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The measurement and benefit of decentering for coping self-efficacy, flexibility, and ways of coping with interpersonal stress

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ABSTRACT

Decentering comprises meta-awareness, disidentification from internal experience, and reduced reactivity to thought. In two studies, we considered if commonly used decentering measures align with this 3-process model and examined whether decentering was associated with better stress and coping responses. Study 1 included 442 university students (60% female, $M_{age} = 21.7$ years) who completed three previously used decentering measures (28 items). Study 2 included 442 university students (54% female, $M_{age} = 21.4$ years) who completed measures of decentering, coping self-efficacy and flexibility, interpersonal stress, and coping responses to interpersonal stress. In Study 1, items that aligned with the 3-processes model loaded on two factors, labeled *observer perspective* (tapping two decentering elements of meta-awareness and disidentification from internal experience) and *regulated reactivity to thought content*. A third factor, represented by items not aligned with decentering, was labeled *transcendent life reflection*. In Study 2, the factor structure was confirmed, and decentering subscales were associated with greater coping efficacy and flexibility, less use of disengagement/involuntary coping, and less perceived interpersonal stress. Observer perspective and transcendent life reflection were associated with more engagement coping. The findings support decentering as a multidimensional construct that is associated with greater efficacy and more flexible and adaptive stress responding.

1. Introduction

Stressful events can be a motivator for perseverance and task completion but often seem to interfere with sustained effort, performance, and health (Averill et al., 2018). Stressful events are associated with a broad array of ailments, such as physical symptoms (e.g., headaches, fatigue, sleep problems), mood disturbances (e.g., anxiety, irritability, depression) and behavior changes (e.g., over or undereating, drug and alcohol misuse, social withdrawal; see Cooper & Quick, 2017 for a review). Also concerning, in 2018, 35% of citizens drawn from 142 countries worldwide (approximately 1000 adults aged 15+ per country) reported experiencing distress (i.e., worry, stress, physical pain, sadness, anger) the day before being polled (Gallup, 2018). Such a high prevalence of distress suggests that it is more important than ever to conduct research to identify individual traits or styles of thinking and behaving, especially those amenable to intervention and change, that can facilitate the human capacity to adapt successfully to stressful events (Masten, 2014; Southwick et al., 2014). After drawing together several measures aligned with the metacognitive processes model of decentering proposed by Bernstein et al. (2015) and exploring and confirming the factor structure, the aim of the present study was to test whether decentering has benefits for stress responding, as indicated by positive associations with coping efficacy and flexibility, as well as ways of coping with interpersonal stressors.

1.1. Decentering: the 3-process model and measurement

1.1.1. Definition of decentering and the 3-process model

Decentering has been described as disengaging from sensory, cognitive, or emotional experiences to achieve a reflective distance; in other words, as the ability to take an observer perspective on personal thoughts and emotions (Travers-Hill et al., 2017). To date, there have been diverse views on how to define and measure decentering, including work on cognitive defusion, metacognitive awareness, and mindfulness (for a review see Bernstein et al., 2015). Although these concepts had been identified as likely to be interrelated with each other, as far as we are aware, these views were not summarized and organized until the emergence of the metacognitive processes model (Bernstein et al.,

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2015). In this model, decentering was conceptualized as three interrelated processes: (1) meta-awareness, (2) disidentification from internal experience, and (3) reduced reactivity to thought content. Meta-awareness is defined as the explicit awareness of the content and process of personal consciousness (Schooler, 2002). Disidentification from internal experience is defined as the experience of internal states being separate from oneself (Kross, Ayduk, & Mischel, 2005). Reduced reactivity to thought content is defined as little emotional reactivity of other mental processes from thought content (Bernstein et al., 2015). This 3-process decentering model identifies critical skills for shifting from a subjective perspective to a more objective perspective on the self and the interactions of the self with the social world. Such a shift in perspective is expected to facilitate tolerance of aversive inner experience either in general or in response to stressful events.

1.1.2. Measurement of decentering

Researchers have employed a variety of self-report measures to assess decentering (Fresco et al., 2007; Naragon-Gainey et al., 2020; Naragon-Gainey & DeMarree, 2017) Most often, measures used do not fully capture the three decentering processes described by Bernstein et al. (2015). For example, some have measured decentering with the Experiences Questionnaire decentering subscale (EQ; Fresco et al., 2007), which assesses a unidimensional construct of disidentification from content of negative thinking. Notably, in some descriptions, decentering shares some commonality with the conceptualization of dispositional mindfulness (i.e., the ability to focus attention on experiences in the moment without judgment; (Kabat-Zinn, 1990), and, because of this commonality, some researchers have relied on the non-reactivity subscale of the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008) to assess decentering (Garland et al., 2017).

Fortunately, contemporaneous to this study, one study made some progress on how to measure decentering. Hanley et al. (2020, Study 1, $N = 355$) analyzed 140 items from eight measures. After 19 factors were extracted in an initial exploratory factor analysis, additional analyses reduced the items to a final set of 15 items loading on three factors labeled meta-awareness (5 items), (dis)identification from emotional experience (5 items), and (non)reactivity to internal experience (5 items). Retained items were from the EQ, the Self-as-Context Scale (SAC; Zettle et al., 2018), the Toronto Mindfulness Scale (decentering subscale; TMS; Lau et al., 2006), and the FFMQ (nonreacting subscale; (Baer et al., 2008) plus three new items that had been developed for this study. Although useful for locating a set of items that could be used to measure decentering, it is possible that the culling of a high number of items may have led to factors that tap narrow features of each element of decentering whilst reducing naturally occurring covariation between factors. Thus, in the present study, decentering was again assessed with multiple measures including the Experiences Questionnaire (EQ; Fresco et al., 2007), Self-as-Context Scale (SAC; Zettle et al., 2018), and the Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014). Analyses were conducted to explore (Study 1) and confirm (Study 2) the hypothesized factor structure in line with the metacognitive processes model of decentering (Bernstein et al., 2015; Bernstein et al., 2019).

1.2. Decentering, stress, and coping responses

Bernstein et al. (2015) describe decentering as a trait or skill that allows for greater tolerance and more positive thoughts and behavioral responses to aversive experience. Hence, decentering should yield more constructive and adaptive stress and coping responses. To identify more precisely the specific responses that decentering might yield, the transactional theory of stress and coping (Lazarus & Folkman, 1984, 1987) was drawn upon. Lazarus and Folkman (1984) described how individuals appraise the significance of stressful events in relation to their goals and the context. In general, appraisals supply a holistic running verdict about the meaning of incoming experiences as (current or impending) threats and challenges relevant to the self's goals and preferences. Appraisals are part of a process that sets in motion coping responses, reappraisals, and learning. Appraisals and subsequent coping responses are known to show individual differences and these differences are also described as influenced by meta-cognitive capacities (Skinner & Zimmer-Gembeck, 2016; Taylor & Stanton, 2007). Like descriptions of decentering, metacognitive capacities allow individuals to reflect on, critique, evaluate, and refine their own judgments (Nelson et al., 1999; Rhodes, 2019), and this can be applied to stressful events and coping responses. Such notions have led to arguments that decentering, as a set of meta-cognitive capacities, should be linked to perceiving less stress when challenging or threatening life events or daily hassles occur, and more constructive or adaptive coping in response to stressors (Kross et al., 2014).

1.2.1. Associations of decentering with stress and coping

Decentering, either naturally occurring or induced, may yield more constructive stress appraisal processes and more positive responses to stressful events. For example, decentering has been associated with more positive thinking, positive appraisals or reappraisals of stress, and adaptive reflection on stressful events (Helgeson et al., 2006). Also, in one longitudinal study of 107 adults from the USA with a principal diagnosis of social anxiety disorder, decentering was associated with more meta-awareness and this in turn predicted more positive cognitive construal of stress and more positive affect (Garland et al., 2011, 2017). Yet, the preponderance of the evidence for the positive role of decentering for managing stress has come from clinical intervention studies examining decentering as a mediator explaining when interventions are effective for mitigating emotional disorders (Bieling et al., 2012; Garland et al., 2017; Hoge et al., 2015; Josefsson, Lindwall, & Broberg, 2014; O'Toole et al., 2019; Teasdale et al., 2002). Of most interest to this study, evidence has shown pathways from decentering to well-being via attentional broadening and more positive stress reappraisal processes (Garland et al., 2017; Garland & Fredrickson, 2019).

There has also been experimental research on decentering that suggests its positive role in stress responding. In this research, a manipulation to prompt decentering (i.e., take a step back and watch the experience happening to your distant self) resulted in more constructive appraisals of stress (Kross et al., 2014) and less emotional reactivity (Ayduk & Kross, 2010; Kross & Ayduk, 2009; Lebois et al., 2015; Moser et al., 2017) when compared to a condition where participants immersed themselves in the experience (i.e., replayed events through their own eyes). Also, in another psychological experiment, Travers-Hill et al. (2017) found decentering and broad perspective-taking (c.f., a control group) reduced distress and residual depression symptoms in a clinical sample of major depressive disorder patients who were in remission. Additionally, research has shown decentering plays a role in both adaptive (fully mediates) and maladaptive (partially mediates) rumination and avoidance responses to depressed mood, demonstrating an adaptive use of decentering for problem-solving and distraction to shift mood (Ishikawa et al., 2018). Interestingly, in a separate study, a longitudinal cross-lagged analysis found a positive effect of cognitive reappraisal on decentering but not the reverse (Kobayashi et al., 2020).

When taken together, a handful of cross-sectional, longitudinal, intervention and experimental research studies support the potential benefits (or at least interrelationships) of decentering with stress, coping, and well-being. However, it remains unknown if there are associations of decentering with other general traits or skills that have been associated with optimal responses to stress, including coping self-efficacy (Chesney et al., 2006; Delahaij & Van Dam, 2017; Luberto et al., 2014) and coping flexibility (Cheng et al., 2014; Kato, 2012; Zimmer-Gembeck et al., 2018). Moreover, it has been rare to examine associations of decentering with coping specific to a stressor domain and, of interest here, interpersonal stress.

1.2.2. Decentering, coping efficacy, and coping flexibility

In the present study, decentering was expected to be associated with

other coping-related skills, specifically more coping self-efficacy and coping flexibility. Firstly, coping self-efficacy has been defined as confidence in one's own ability to effectively cope with difficult or threatening events (Chesney et al., 2006) which according to self-efficacy theory (Bandura, 1977) is important because the belief in one's ability to execute a behavior successfully influences an individual's engagement and level of effort exerted in that behavior. Whilst no search found literature examining the relationship between coping self-efficacy and decentering, Luberto et al. (2014) found the mindfulness traits of describing, acting with awareness, and accepting without judgment were associated with greater coping self-efficacy. Given meta-awareness has been identified as an aspect of decentering, it was expected that decentering would be associated with greater coping self-efficacy.

Secondly, coping flexibility involves having access to a range of coping responses appropriate to the requirements of stressful events and has been defined as the ability to discontinue an ineffective coping strategy (i.e., evaluation coping) and produce and implement an alternative coping strategy (i.e., adaptive coping; Kato, 2012). Again, no known research has examined the association of decentering with coping flexibility. Research has however found mindfulness (non-reactivity to inner experience, observing, meta-awareness, describing, and non-judgment) to be associated with a higher level of coping flexibility (Jones et al., 2019). As such, given acknowledged similarities between some aspects of mindfulness (i.e., meta-awareness and non-reactivity to inner experience) and decentering (Garland et al., 2017), it was expected that decentering would be associated with more coping flexibility.

1.2.3. Decentering and interpersonal stress and coping

Decentering was also expected to be associated with interpersonal stress and coping responses. Interpersonal stress is common and can be quite distressing, involving a range of problems from conflict to rejection and loss (Johnson et al., 2018). Research on decentering has just begun to be applied to responses to interpersonal stress (Ayduk & Kross, 2010; Laurent et al., 2016), and is showing promise as an individual skill that can be taught and practiced, with potential positive benefits for interpersonal relationships when dealing with interpersonal stress. Additionally, the type of coping responses used when dealing with stress may also be important for distress reduction. Two of the most widely recognised coping responses for dealing with interpersonal stress are 'approach' or '*engagement*' and 'avoidance' or '*disengagement and involuntary*' coping (Roth & Cohen, 1986). Engagement coping involves cognitive and emotional activity orientated towards the stressor or conflict (e.g., positive reappraisal, problem solving, emotional regulation, and acceptance) whilst disengagement and involuntary coping is orientated away from the stressor (e.g., emotional numbing, denial, escapism, and inaction; Connor-Smith et al., 2000). Whilst research has found successful management of interpersonal stress involved more engagement and less disengagement and involuntary coping (Coleman et al., 2014; Kuster et al., 2017), no studies have explored whether decentering is associated with these coping styles in relation to interpersonal stress. A search of literature did however find a study examining mindfulness and coping styles in academic stress. Donald and Atkins (2016) found during perceived high levels of academic stress, processes of decentering, namely meta-awareness and cognitive defusion, were found to be associated with less disengagement coping and more engagement coping respectively, compared to controls. As such, we expect in our study that a greater capacity for decentering will be associated with greater engagement and less disengagement and involuntary coping.

1.3. The current study

Theory identifies decentering as a trait or capacity associated with more positive responding to stressful events, which includes more effective and productive ways of coping with stress, and more positive wellbeing; some research supports these propositions (Garland et al., 2009; Hayes-Skelton & Graham, 2013; Hayes-Skelton & Lee, 2018; O'Toole et al., 2019). Whilst past research findings are promising, it is not known whether decentering is associated with coping self-efficacy, coping flexibility, and engagement or disengagement/involuntary coping responses to interpersonal stress. Moreover, only one other study has addressed the measurement of decentering based on the meta-cognitive processes model (Bernstein et al., 2015) using survey techniques (see Hanley et al., 2020). Thus, the primary study aim was to test, as proposed in theory (Bernstein et al., 2015; Bernstein et al., 2019; Hanley et al., 2020), whether individuals higher in the trait of decentering also report more coping efficacy and flexibility, and more adaptive stress and coping responses. It was hypothesized that decentering would be associated with (1) more coping self-efficacy and coping flexibility, (2) less interpersonal stress, and (3) more constructive coping responses to interpersonal stress (i.e., more engagement coping, and less disengagement and involuntary coping responses). A preliminary purpose, however, was to test the factor structure of a set of three measures purposefully selected to tap the 3-process model of decentering (meta-awareness, disidentification from internal experiences, and reduced reactivity to thought content).

Two studies were conducted. The first study examined the factor structure of three decentering measures using exploratory factor analysis (EFA) with the purpose of determining whether factors aligned with the 3-process model (Bernstein et al., 2015; Bernstein et al., 2019). The second study examined the unique associations of decentering with coping self-efficacy, coping flexibility, and interpersonal stress and coping responses.

2. Study 1

The purpose of Study 1 was to add to the emerging considerations of how to conceptualize and measure decentering, as a trait that can aid more positive responding to stress and be optimized through interventions and treatments. This was done by exploring the factor structure of items on three measures that represent the 3-process model of decentering (Bernstein et al., 2015; Bernstein et al., 2019) and have been used to assess decentering in past research (e.g., Fresco et al., 2007; Gillanders et al., 2014; Zettle et al., 2018).

2.1. Method

2.1.1. Participants

In total, 884 participants completed a survey for Study 1 and Study 2. One-half of these participants were randomly selected for the exploratory analyses in Study 1 and the other 50% were held for the confirmatory factor analysis and hypothesis testing in Study 2. Thus, participants in Study 1 were 442 university students (60% female, M_{age} = 21.7 years, SD = 5.1). Most were aged 25 and under (86%). The students endorsed white European (68.3%), Asian (20.1%), Australian First Peoples, Pacific Islander or Torres Strait Islander (4.1%) or "other" ethnicity (7.5%). Living arrangements of participants included living with parents (46.2%), living with roommates (32.4%), living with a partner (13.6%), or other (7.2%). Three additional participants attempted the questionnaire but were not included because of excessive missing data.

2.1.2. Measures

Three measures (28 items) assessed decentering as (a) meta-awareness, (b) disidentification from internal experiences, and (c) reduced reactivity to thought content. Meta-awareness and disidentification from internal experiences were measured with the 11-item Experiences Questionnaire (EQ; Fresco et al., 2007; e.g., "I can separate myself from my thoughts and feelings") and the 10-item Self-as-Context Scale (SAC; Zettle et al., 2018). EQ items were rated from 1 (*never*) to 5 (*all the time*), with all items worded to reflect more

decentering. The SAC contains four items described as measuring centering (e.g., "when I am upset, I am able to find a place of calm within myself"), and six items described as measuring transcending ("I am able to access a perspective from which I can notice my thoughts, feelings, and emotions"). Item response options ranged from 1 (*strongly disagree*) to 6 (*strongly agree*), with all items worded to reflect more decentering. Reactivity to thought content was measured with the 7-item Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014; e.g., "my thoughts cause me distress or emotional pain"). CFQ items were rated on a 7-point scale from 1 (*never true for me*) to 7 (*always true for me*), with all items worded to reflect more reactivity (i.e., less decentering). See Results for psychometric details.

2.1.3. Procedure

Griffith University's Human Research Ethics Committee approved the study (GU Ref No: 2019/178). Participants were recruited in person within common areas on the university campus (e.g., coffee shops, library) during the week before the commencement of the first school term (orientation week) and in the first week of term. Participants completed a hard copy of the survey under the supervision of a research assistant and received a small incentive (e.g., chocolate bar) for participation. The survey took approximately 10 min to complete.

3. Study 1 results

Prior to conducting EFA using principal axis factoring (PAF) with oblique rotation, data were examined for missing values, input errors, and unusual scores or ranges. Little's MCAR test was not significant ($p = .717$) indicating that missing data (0.79% of cases) were completely at random. Given the very small amount of missing data, missing values were replaced with mean values for that item.

KMO (.946) and Bartlett's test of sphericity ($p < .001$) verified the factorability of the 28 decentering items. Each item was correlated more than .47 with at least one other item, and no items were correlated over .74 with each other. Thus, all items were retained for the initial factor analysis.

In the initial factor analysis, the number of factors to extract was determined by an eigenvalue over 1. This criterion resulted in the extraction of three factors (eigenvalues = 35.22, 11.69, and 6.73) explaining 54% of the variance in the items (see Table 1). The three factors had sums of squared loadings ranging from .31 to .72. The factors conformed to the three different measures (the EQ, the SAC, and the CFQ), apart from four items from the SAC that loaded on the first factor with items from the EQ.

The first factor was labeled *observer perspective*, and items aligned with *two of the three components* identified in the decentering model, including meta-awareness and disidentification from internal experience. Eleven items from the EQ and four items from the SAC centering subscale loaded highly on this factor (.30 to .71), with minimal loadings on the other two factors (−.00 to −.29) (see Table 1). The second factor aligned with the third element of the decentering model, which was labeled *reactivity to thought content*. Items from the 7-item CFQ loading highly (.73 to .89) on this second factor, with small loadings on the other two factors (.00 to .09). Thus, the first two factors incorporated all three elements identified in the decentering model.

The third factor, which did not align with any component on the 3-process model of decentering, was labeled *transcendent life reflection*. This factor had high loadings for six items from the SAC Transcending subscale (|−.49| to |−.79|), with small loadings on the other two factors (.00 to .27).

Table 1
Study 1 results of exploratory factor analyses of the EQ, SAC, and CFQ items ($N = 442$).

Scale	Item	PAF 28 items			PAF 24 items		
		OP	RRT	TLR	OP	RRT	TLR
EQ2	Observe unpleasant feelings without being drawn into them	.71			.67		
EQ7	Can slow my thinking at times of stress	.67			.65		
EQ5	Can separate myself from my thoughts and feelings	.66			.64		
EQ8	Can actually see that I am not my thoughts	.66			.65		
EQ9	Am consciously aware of a sense of my body as a whole	.65			.67		
EQ3	Don't take difficulties so personally	.63			.61		
EQ10	Can take time to respond to difficulties	.57			.58		
EQ11	View things from a wider perspective	.55			.55		
EQ6	Sense that I am aware of what is going on	.54			.55		
EQ1	Accept myself as I am	.52			.50		
EQ4	Treat myself kindly	.52			.51		
SAC6	Able to notice changing thoughts without getting caught up in them	.47					–
SAC5	Allow emotions to come and go without struggling with them	.43					–
SAC2	Perspective on life allows me to deal with disappointments	.33					–
SAC1	When I am upset, I am able to find a place of calm within myself	.30					–
CFQ4	Struggle with my thoughts		.88			.89	
CFQ6	Tend to get very entangled in my thoughts		.87			.87	
CFQ5	Get upset with myself for having certain thoughts		.85			.84	
CFQ7	Struggle to let go of upsetting thoughts even when it would be helpful		.80			.80	
CFQ2	Get caught up in thoughts that I am unable to do		.77			.76	
CFQ3	Over analyse situations to the point where it's unhelpful to me		.75			.74	
CFQ1	Thoughts cause me distress or emotional pain		.73			.73	
SAC4	Look back on life, have a sense that part of me has been there for all			−.79			−.77
SAC8	Been many changes in my life, aware a part of me has witnessed it all			−.79			−.80
SAC3	Despite changes in my life, part of who I am remains unchanged			−.70			−.68
SAC10	When was younger, recognize part of me was there then is still here			−.68			−.68
SAC7	Sense of self doesn't change even though my thoughts and feelings do			−.64			−.63
SAC9	Access perspective which I notice my thoughts, feelings, and emotions			−.50			−.50
Eigenvalue		9.86	3.27	1.89	8.51	3.19	1.88
% variance explained		35.2	11.7	6.7	35.5	13.3	7.8
Cronbach's α		.90	.93	.86	.88	.93	.86

Note. Factor loadings extracted using Principal Axis Factoring (PAF) with Oblimin rotation. Loadings of .30 and under were suppressed. Kaiser-Meyer-Olkin (KMO) = .941, Bartlett's $p < .001$. EQ = Experiences Questionnaire. SAC = Self-As-Context Questionnaire. CFQ = Cognitive Fusion Questionnaire. OP = Decentering: objective perspective – includes items that tap meta-awareness and disidentification from internal experience. RRT = Decentering: regulated reactivity to thought content. TLR = Transcendent life reflection.

Given that 24 of the 28 item loadings were .50 or above, a second PAF was conducted after removing the four items on the observer perspective factor with loadings below .50 (all originally from the SAC). In this analysis, the total variance in items accounted for by three factors was 57% and factor loadings remained similar to those reported above (see Table 1). Cronbach's α for the 11 items that loaded highly on observer perspective was .88, whereas Cronbach's α for the 7 items that loaded highly on reactivity to thoughts was .93, and Cronbach's α for the 6 items that loaded highly on transcendent life reflection was .86.

Composite scores were formed by averaging the items that loaded highly on each of the three factors. To be consistent with the definition of decentering, items on the reactivity to thought content were reversed and the composite score was labeled *regulated reactivity to thought content*. The three subscale scores were positively interrelated. Observer perspective was significantly positively associated with regulated reactivity to thought content ($r = .50$, $p < .001$) and transcendent life reflection ($r = .49$, $p < .001$). Regulated reactivity to thought content and transcendent life reflection were also positively associated ($r = .25$, $p < .001$).

4. Study 2

The purpose of Study 2 was to confirm the three factors of observer perspective, regulated reactivity to thought content, and transcendent life reflection found in Study 1, and to test hypothesized associations of decentering (observer perspective and regulated reactivity to thought content) with coping self-efficacy and flexibility, and stress and coping responses. The third factor, transcendent life reflection was also examined to test its association with decentering, as well as with other measures.

4.1. Study method

4.1.1. Participants

Participants were 442 university students (54% female, $M_{age} = 21.4$ years, $SD = 4.7$). Participants endorsed white Caucasian (65.2%), Asian (24.2%), Australian First Peoples, Pacific Islander or Torres Strait Islander (2.7%), or "other" ethnicity (7.9%). Education level of participants included year 12 (54.8%), high school diploma (15.8%), some undergraduate university study (21.5%), and some postgraduate university study (6.3%). Living arrangements of participants included living with parents (47.7%), living with roommates (33.9%), living with partner (10.9%), or other (7.2%). Two participants were removed due to excessive missing data.

4.1.2. Measures

4.1.2.1. Decentering. The same three measures in Study 1 were completed in Study 2 to measure decentering. See Results for psychometric details.

4.1.2.2. Coping efficacy. Coping efficacy was measured using the 13-item Coping Self-Efficacy Scale (CSE; Chesney et al., 2006). The CSE includes items relevant to (1) problem-focused coping (six items: e.g., break an upsetting problem down into smaller parts), (2) stopping unpleasant emotions and thoughts (four items: e.g., make unpleasant thoughts go away), and (3) getting support from friends and family (three items: e.g., get friends to help you with the things you need). Items are rated on an 11-point scale from 0 (*cannot do at all*), 5 (*moderately certain can do*) and 10 (*certain can do*). An overall composite CSE score was created by averaging all items so higher scores indicated more coping self-efficacy, Cronbach's α = .88.

4.1.2.3. Coping flexibility. Coping flexibility was measured with six items from the Self-Perceived Flexible Coping with Stress Scale (Zimmer-Gembeck et al., 2018), which assessed multiple coping strategy use (MCSU; e.g., "I can come up with lots of ways to make myself feel better if I am stressed"). Item responses ranged from 1 (*not at all true*) to 7 (*totally true*). A total score was created by averaging the items so higher scores represented more coping flexibility, Cronbach's α = .90.

4.1.2.4. Interpersonal stress. Stress in interpersonal relationships (e.g., rejection, teasing, conflict) was measured using items The Responses to Stress Questionnaire – Social Stress Version (RSQ; Connor-Smith et al., 2000). Participants were asked to rate how stressful 12 social relationships and interactions had been in the past six months (e.g., fighting with other people) on a 4-point scale from 1 (*not at all or a little*) to 4 (*extremely*). Items were averaged so higher scores indicated more interpersonal stress. The original stress items were slightly changed to refer to people rather than kids. The coping items did not require any changes.

4.1.2.5. Coping with interpersonal stress. Measured coping responses included engagement coping, and a composite of disengagement and involuntary coping. Engagement coping included problem solving, emotion regulation, acceptance, and cognitive restructuring, which are often associated with better mental health (Connor-Smith et al., 2000; Freire et al., 2020). Disengagement coping and involuntary coping are made up of a range of less adaptive coping responses, including distraction, denial, and wishful thinking (Freire et al., 2020; Kuster et al., 2017). After a written prompt to ask participants to think about interpersonal stressors they had recently experienced (e.g., "Now, please think of all the stressful parts of problems with other people that you indicated above, answer the following about how you generally respond…"), these coping responses were measured with the 57-item Responses to Stress Questionnaire – Social Stress Version (RSQ; Connor-Smith et al., 2000). Items tapped (1) engagement coping (18 items; e.g., I try to think of different ways to change or fix things, I tell myself that I can get through this, or that I will be okay or do better next time), (2) disengagement coping (12 items; e.g., I try not to feel anything, I wish that I were stronger and less sensitive so that things would be different), and (3) involuntary responses (27 items; e.g., I can't stop thinking about how I am feeling, I don't feel anything at all, it's like I have no feelings). Items were rated from 1 (*not at all or a little*) to 4 (*extremely*). As a measure of constructive coping, responses to engagement items were averaged to form a total score with higher scores indicating more engagement coping, Cronbach's α = .82. As a measure of maladaptive coping and responses, responses to disengagement coping and involuntary items were averaged with higher scores indicating more disengagement coping / involuntary responses, Cronbach's α = .93.

4.1.3. Procedure

The same procedure used in Study 2 was used in Study 1.

4.1.4. Overview of analyses

The 24 items from the final PAF in Study 1 were subjected to confirmatory factor analysis (CFA) using AMOS v26.0 to confirm the three-factor structure. Several indices were used to determine the overall fit of the model including the χ^2-test and the ratio of the χ^2 to the degrees of freedom, the Comparative Fit Index (CFI; Bentler, 1990), and the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1992). Good fit for these indices were a ratio of 2 for the χ^2 ratio test, a value of .95 or above for the CFI, and a value <.06 for RMSEA (Schreiber et al., 2006). Correlations and multiple linear regressions were estimated using SPSS Version 25.0 to test the zero-order and unique associations of observer perspective, regulated reactivity to thought content, and transcendent life reflection with measures of stress and coping.

5. Study 2 results

5.1. Confirmatory factor analysis

The 3-factor structure of the 24 items maintained in the final PAF in Study 1 was confirmed using AMOS software with maximum likelihood estimation. Standardized factor loadings are shown in Fig. 1. After freeing four covariances between item errors for items on the same factor that had similar meaning, model fit to the data was good, χ^2 (245) = 518.81, $p < .001$ (χ^2/df = 2.1), CFI = .95, and RMSEA = .050 (90% CI 0.044–0.056), $p = .454$.

5.2. Associations of decentering and transcendent life reflection with stress and coping

5.2.1. Correlations

As expected, there were significant positive correlations of decentering, both observer perspective and regulated reactivity to thought content, with coping self-efficacy and coping flexibility (see Table 2). Age was not associated with decentering, but females reported more decentering than males. There were also positive correlations of transcendent life reflection with coping self-efficacy and coping flexibility, but age and gender were not associated with transcendent life reflection.

As expected, there were significant and negative correlations of decentering, both observer perspective and regulated reactivity to thought content, with interpersonal stress and disengagement and involuntary coping with interpersonal stress (see Table 2). Furthermore, there was a significant positive association of observer perspective with engagement coping. For transcendent life reflection, it was negatively associated with interpersonal stress and disengagement coping and involuntary responses to interpersonal stress, and positively associated with engagement coping.

5.2.2. Regressions

When measures of coping efficacy, coping flexibility, and interpersonal stress and coping were each regressed on the two decentering subscales and transcendent life reflection, the independent variables accounted for between 10% and 48% of the variance in the dependent variables (i.e., $R^2 = .10$ to .48; see Table 3). Observer perspective was uniquely associated with all stress and coping measures in the hypothesized directions, with particularly strong unique positive associations

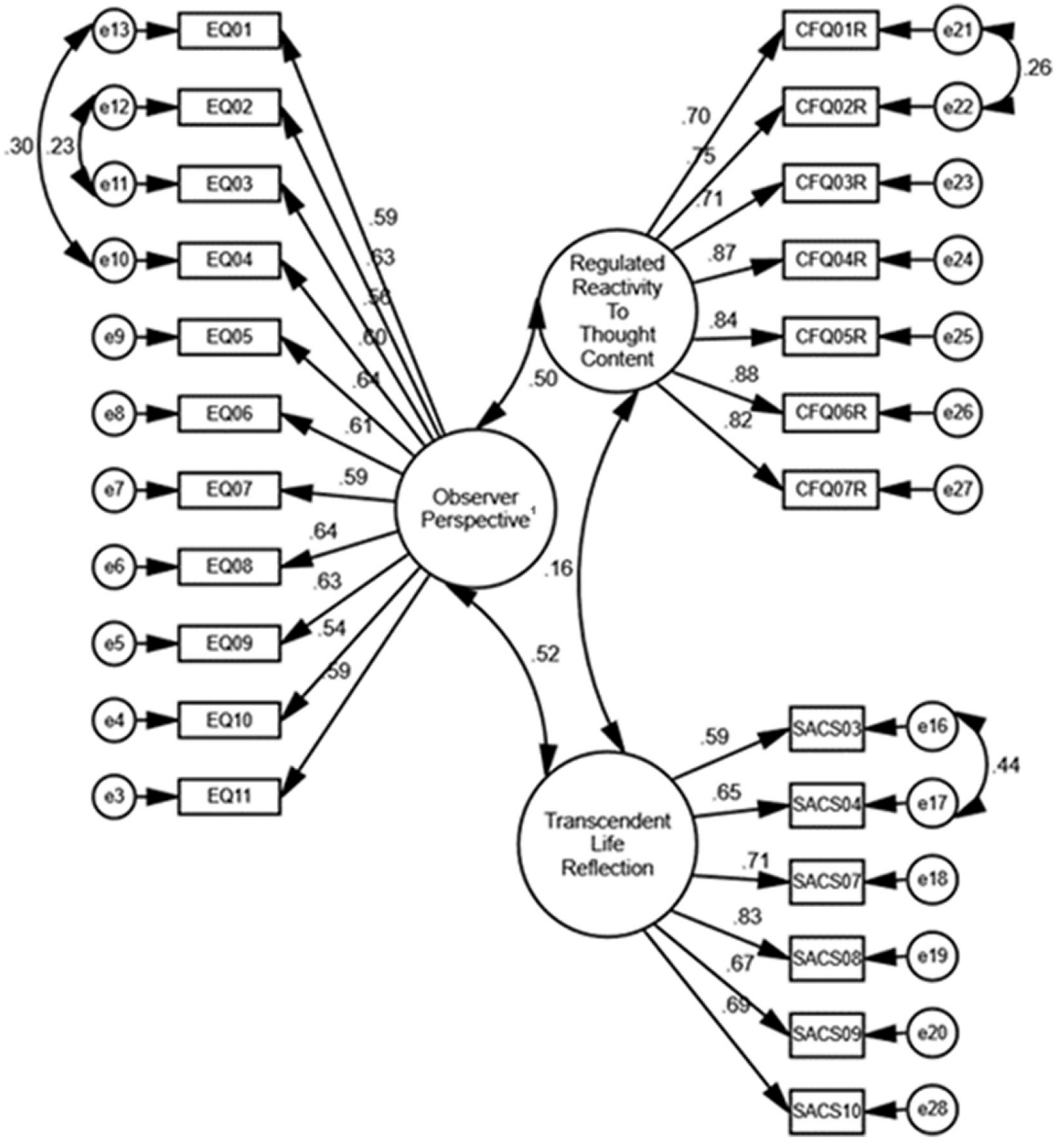

Fig. 1. Results of the confirmatory factor analysis of decentering and transcendent life reflection ($N = 442$). [1]Includes items that tap meta-awareness and disidentification from internal experience.

Table 2
Study 2 correlations of the two decentering subscale scores and transcendent life reflection with all measures (N = 442).

	Decentering: observer perspective[a], *r*	Decentering: regulated reactivity to thought content, *r*	Transcendent life reflection, *r*
Coping flexibility	.55***	.33***	.24***
Coping self-efficacy	.64***	.40***	.34***
Interpersonal stress (IS)	−.30***	−.42***	−.15**
Engagement coping with IS	.20***	.03	.30***
Disengagement/ involuntary coping with IS	−.40***	−.68***	−.20***
Age	.08	.04	.01
Gender (1 = male, 2 = female)	−.22***	−.11*	−.01

* $p < .05$.
** $p < .01$.
*** $p < .001$.
[a] Includes items that tap meta-awareness and disidentification from internal experience.

with coping self-efficacy ($\beta = .54$, $p < .001$) and coping flexibility ($\beta = .50$, $p < .001$), but also a positive association with engagement coping ($\beta = .11$, $p = .049$) and a negative association with interpersonal stress ($\beta = .11$, $p = .049$) and disengagement coping and involuntary responses ($\beta = .09$, $p = .048$). Regulated reactivity to thought content was associated with all stress and coping measures, except engagement coping. All associations were in the hypothesized directions with particularly strong negative associations of regulated reactivity to thought content with interpersonal stress ($\beta = -.37$, $p < .001$) and disengagement and involuntary coping ($\beta = .63$, $p < .001$), but also positive associations with coping self-efficacy ($\beta = .15$, $p < .001$) and coping flexibility ($\beta = .10$, $p = .033$). Finally, transcendent life reflection had a unique positive association with engagement coping ($\beta = .26$, $p < .001$).

6. Discussion

Following exploring and confirming if three measures (i.e., EQ, SAC, and CFQ) used in past research to assess decentering aligned with the three components of the metacognitive processes model of decentering (i.e., meta-awareness, disidentification from internal experiences, and reduced reactivity to thought content; Bernstein et al., 2015; Bernstein et al., 2019), the primary aim of the present study was to test whether decentering is associated with personal coping capacity and stress coping responses. Specifically, decentering was expected to be associated with more coping efficacy and coping flexibility, less interpersonal stress, and more use of constructive (and less use of what are usually considered problem) coping responses to interpersonal stress. Coping with interpersonal stress was considered because experimental research has reported benefits of decentering for constructive responses to interpersonal stress (Ayduk & Kross, 2010; Laurent et al., 2016).

6.1. Measurement of decentering

When the factor structure of existing measures used to assess decentering were factor analyzed in the first study, three factors were found. Two of these factors aligned with the 3-process model of decentering (*observer perspective* tapping decentering elements of meta-awareness and disidentification from internal experience, and *regulated reactivity to thought content*; Bernstein et al., 2015; Bernstein et al., 2019), whilst six items from one measure (SAC) loaded highly on a third factor. This third factor was not aligned with the three components of the decentering model and based on item content and commonality, was labeled transcendent life reflection. These items all tapped self-reflection on the past or reflection on life changes, which differentiated it from the process of disidentification and a nonreactive stance to personal thought content (i.e., observer perspective). Notably, items that tapped meta-awareness were not differentiated from disidentification from internal experienced in our factor analysis. Naragon-Gainey and DeMarree (2017) argue, and we concur, that some level of meta-awareness may be necessary for greater disidentification from internal experience (or vice versa) – with both relevant to the capacity to take an observer perspective. Therefore, meta-awareness and disidentification from internal experience may be interrelated, potentially explaining why we found that items aligned with these two decentering components loaded on a single factor. Furthermore, Bernstein et al. (2019) describe the possible limitations of self-report for measuring meta-awareness (and other decentering processes). It is possible that multiple reporters might be necessary to differentiate meta-awareness from disidentification from internal experience. Additionally, it is possible the 'meta-awareness' factor identified in Hanley et al. (2020) may indeed be measuring the awareness of 'content' in the mind rather than its 'process' as defined in meta-awareness (Bernstein et al., 2015).

The two factors of observer perspective and regulated reactivity to thought content found in the present study are generally consistent with the findings of another study (Hanley et al., 2020) that modified items

Table 3
Results of regressing stress and coping measures on two subscales of decentering and transcendent life reflection ($N = 442$).

Independent variables	Dependent variables							
	Coping self-efficacy				Coping flexibility			
	B	*SE*	β	*p*	*B*	*SE*	β	*p*
Decentering: observer perspective[a]	1.29	0.11	.54	<.001	0.95	0.09	.50	<.001
Decentering: regulated reactivity to thought content	0.16	0.04	.15	<.001	0.08	0.04	.10	.033
Transcendent life reflection	0.13	0.07	.07	.070	−0.00	0.06	−.00	.960
	Interpersonal stress				Engagement coping			
Decentering: observer perspective[a]	−0.11	0.05	−.11	.049	0.08	0.04	.11	.049
Decentering: regulated reactivity to thought content	−0.17	0.02	−.37	<.001	−0.02	0.01	−.06	.259
Transcendent life reflection	−0.04	0.04	−.05	.283	0.14	0.03	.26	<.001
	Disengagement/involuntary coping							
Decentering: observer perspective[a]	−0.07	0.04	−.09	.048				
Decentering: regulated reactivity to thought content	−0.23	0.01	−.63	<.001				
Transcendent life reflection	−0.04	0.02	−.07	.081				

Note. Coping self-efficacy: $F(3, 438) = 151.42$, $R^2 = .43$, $p < .001$. Coping flexibility: $F(3, 438) = 64.46$, $R^2 = .31$, $p < .001$. Interpersonal stress: $F(3, 438) = 35.19$, $R^2 = .19$, $p < .001$. Engagement coping: $F(3, 438) = 16.36$, $R^2 = .10$, $p < .001$. Disengagement/involuntary coping: $F(3, 438) = 133.13$, $R^2 = .48$, $p < .001$.
[a] Includes items that tap meta-awareness and disidentification from internal experience.

drawn from multiple decentering measures (i.e., EQ, FFMQ, SAC, TMS) to also address best practice for measuring decentering. In this previous study, some items overlapped with the items included here, and the correlation between two decentering factors (i.e., [dis]identification with internal experience and [non]reactivity to internal experience) of $r = .57$ ($p < .001$) was similar to what was found in the present study. When comparing item loadings on factors in this study relative to Hanley et al. (2020), item valence differed in some cases, which could explain some differences in factor analysis findings between the present and this previous study. Item valence has been found to impact on factor analysis results, interpretation, and social desirability response bias (Seng Kam & Meyer, 2015). Nonetheless, the present research adds evidence useful for moving forward discussion about decentering conceptualization and measurement.

6.2. Decentering: associations with efficacy, flexibility, and stress and coping responses

6.2.1. Coping efficacy and flexibility

The results showed that participants who endorse a greater capacity for an observer perspective and who regulated reactivity to thought content are higher in coping self-efficacy and flexibility. Thus, individuals who perceive they have a greater capacity for decentering also report feeling more efficacious when they need to cope with stress and perceive they have a wider toolbox of options for coping with a stressor (i.e., report more coping flexibility). Moreover, the capacity to take an observer perspective has the strongest unique positive associations with coping efficacy and flexibility in the multivariate models. The capacity to take an observer perspective has been described as 'seeing the forest for the trees' (Trope & Liberman, 2010). Thus, the findings here suggest this capacity to be meta-aware and disidentify from experience (to take an observer perspective) can yield more confidence and flexibility when coping with stressful events. Although no previous research has examined associations of decentering with coping efficacy and flexibility, the associations found here are generally consistent with previous research studies that report associations of decentering (i.e. acting with awareness) with greater coping self-efficacy (Luberto et al., 2014), and decentering (i.e., disidentification with internal experiences) with broadened awareness and reappraisal self-efficacy (Garland et al., 2017; Garland & Fredrickson, 2019).

6.2.2. Interpersonal stress and coping responses

Analyses were also conducted to examine the relationship between decentering, interpersonal stress, and coping responses. In support of theory (Coleman et al., 2014; Kuster et al., 2017) and study hypotheses, results showed that individuals who report a greater capacity for decentering via an observer perspective and regulating their reactivity to thought content perceive less interpersonal stress such as rejection, teasing, and conflict. Moreover, of particular note, when coping with interpersonal stressors, individuals who report they are better able to take an observer perspective also report more engagement coping - relying more on problem-solving, emotion regulation and expression, positive thinking, cognitive restructuring, and acceptance to cope with interpersonal stress.

Decentering is related to less use of maladaptive responses to interpersonal stress, also. Individuals who reported more ability to take an observer perspective and, especially, those who reported more ability to regulate their thought content reported relying less on avoidance, denial, rumination, distraction, or wishful thinking to cope with interpersonal stress. Thus, when considered together, the associations of decentering with more constructive and less maladaptive coping responses could be the result of the high-level vs. low-level construals that can occur when decentering is high vs. low, respectively. Low-level construals can instantiate the present and narrow the focus to concrete details of an individual's experience (Trope & Liberman, 2010) promoting more distress and rumination and reliance on disengagement and avoidance to cope with this distress (Connor-Smith et al., 2000). This suggests the ability to decenter, with different strength of associations for the capacity to take an observer perspective relative to reduced reactivity to thought content, overall yields less reactivity to interpersonal stressors and promotes more use of constructive and less use of maladaptive coping responses to interpersonal stress.

Notably, whereas theory suggests that the three components of decentering (meta-awareness, observer perspective, and regulated reactivity to thought content) all work together to enhance mental health (Bernstein et al., 2015), the findings here suggest that observer perspective and regulated reactivity to thought content differ in their patterns of unique associations with self-perceived coping efficacy and flexibility and ways of coping with interpersonal stress. In particular, it was the greater capacity to take an observer perspective, in contrast to the capacity for regulating thought content, that was most strongly linked with reports of greater coping self-efficacy and flexibility, and endorsement of using engagement coping. Whereas, in contrast, the capacity to regulate reactivity to thought content was strongly linked to less perceived interpersonal stress and less disengagement forms of coping. Thus, decentering – taking an observer perspective and the capacity to regulate reactivity to thought content – is associated with stress and coping but the former is more strongly related to an enhanced trait-level capacity for coping as well as adaptive (i.e., engagement) coping responses and the latter is more strongly related to lower stress reactivity and less maladaptive coping responses. These findings suggest that future studies of decentering, as a beneficial trait, should consider the capacity for taking an observer perspective (including meta-awareness and disidentification from internal experience) separate from the capacity for regulating thought content. It is possible that differential associations with other outcomes, such as well-being or psychopathology, could be found as has been shown in previous research where individuals with general anxiety disorder whose improvements in the observer perspective aspect of decentering was associated with reductions in anxiety symptoms (O'Toole et al., 2019).

6.3. Transcendent life reflection

Whilst transcendent life reflection did not align with the 3-process model of decentering (Bernstein et al., 2015), it was a factor represented by items from a measure that has been used to measure decentering. Furthermore, transcendent life reflection was associated with more endorsement of one positive coping measure, engagement coping, in the multivariate regression models. Participants who endorsed a greater transcendent state of self-awareness (i.e., an observational self) are higher in coping self-efficacy, coping flexibility, and engagement coping and are lower in disengagement and involuntary coping and interpersonal stress. Moreover, of observer perspective, regulated reactivity to thought content, and transcendent life reflection, it was the capacity for transcendent life reflection that had the strongest unique positive association with engagement coping in the multivariate model. Thus, individuals who identify with an observational self also report that they more often rely on problem-solving, emotion regulation and expression, positive thinking, cognitive restructuring, and acceptance to cope with interpersonal stress.

Whilst no previous research could be located that has examined the relationships between transcendent life reflection, interpersonal stress and coping, and coping responses, it has been theorized that transcending reflects perspective-taking and research shows that perspective taking is associated with greater psychological flexibility and less general psychological distress (Zettle et al., 2018). It is conceivable that an awareness of a distinct, enduring, transcendent, observing, and perspective-taking self can defuse from difficult experiences allowing for greater deployment of engagement coping strategies such as acceptance in response to interpersonal stress.

6.4. Study limitations and future directions

The findings of this study have implications for future research, but also had limitations. First, this study offers a preliminary way forward in measuring decentering, specifically, the use of the EQ and the CFQ. However, the study was conducted in a single urban area of Australia and the findings may not be generalizable to other regions or countries. Thus, it is recommended that future research is conducted to replicate and extend these findings. Second, it is also noteworthy that all measures were self-reported. This might be of concern given that items both depend on and measure awareness and metacognitive processes. Non-self-report measures of decentering should be developed for use in future research. Third, this study was cross-sectional and causal relations or direction of effects between decentering and other measures could not be determined. Therefore, future research would benefit from longitudinal studies to examine whether decentering leads to a broadening of coping flexibility, responses, and self-efficacy or vice-versa.

7. Conclusion

The metacognitive processes of decentering, measured here as the capacity to take an observer perspective (which tapped meta-awareness and disidentification from internal experience) and the capacity to regulate reactivity to thought content, can be reliably measured by items from the Experiences Questionnaire (Fresco et al., 2007) and the Cognitive Fusion Questionnaire (Gillanders et al., 2014). Furthermore, these two components of decentering are associated with stress and coping beliefs and responses, but also differ when their unique associations with coping and stress responding are considered; taking an observer perspective is strongly associated with trait level coping flexibility and efficacy as well as more constructive engagement coping, whereas the capacity to regulate reactivity to thought content is strongly associated with less reactivity to interpersonal stress and less reliance on maladaptive coping responses. Overall, decentering is a skill or trait associated with better efficacy and flexibility for coping with stress and more constructive coping responses to interpersonal stress. Yet, there is more research needed to consider best practice in conceptualizing and measuring decentering in relation to the conceptualized metacognitive processes model of decentering (Bernstein et al., 2015; Bernstein et al., 2019), and there is more to investigate regarding how decentering benefits coping and other responses to stress.

CRediT authorship contribution statement

Narelle Duncan: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Writing – original draft, Writing – review & editing. **Melanie J. Zimmer-Gembeck:** Conceptualization, Methodology, Formal analysis, Investigation, Resources, Writing – original draft, Writing – review & editing. **Alex A. Gardner:** Resources, Writing – review & editing. **Kathryn Modecki:** Writing – review & editing.

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