

Emotion Regulation Strategies Among Those with Gastrointestinal Symptoms: Findings from an Experimental Study

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INTRODUCTION

- Gastrointestinal (GI) symptoms are common with 48% of the population experiencing at least one symptom.
- Individuals with GI distress experience difficulties with emotion regulation (ER), or the ability to regulate and respond to emotions, which contributes to worse psychopathology.
- Use of specific ER strategies, including cognitive reappraisal (modification of emotional stimuli) and expressive suppression (avoidance of emotions), plays a role in health and illness.
- Individuals with GI symptoms engage in avoidant coping as a result of physiological and emotional arousal and to alleviate or control situations that may elicit GI symptoms.
- We **hypothesized** that general propensity to engage in reappraisal and suppression would be associated with use of reappraisal and suppression, respectively, throughout a series of emotion inductions.

METHOD

- The sample were 52 undergraduate students ($M_{age} = 19.33$; 64.7% White, 23.5% Black; 82.7% female) with functional GI symptoms ranging from none to moderately severe. Participants reported a minor level of GI distress on average ($M = 2.04$, $SD = 1.01$; range 0-7).
- Participants completed a series of emotion inductions to elicit anxiety (speech anticipation task), sadness (video clip depicting loss), and disgust (compilation of disgusting video clips [e.g., vomiting, eating bugs]).
- The primary hypothesis was tested using bivariate correlations.

RESULTS

- Avoidance of food was common across the sample (Figure 1). While less common, avoidance of exercise (Figure 2) and sex (see Figure 3) occurred in over 20% of the sample and represent GI-related functional impairment.
- Trait reappraisal was associated with state-reappraisal only following the anxiety induction (Table 1).
- Trait suppression was associated with state suppression following the anxiety, sadness, and disgust inductions. (Table 2).

DISCUSSION

- Avoidance of gut symptom-eliciting stimuli (e.g., exercise) was common in this sample.
- Emotional suppression may be relevant to multiple acute negative affect states, while cognitive reappraisal may be most salient to anxiety-provoking stimuli.
- Providers may consider augmenting cognitive-behavioral interventions that reduce behavioral avoidance with strategies to enhance patients' ability to modulate a wide range of negative emotions.

Avoidance of acute negative affect and reappraisal of anxiety, but not other negative affective states, is associated with functional gastrointestinal symptoms.

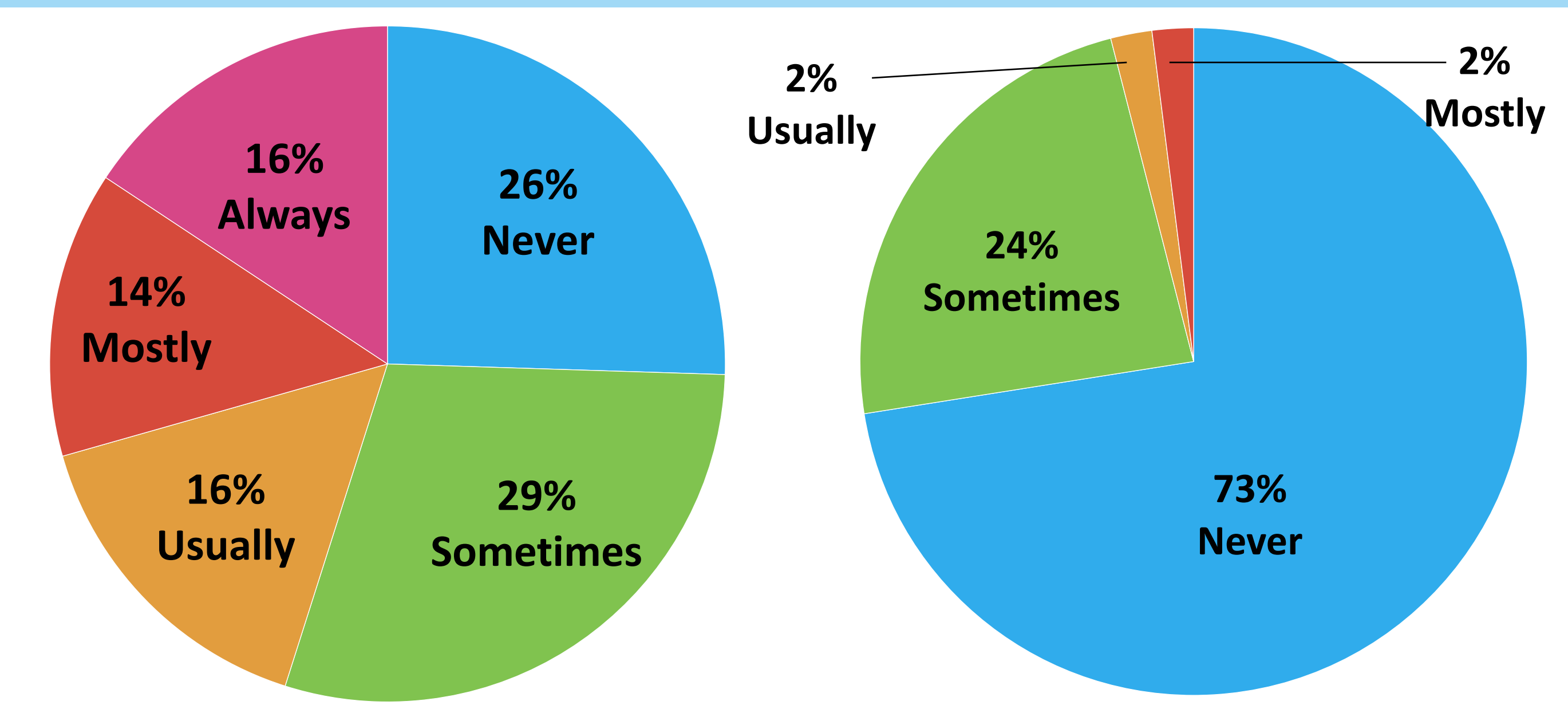


Figure 1. Avoidance of foods

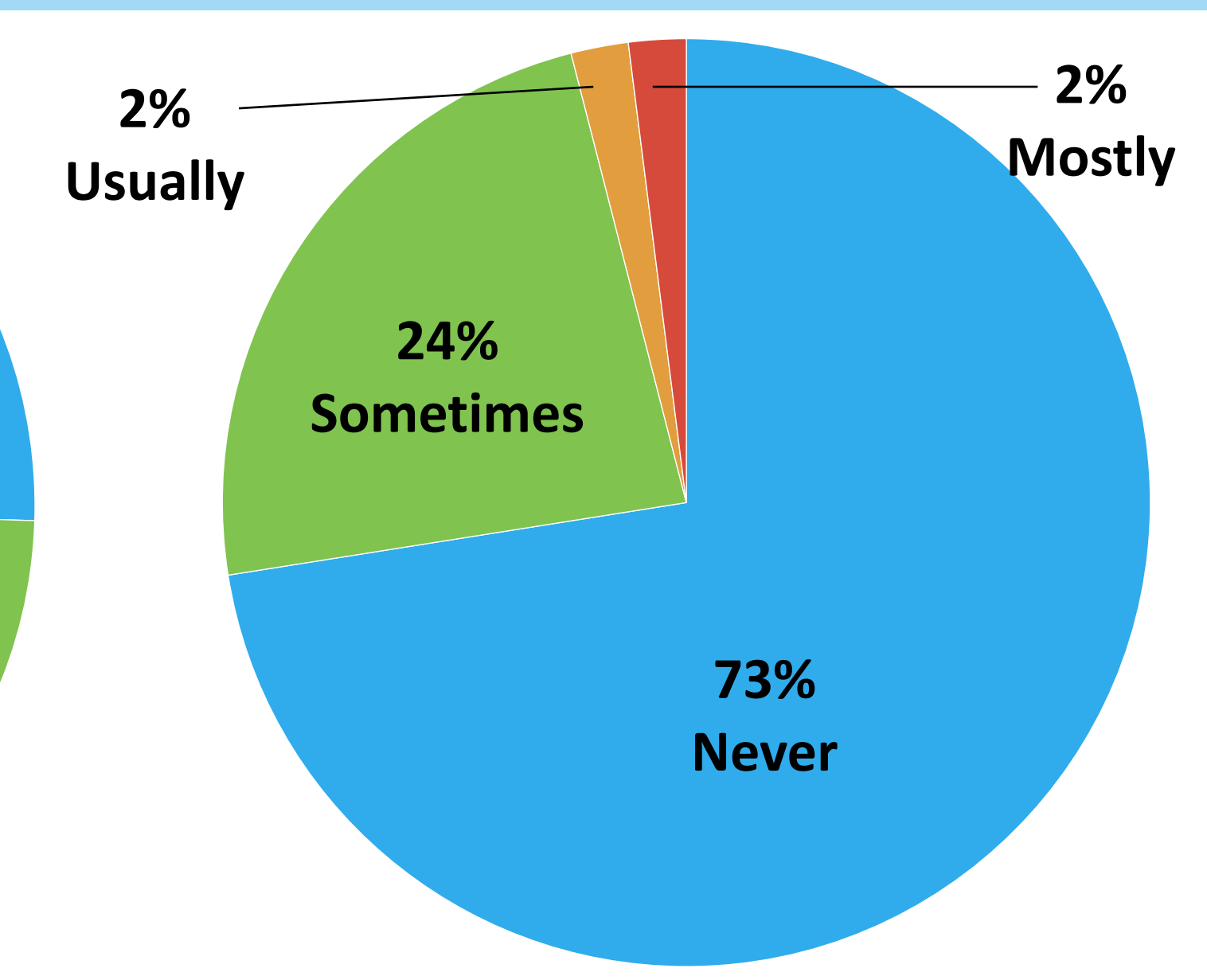


Figure 2. Avoidance of Exercise

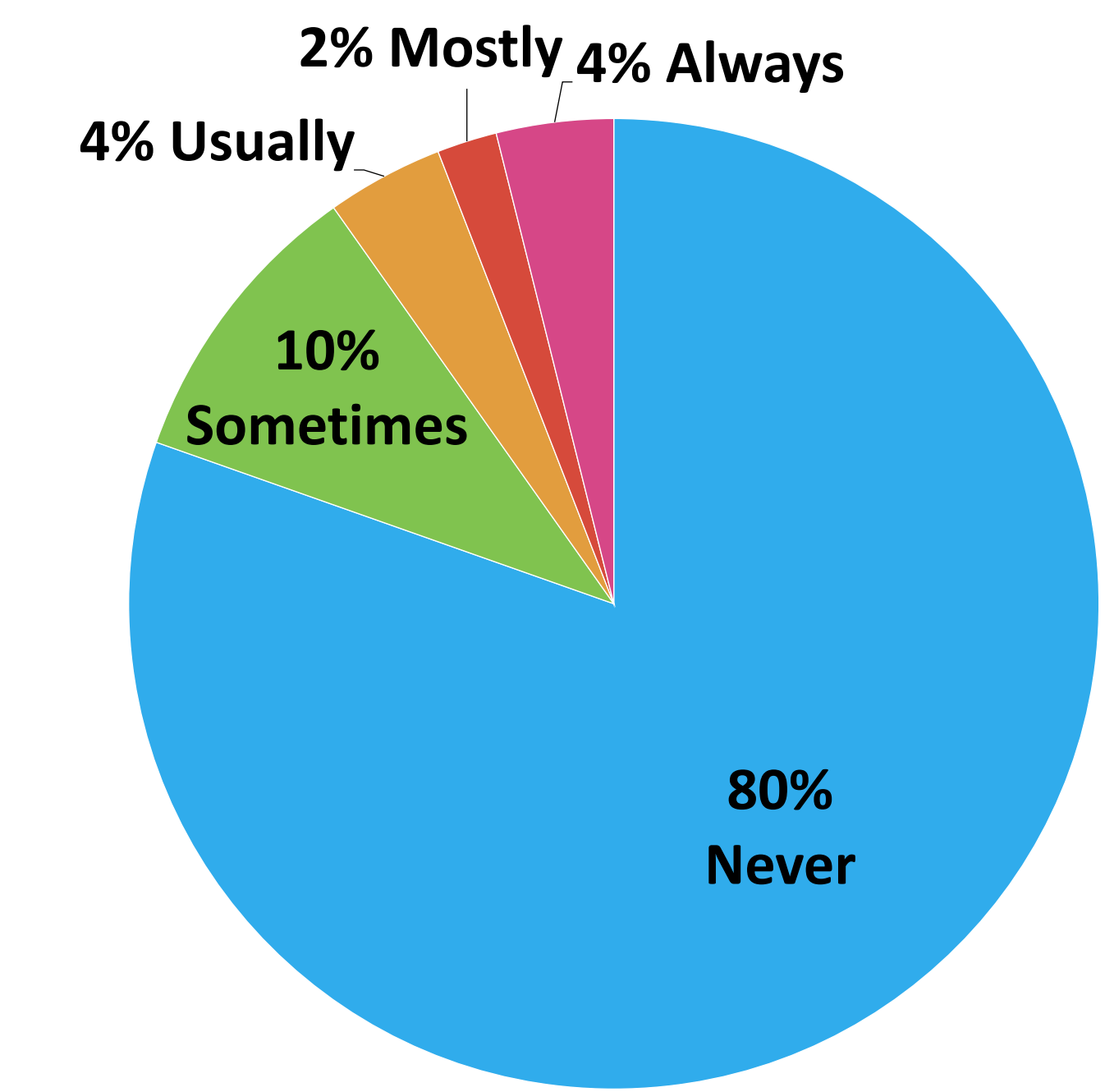


Figure 3. Avoidance of sex

Table 1. Zero-order correlations between trait reappraisal and use of reappraisal following emotion inductions.

Measures	1	2	3	4	5
1. Trait reappraisal	—				$p < .001$
2. Reappraisal - Neutral	0.066	—			$p < .01$
3. Reappraisal - Anxiety	0.324	0.254	—		$p < .05$
4. Reappraisal - Sadness	0.234	0.459	0.479	—	
5. Reappraisal - Disgust	0.270	0.257	0.650	0.418	—
<i>M</i>	28.65	3.85	4.54	3.35	4.12
<i>SD</i>	7.53	2.78	3.87	3.37	3.78

Table 2. Zero-order correlations between trait suppression and use of suppression following emotion inductions.

Measures	1	2	3	4	5
1. Trait suppression	—				$p < .001$
2. Suppression - Neutral	0.347	—			$p < .01$
3. Suppression - Anxiety	0.472	0.353	—		$p < .05$
4. Suppression - Sadness	0.537	0.315	0.438	—	
5. Suppression - Disgust	0.318	0.496	0.434	0.390	—
<i>M</i>	15.10	4.29	4.37	3.58	3.65
<i>SD</i>	5.51	2.97	3.95	3.37	3.59



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Introduction: Gastrointestinal (GI) symptoms are common, with 48% of the population experiencing at least one symptom (Kovács et al 2010), and even higher rates among those with psychological disorders (Van Oudenhove et al, 2016). Emotion regulation (ER), or the ability to regulate and respond to emotions (Aldao et al. 2010) plays a role in health and illness through the selection of specific ER strategies including cognitive reappraisal (modification of emotional stimuli) and expressive suppression (avoidance of emotions; Gross, 2015). Individuals with GI symptoms engage in avoidant coping as a result of physiological and emotional arousal (Reme et al 2010) and to alleviate or control situations that may elicit GI symptoms (Bonnert et al 2018). Although it is understood that emotions influence gut symptoms (Zvolensky et al 2018), there is limited empirical work examining use of specific ER strategies among individuals with GI symptoms. General propensity to engage in reappraisal and suppression was expected to be associated with use of these ER strategies, respectively, following a series of emotion inductions.

Method: Participants were 52 undergraduate students ($M_{age} = 19.33$; 82.7 % female; 64.7% White; 23.5% Black) experiencing a range of gastrointestinal symptoms from none to moderately severe, with a minor level of discomfort on average ($M = 2.04$, $SD = 1.01$). Participants completed a series of emotion induction tasks by videoconference, including videos to elicit disgust and sadness and a speech task to elicit anxiety. Participants completed trait-based measures of gastrointestinal symptoms and use of reappraisal and suppression, and state-based measures of suppression and reappraisal followed each induction.

Results: Regarding behaviors used to manage or prevent gut symptoms, 74.5% avoided specific foods, 47.1% avoided eating at certain times, and 60.8% avoided eating prior to an event. General use of reappraisal ($M = 28.65$, $SD = 7.53$) and suppression ($M = 15.10$, $SD = 5.51$) were consistent with previous samples, while state-level ER strategies were slightly higher (Ehring et al., 2010; Schroder et al., 2015). General propensity for suppression was significantly positively correlated with use of suppression following each emotion induction ($r_s = .318-.537$, $ps < .05$). General propensity for reappraisal was significantly positively correlated with reappraisal during the anxiety induction ($r = .32$, $p = .02$), but was not associated with use of reappraisal during sadness and disgust inductions ($ps > .05$).

Discussion: Findings from this experimental study indicate the tendency to engage in avoidance is associated with real-time use of emotional suppression in the presence of negative emotion-eliciting stimuli among those with mild gut sensations. General use of cognitive reappraisal was only associated with state-based reappraisal following anxiety-provoking stimuli. As anxiety activates the hypothalamic-pituitary-adrenal axis contributing to worse gut sensations (Elsenbruch et al., 2010), this emotion might be particularly salient among those with GI symptoms relative to sadness and disgust. Strategies to reduce behavioral avoidance are effective for mitigating GI symptoms (Bonnert et al., 2018), and providers may concurrently aim to enhance patients' ability to modulate a wide range of negative emotions.

Measures

Emotion Regulation Questionnaire (Gross & John, 2003)

Strategies Questionnaire (Ehring et al., 2010)

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