

Approach-Avoidance Items

Items 11-15 in Table 10 were the most discrepant items between African American and European American participants from Study 1 that were selected as the five representative items for the approach-avoidance dimension for Study 2. Between both African American and European American participants, both groups appeared to understand item content and responded to the items in the intended way that the items were written. Their responses indicate that there appears to be no item bias in the way the items were written that would result in discrepant responses.

When probed about their thought processes behind their answers for items 11-15, both African American and European American participants stated that they were drawing on social context and memories of previous life experiences when thinking about their initial responses to item content. Particularly for items 12 (e.g., I let my feelings come out freely) and items 14 (e.g., I sometimes cry during sad movies), both African American and European American participants in this study described that social context (e.g., where they were and who they were around) was influencing their ratings. When probed about if changing the items to be more specific about who they were around or where they were expressing the emotion, participants in this study stated that their

responses would change such that if they were in public and/or around strangers, they would rate items lower for approaching emotions versus if they were in private and/or around close others, they would rate items higher for avoiding their emotions.

Particularly for items 13 (e.g., "Emotions are dangerous – they tend to get me into situations that I would rather avoid) and 15 (e.g., "I wish I could feel less emotion"), participants in this study stated that they were thinking about issues and consequences that were associated with previous problems with anger when probed about their ratings for these items. For instance, one European American female described how her impulsive actions when she was angry when she was younger led to situations that she would have rather avoided:

> It's how you respond with your emotions. Obviously, there's an appropriate way to express anger, and there's an inappropriate way. I… and I'm… I would have said when I was younger, yeah, that def- Yeah emotions, definitely, You know, I would let things get out of hand. I would, you know… I remember having a fight with somebody and like throwing a glass against the wall, which was just so dramatic as an 18 year old (laughs). Please, 'cause then you have to go clean up the glass but anyway (laughs). I- I would say no, they don't get me into situations, but I- There was a time in my life where I would say "yes."

These rating patterns indicate that the way the items are currently written are capturing what they intend to measure for approach-avoidance items being considered for inclusion in the future cross-cultural TRE measure.

Control-Dyscontrol Items

Items 1-5 in Table 10 were the items between African American and European American participants from Study 1 that were selected as the five representative items for the control-dyscontrol dimension for Study 2. Between both African American and European American participants, both groups appeared to understand item content and responded to the items in the intended way that the items were written. Their responses indicate that there appears to be no item bias in the way the items were written that would result in discrepant responses.

When probed about their thought processes behind their answers for items 1-5, similar to items 11-15, both African American and European American participants stated that they were thinking about social context (e.g., public or private place, around strangers or close friends/family/significant others). When probed further about if their ratings would change if the language of the items specified strangers vs. close others, participants in this study stated that their ratings would change such that they would be more likely to rate controlling emotions items higher for being around strangers and more likely to rate controlling emotions items lower for being around close others. Additionally, European American participants in this study stated that if the language of the items was changed to a professional context, they would be more likely to rate controlling emotions items higher than if the language of the items was changed to a more personal context; however, African American participants in this study stated that they would be more likely to rate controlling emotions items higher if the language of the items specified professional or personal contexts.

Participants in this study also referenced thinking about trauma experiences when considering their initial responses to items 1 (e.g., I could easily fake emotions), 4 (e.g., I

have trouble controlling my impulses) and 5 (e.g., I can hide my anger well if I have to). For some participants, they stated that trauma caused them to feel disconnected from their emotions, and thus, they were able to rate their responses higher for being able to fake their emotions (e.g., item 1) and hide their anger well (e.g., item 5). For other participants, they stated that trauma caused them to rate their responses higher for experiencing their emotions in more dysregulated ways (e.g., item 4). One European American female participant described how growing up in a "yelling" household made it difficult for her to manage her emotions in similar situations in her own relationships:

> But I also grew up in like, yelling households. I've had to unlearn that toxic trait in friendships and relationships, not to be impulsive when you're mad at each other. Not to yell as soon as an argument breaks out. But I'm- still have those impulse tendencies.

These rating patterns indicate that the way the items are currently written are capturing what they intend to measure for control-dyscontrol items being considered for inclusion in the future cross-cultural TRE measure. Additionally, potential group differences in the effects of social context on control-dyscontrol items will require further investigation in larger groups before use in a cross-cultural measure.

Engagement-Disengagement Items

Items 6-10 in Table 10 were the most discrepant items between African American and European American participants from Study 1 that were selected as the five representative items for the engagement-disengagement dimension for Study 2. Between both African American and European American participants, both groups appeared to understand item content for items 6, 7, and 9 and responded to those items in the intended

way that the items were written. Their responses to items 6, 7, and 9 indicate that there appears to be no item bias in the way the items were written that would result in discrepant responses.

However, both groups struggled with the question wording for items 8 (e.g., "When overjoyed, I feel like I can't stop myself from going overboard") and 10 (e.g., "I am often puzzled by sensations in my body"). For item 8, participants expressed being confused by what "overboard" meant, which made it difficult for them to understand what the question was asking and thus, how to respond appropriately to it. Similarly for item 10, participants expressed confusion about what the question was asking about, especially within the context of emotions. Participants believed that the question was asking about general physical sensations and pains, such as from menstruation cycles and growing pains. One African American participant interpreted "sensations" differently than all other participants and described sensations as reminding her of what it felt like when she was high: "Honestly, when I see 'puzzled by sen- sensations' draws me to, like if I was high or something? That would be creating some kind of sensation of 'Oh, I feel… So, I'm high and lifted up.'" This participant elaborated further by describing how sensations caused her to think of an exogenous force that creates the sensation rather than something internal, such as emotions. Once items 8 and 10 were clarified by the focus group leader, all participants had a better understanding of the questions and were able to discuss their thoughts about their levels of impulsiveness (e.g., item 8) and how they were "in-tune" with the physical sensations that their emotions cause for them (e.g., item 10). However, without these explanations, it is clear that items 8 and 10's current wording was difficult for participants to understand and could lead to inaccurate responses.

When probed about their thought processes behind their answers for items 6-10, like items 1-5 and 11-15, both African American and European American participants stated that they were thinking about social context (e.g., public or private place, around strangers or close friends/family/significant others) when determining their ratings. When probed further, participants in this study stated that they were thinking about strangers in public settings when responding to item 6 (e.g., Watching television or reading a book can make me laugh out loud) and emphasized that they would be more likely to not express too much laughter around strangers unless other strangers were also expressing a similar amount of laughter (e.g., such as in a movie theater while watching a comedy movie). When probed about if the wording of question 6 was more explicitly about being around friends or family, participants stated that the change in wording would also change their ratings and make them more likely to express laughter because they would be comfortable with the people around them and comfortable with expressing that emotion itself. African American participants in this study, but not European American participants, also mentioned thinking about "humbling themselves" and not "doing too much" when responding to question 8 (e.g., When overjoyed, I feel like I can't stop myself from going overboard), and those thoughts of hiding or reducing their positive emotion expression caused them to give lower ratings for that item. One African American male participant described how he was thinking about life's "rollercoaster" and how that influenced his low rating when thinking about being overjoyed:

> I don't think I kind of get overjoyed because life is humbling so… It's a rollercoaster and… just trying to like stay humble… because you know, like I- Yeah. I just- I don't know, I don't- I don't think I get overjoyed, I- Like I said, life

> will humble you 'cause it's a rollercoaster. I think that- I think that, you know, you get- Like, I've seen the top of life many times, but I've seen so many lows too that I know that like- I like- I guess there's been many times in my life where I've… 'like, dang, everything's good right now. Like everything is like perfect.' And then, every time I say that, it's like clockwork, something happens. So I'm like, not gonna get overjoyed because now I know the storm's comin'.

These rating patterns indicate that the way items 6, 7, and 9 are currently written are capturing what they intend to measure for engagement-disengagement items being considered for inclusion in the future cross-cultural TRE measure; however, items 8 and 10 may not be performing as intended. Additionally, potential group differences in the effects of humbling in response to item 8 will require further investigation in larger groups before use in a cross-cultural measure.

Discussion

Driven by differences observed in latent TRE dimensional structure between African American and European American participants in Study 1, Study 2 aimed to utilize cognitive interviewing to accomplish three primary aims: to begin to understand why differences in latent TRE dimensional structure exist, to see how TREs present themselves between African American and European American people, and to ensure that items being considered for inclusion in a future cross-cultural TRE measure were not unintentionally skewed toward one racial group. Results from the cognitive interviewing groups with African American and European American participants provided further insight about understanding of TRE items being considered for inclusion in the future TRE cross-cultural measure.

For the approach to avoidance dimension items, both African American and European American participants had similar understanding of item content, indicating that the way the items are currently written do not contain item bias that would influence discrepant responses. Overall, participants who had more positive experiences and memories associated with their emotions were more likely to rate approach-oriented items higher, and participants who had more negative experiences and memories associated with their emotions were more likely to rate avoidance-oriented items higher. Additionally, participants who were thinking about more comfortable social contexts were more likely to rate approach-oriented items higher, and participants who were thinking about less comfortable social contexts were more likely to rate avoidance-oriented items higher. These patterns in responses to approach-avoidance items indicate that social context and previous life experiences and consequences associated with emotions may play a key role in the likelihood of participants either approaching or avoiding certain emotions or emotional situations in their lives.

For the control to dyscontrol dimension items, both African American and European American participants had similar understanding of item content, indicating that the way the items are currently written do not contain item bias that would influence discrepant responses. Similar to the approach-avoidance items, participants who were thinking about more comfortable social contexts were more likely to rate dyscontrol-oriented items higher, and participants who were thinking about less comfortable social contexts were more likely to rate control-oriented items higher. An additional layer for social context also influenced participant ratings, where European American participants in this study were more likely to rate control-oriented items higher when thinking about

professional contexts. In contrast, African American participants were more likely to rate control-oriented items higher in both professional and casual contexts. These patterns in responses to control-dyscontrol items indicate that social context may also play a key role in the likelihood of participants either controlling or being more impulsive with emotions around others.

For the engagement to disengagement dimension, both African American and European American participants had similar understanding of item content for items 6, 7, and 9, but there was confusion regarding item meaning for items 8 (e.g., When overjoyed, I feel like I can't stop myself from going overboard) and 10 (e.g., I am often puzzled by sensations in my body). Both groups of participants struggled with understanding what "overboard" meant, and both participants struggled with making the connection between "sensations" and emotions and assumed that "sensations" was referring to physical health indicators, like aches and pains. This confusion based on these items' wording made participants provide inaccurate responses until they received clarification about what the items were asking from them. Both African American and European American participants expressed that changing the language of the items would have made what the items were asking for clearer. Using culturally specific words like "overboard" and ambiguous words like "sensations" may make it more likely that participants may struggle with understanding item content; thus, it may be best to avoid using cultural-specific and ambiguous words and rewrite items 8 and 10 to ensure participant understanding and reduce potential item bias.

Similar to the approach to avoidance and control to dyscontrol dimension, social context influenced the likelihood of both African American and European American

participants in this study either expressing or suppressing their emotions around others. Participants who were thinking about more uncomfortable or public social contexts were more likely to rate disengagement items higher, and participants who were thinking of more comfortable or private social contexts were more likely to rate engagement items higher. However, African American participants in general were also thinking about needing to remain humble across social contexts when responding to engagement-disengagement items. Humbling appeared to function as a protective measure to make it easier for African American participants to handle life's inevitable emotional downs. In contrast, European American participants never discussed reducing positive emotion expression. This difference may be based in experiences of discrimination that African American people are more likely to experience in comparison to European American participants. Hope and discrimination have a paradoxical effect for African American people because not only does discrimination make it more difficult to have access to opportunities that would bring one joy, but it can also make one more sensitive to losing opportunities because of previous experiences where such opportunities were lost; thus, maintaining too much joy or hope may make it harder to deal with the disappointment and stress from discriminatory experiences (McDermott et al., 2020).

Similar to previous TRE findings, cognitive interviewing identified that life experiences, particularly trauma, influenced both African American and European American participants responses in this study. Both African American and European American participants endorsed having experienced trauma, either in early life or at another point in their lives, and in all instances, trauma had a negative influence on TREs such that those who had experienced trauma were more likely to rate dyscontrol and

avoidance-related TRE items higher. These participants' responses add further evidence about how early life adversity and trauma more generally influences TRE development. It appears that people who have experienced trauma are more likely to develop dyscontrolled and avoidant TRE tendencies because of lack of effective emotion regulation scaffolding and use of coping strategies to survive traumatic situations that no longer serve them as effectively in the present, such as numbing (Adams & Segerstrom, *in prep*).

Taken together, cognitive interviewing identified that both African American and European American participants understood most of the items' content and responded to most of the items in the intended way that the items were written. Only two out of the 15 items being considered for inclusion resulted in participant confusion because of culturally specific and ambiguous words, suggesting that rewriting those items may be necessary to reduce inaccurate responses. Additionally, unique life experiences and social contexts influenced how African American and European American participants responded during cognitive interviewing to TRE items. The results from Study 2 helped to provide further information about observed nuances in Study 1 and will help with guiding item selection for the future cross-cultural TRE dimensional measure.

General Discussion

Studies 1 and 2 were the preliminary steps for the development of a cross-cultural TRE dimensional measure, with Study 1 aiming to determine if latent TRE dimensional theory existed within a predominantly African American sample and with Study 2 aiming to better understand what factors may influence responses to items being considered for

inclusion in the future cross-cultural TRE dimensional measure between African American and European American participants.

Study 1 strengthened TRE theory by determining that the empirical relationships between TREs existed within a 3-dimensional model (e.g., approach-avoidance, control-dyscontrol, engagement-disengagement) for both African American and European American samples. However, there were differences within the three-dimensional model between African American and European American participants, suggesting that either how TREs present themselves may vary between these groups or that there is something about the TRE items that may be driving differences. Study 2 was thus conducted using cognitive interviewing to better understand why these differences in latent TRE dimensional structure existed between African American and European American people and to ensure that items being considered for inclusion in the future cross-cultural TRE dimensional measure were not unintentionally biased toward one racial group and their experiences. Cognitive interviewing focus groups with African American and European American participants highlighted item understandings and misunderstandings as well as how life experiences and social context can influence participant responses. These responses from Study 2 may help to explain findings from Study 1, particularly with how the TRE latent dimensional structures presented themselves between groups.

For the first dimension, approach to avoidance, differences between African American and European American participants presented themselves in how African American participants utilized different strategies to avoid (e.g., cognitive, detached coping styles) and approach (e.g., emotion processing) emotions compared to European American participants, who utilized escape tendencies to avoid emotions and mindfulness

strategies to approach emotions. These nuanced differences between African American and European American approach and avoidance tendencies may be a result of differences in maternal parenting styles and emotion socialization practices. African American children are more likely to be raised in environments where for the sake of safety within a marginalizing society, mothers are less likely to be reactive to their children's emotions compared to European American mothers. African American mothers are also more likely to utilize punitive and minimalizing strategies toward their children's negative emotions whereas European American mothers are more likely to be reactive to their children's emotions and engage in problem-solving strategies with them (Morelen & Thomassin, 2013; Nelson et al., 2012). Several African American participants in Study 2 discussed memories of how their mothers were more likely to tell them to "deal with it" whenever they had emotional outbursts or even would tell them to hide their emotions when possible while European American participants discussed how their mothers would encourage them to express their feelings. These punitive and minimalizing strategies have been shown to be maladaptive for European American children but have positive influences on African American children's ability to self-regulate and engage in adaptive coping styles (Eisenberg et al., 1999; Morelen & Thomassin, 2013; Nelson et al., 2012; Smith & Walden, 2001).

Additionally, anger was the emotion that the African American sample from Study 1 indicated at the item level that others would be most likely to recognize that they were expressing. This concern about anger was reflected in Study 2 as well where African American participants discussed how they would attempt to hide or control their anger across social contexts because of memories of negative consequences associated

with anger. These anger findings could be related to internalized perceptions of the "angry black man/woman" stereotype that exists within American society such that African Americans are able to recognize their anger and perceive that others may be more sensitive to their anger because of those stereotyped expectations for the types of emotions that African Americans are more "likely" to show (Brown-Givens & Monohan, 2005; Durik et al., 2006; Motro et al., 2022; Walley-Jean, 2009; West, 1995; Wingfield, 2007). Thus, variation in maternal parenting and emotion socialization practices along with differences in concerns about anger could further explain responses to TRE approach and avoidance items.

For the second dimension, control to dyscontrol, African American and European American participants had similar constructs in Study 1 that defined control (e.g., self-control and engaging in other inhibitory behaviors) and dyscontrol (e.g., urgency and engaging in fun-seeking behaviors). Differences were found at the item level where dyscontrol for African Americans was defined by positive urgency and dyscontrol for European Americans was defined by negative urgency; however, this urgency relationship was not replicated in Study 2 for African American participants but was replicated for European American participants. African American participants in general endorsed more control tendencies and even engaged in humbling practices to reduce the level of positive affect they express. European American participants in both studies were more likely to engage in impulsive behaviors, particularly when experiencing anger and sadness.

European American participants may feel more comfortable with engaging in impulsive behaviors while experiencing strong negative emotions because of difficulties

with emotion regulation, specifically with being able to engage in effective emotion suppression strategies compared to other ethnominority groups (Gross & John, 2003; Weiss et al., 2022). Additionally, lack of parental expression of positive emotions during childhood can increase European American participants' likelihood of emotion dysregulation issues compared to other ethnominority groups (Morelen et al., 2012). In contrast, African American participants may be less likely to engage in impulsive behaviors when experiencing negative emotions because of safety concerns for themselves. Engaging in impulsive behaviors because of negative emotions as an African American living in America could be a source of great danger and even possible death, so many African Americans are taught from a young age how to effectively manage their emotions and their image to be perceived as "good," "professional," and "non-threatening" as possible by their European American counterparts and within social settings (Dow, 2016; Durr & Wingfield, 2011).

African American participants in Study 2 did not endorse positive urgency tendencies, which may be because of consistent experiences of discrimination and violence within America that can reduce the likelihood of expressing positive emotions. Thus, when they do feel positive emotions and are encouraged to engage in and demonstrate "Black joy" as a source of resilience, self-care, and community, these displays and behaviors may still be judged by others as problematic and cause issues for African Americans; thus, leading to humbling oneself and concerns about "doing too much" when experiencing and expressing positive emotions (Branscombe, Schmitt, & Harvey, 1999; Brooks, 2020; Ekpe, Sherman, & Ofoegbu, 2023; Joseph et al., 2021).

Finally, for the third dimension, engagement to disengagement, African American and European American participants were similar in their engagement (e.g., impulsive and negative emotion expressivity) and disengagement (e.g., concealing and adjusting emotional expressions) tendencies at the extremes but less so when investigating closer toward the "middle" of the dimension. These similarities from Study 1 were also observed in Study 2 where both African American and European American participants endorsed the importance of expressing their emotions but also were all able to indicate successful strategies that they utilize to hide their emotions depending on social context. As mentioned previously, the overarching role of American cultural rules for emotion expression tendencies may supersede subculture emotion display rules such that no matter one's racial identity, one is more likely to follow what the dominant culture considers appropriate and inappropriate to display (Matsumoto & Hwang, 2012; Matsumoto & Hwang, 2019; Matsumoto, 2013; Safdar et al., 2009). Additionally, these similarities at the extremes of engagement and disengagement may also hearken back to how African Americans have had to adapt how and which emotions they display within majority culture to be favorably perceived to survive within America (Dow, 2016; Durr & Wingfield, 2011; Galletta Horner & Akiva, 2020).

These studies are the first to investigate and compare the dimensional structure of TREs between African Americans and European Americans and to engage in cognitive interviewing techniques to better understand differences in the dimensional structure of TREs between these groups. Studies 1 and 2 have led to better informing TRE theory and taking the first preliminary steps toward a cross-cultural measure of latent TRE dimensions. This study, however, is not without its limitations. For Study 1, despite being

a national sample, the sample was drawn entirely from an online population, and a community sample could better reflect regional distinctions that could impact how TRE structure and its nuances could present itself within African American and European American samples. For Study 2, although participants were recruited from the local community, their experiences and opinions, while valued, may not be representative of how African American and European American participants would respond at a national level and in other regions of the United States. In both studies, these data were also cross-sectional, and longitudinal designs could better reveal which mechanistic factors in either childhood or adulthood, such as timing of discrimination experiences, can impact TRE development over time.

Additionally, both studies limited racial group representation to one group which means findings are not generalizable to other minoritized groups. Future research should continue to validate TRE dimensional structure in other racial, ethnic, gender-diverse, minoritized, and historically underrepresented groups to strengthen TRE theory and best determine for whom and how TRE theory is supported or not in these groups. For Study 2, the items that were selected for cognitive interviewing focus groups were not all the most discrepant TRE items between African American and European American participants, which may have contributed to some of the overlap observed in participant responses between groups and may not have best distinguished nuances that may exist between African American and European American TRE tendencies. Future research should consider utilizing the most discrepant items to better ensure that all nuances that may exist are identified between these groups. Finally, both studies involved only self-report measures, although Study 2 did allow for both participants and researchers to

better understand why participants respond to TRE items accordingly. However, objective measures (e.g., observation) and informant data could provide an alternative perspective on trait response to emotion theory.

These studies' findings have important implications for future research in personality, clinical, and developmental psychology. Continuing to investigate how the relationship among dimensions can differ between racial groups can help to further elucidate TRE theory and also explain how certain TREs may develop from other ways of coping. Even more importantly, investigating TRE dimensional structure in different racial groups will help to continue establishing the importance of validating personality theories and measures with different groups. Although the overall structure was the same, there were important nuances within each dimension at the scale and item level that varied between racial groups, and cognitive interviewing helped to highlight similarities in item understanding and how life experiences and social context can influence item responses. Identifying nuances and item understanding can help to better inform why there are observed differences or similarities between groups and create stronger personality theories and measures that can better capture how personality traits present themselves between and within all groups instead of extrapolating from one majority group to everyone else. Additionally, identifying those nuances can also help in better targeting TREs in therapy as a transdiagnostic mechanism to treat psychopathological disorders that can develop from early life experiences, such as generalized anxiety disorder, major depressive disorder, and post-traumatic stress disorder.

Future directions for this work include recruiting cognitive interviewing focus groups from other areas of the United States or using an online format to recruit groups

from across the United States to continue to better understand nuances in latent TRE dimensional structure between African American and European American participants. Expanding to different parts of the United States using a cognitive interviewing format will allow for focus group findings to be more generalizable and thus, more likely to be a better representation of African American and European Americans' latent TRE dimensional structures. The information gleaned from these focus groups can then be utilized to ensure that items included in the final cross cultural TRE dimensional measure are truly representative of multiple perspectives and not just perspectives from limited regions of the United States. Other future directions would also include investigating whether TRE latent dimensional structure exists within other minoritized groups, such as ethnic, racial, sexual, gender, and other historically underrepresented groups, and if so, how it may exist similarly or differently within and between these groups compared to majority demographic groups. Continuing to study underrepresented groups will not only strengthen TRE theory and the item pool for inclusion in the future cross cultural TRE dimensional measure but it will also set a precedent for investigating minoritized groups in both quantitative and qualitative ways to create generalizable and cross cultural personality measures.

Trait response to emotion latent dimensional structure exists within an African American population; however, through research in this set of studies, important nuances were discovered that differentiate aspects of African American TRE structure from European Americans' structure. These important nuances should be considered when continuing to study and expand on TRE theory and creating TRE-based measures. The continued and future incorporation of minoritized groups will be important for informing

TRE and personality theory and measurement development. We know that life experiences matter, and nothing impacts one's life more, especially in America, than the demographic groups one belongs to. Acknowledging one's minoritized status and the influence it has on the world and one's life is important for continuing to advance TRE and personality theory and measurement development into a more equitable and diverse space where everyone's experiences and perspectives are heard, valued, and included; thus, creating a psychology discipline that is truly representative of everyone and not just the privileged few.

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Professional Publications

Tipsword, J. M., Southward, M. W., **Adams, A. M.,** Brake, C. A., & Badour, C. L. (2023). Daily associations between trauma-related mental contamination and use of specific coping strategies: Results of a daily monitoring study. *Journal of Interpersonal Violence, 38*(7-8), 5699-5720.

Chentsova-Dutton, Y., Leontyeva, A., Halberstadt, A. G., & **Adams, A. M.** (2021). And they all lived unhappily ever after: Positive and negative emotions in American and Russian picture books. *Emotion, 21*(8), 1585-1598.

Clasey, J. L., **Adams, A. M**., Geiger, P. J., Segerstrom, S. C., & Crofford, L. J. (2020). Estimation of cardiorespiratory fitness without exercise testing: Cross-validation in midlife and older women. *Women's Health Reports, 1*, 584-591.

National Conferences

Adams, A. M., Meyr, K., & Segerstrom, S. C. (2024, March). *How well did you cope with COVID?: Early life adversity influences coping strategies during the COVID-19 pandemic* [Poster session]. American Psychosomatic Society conference, Brighton, United Kingdom.

Adams, A. M. & Segerstrom, S. C. (2024, February). *Validation of the trait response to emotion multidimensional structure* [Poster session]. Society for Personality and Social Psychology, San Diego, CA.

Adams, A. M. & Segerstrom, S. C. (2023, July). *A piece of the adversity puzzle: A systematic review of trait responses to emotion and early life adversity* [Poster session]. Association for Research in Personality conference, Evanston, IL.

Adams, A. M., & Segerstrom, S. C. (2023, March). *Is COVID-19 "over?": A multilevel model of COVID-19 protective behaviors and conscientiousness in older adults*

[Poster session]. American Psychosomatic Society conference, San Juan, Puerto Rico.
***Poster received a Citation Poster award, indicating that it was one of the top 50 posters at the conference.**

Adams, A. M., Meyr, K., & Segerstrom, S. C. (2023, February). *Early life experiences and coping with the COVID-19 pandemic* [Data-blitz talk]. Society for Personality and Social Psychology, Atlanta, GA.

Tipsword, J. M., Southward, M. W., **Adams, A. M**., Brake, C. A., & Badour, C. L. (2022, November). *Daily associations between trauma-related mental contamination and use of specific coping strategies among women with a history of sexual trauma* [Poster session]. 38th annual meeting of the International Society for Traumatic Stress Studies, Atlanta, GA.

Adams, A. M., & Segerstrom, S. C. (2022, March). *COVID-19 protective behaviors and conscientiousness in older adults* [Poster session]. American Psychosomatic Society, Long Beach, CA.

Adams, A., Smith, G. T., Widiger, T. A., & Segerstrom, S. C. (2021, February). *Multidimensional structure and demographic correlates of trait responses to emotion* [Poster session]. Society for Personality and Social Psychology virtual conference.

Adams, A., Smith, G. T., Widiger, T. A., & Segerstrom, S. C. (2020, December). *Demographic correlates of trait responses to emotion* [Poster session]. American Psychosomatic Society virtual conference.

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