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# Does nonacceptance of emotions and the fear of guilt influence the association between trait guilt and obsessive-compulsive symptoms? A moderation analysis in a non-clinical sample

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### ABSTRACT

**Objective:** Although cognitive-behavioural theory suggests a link between guilt and obsessive-compulsive disorder (OCD), the evidence is mixed. Given that how we relate to our emotions can determine behavioural responses, it is possible that high fear of guilt and a nonacceptance of emotions might increase the effects of guilt on OCD, and therefore explain mixed findings in previous research.

**Method:** We investigated whether fear of guilt and nonacceptance of emotions moderated the association between trait guilt and obsessive-compulsive symptoms in a non-clinical online MTurk sample (n = 231) recruited from cloudresearch.com. Participants completed measures of OCD, trait guilt, fear of guilt, nonacceptance of emotions, depression, and anxiety.

**Results:** We found that fear of guilt and nonacceptance of emotions, but not trait guilt, significantly predicted obsessive-compulsive symptoms even after controlling for depression and anxiety. Nonacceptance of emotions moderated the relationship between trait guilt and obsessive-compulsive symptoms, however fear of guilt did not. Simple slopes analyses showed a significant positive association between trait guilt and obsessive-compulsive symptoms for individuals with high nonacceptance of emotions.

**Conclusion:** Results support findings that nonacceptance of emotions, and to a lesser extent fear of guilt, play important roles in subclinical OCD. Furthermore, they suggest that a stronger acceptance of emotions may be linked to more adaptive experiences of guilt and reductions in obsessive-compulsive behaviour.

### **KEY POINTS**

### What is already known about this topic:

- (1) Cognitive models of OCD suggest that OCD is due to the misappraisal of intrusions that can result in an inflated sense of responsibility and guilt, which in turn drives the need to perform compulsions.
- (2) However, research examining the association between guilt and OCD have shown mixed findings.
- (3) The severity of obsessive compulsive symptoms is positively associated with the nonacceptance of emotions and the fear of guilt which may moderate the association between guilt and OCD.

#### What this topic adds:

- (1) Our study provides further evidence of the role of nonacceptance of emotions in OCD.
- (2) We found a positive association between guilt and OCD but only for people with high nonacceptance of emotions.
- (3) The fear of guilt was also positively associated with OCD but did not interact with trait guilt.

Obsessive-compulsive disorder (OCD) is a highly disabling condition associated with significant impairment in functioning and health-related quality of life (Hollander et al., 2010). It is characterised by the presence of recurrent and intrusive thoughts and impulses (obsessions) that are often accompanied by repetitive, intentional behaviours (compulsions) undertaken to reduce the associated anxiety (American Psychiatric Association, 2022). Obsessive-compulsive symptoms (OCS) present along a severity continuum and may be a precursor to the development of OCD (Abramowitz et al., 2010). Both OCS and OCD can have a significantly negative impact on a person's life (Hollander et al., 1998).

According to the cognitive-behavioural model, OCD and OCS are due to the misappraisal of intrusive and

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#### **KEYWORDS**

OCD; guilt; fear of guilt; nonacceptance of emotions; emotion regulation unwanted thoughts, images, and urges. The model suggests that these intrusions are normal but when interpreted as important, threatening, intolerable, and unacceptable, they lead to anxiety, feelings of responsibility, and a need to control or neutralise them through rituals and compulsions (Radomsky et al., 2014). Although the compulsions lead to a temporary decrease in anxiety, they reinforce the negative appraisals and prevent the learning of new beliefs about the feared consequences of these obsessions, which then increases the frequency and intensity of the obsessive thoughts (Rachman, 1993, 1998, 2002). Recently, researchers have also suggested that although the cognitive-behavioural model identifies specific factors that explain OCD and OCS, transdiagnostic processes such as emotion regulation difficulties and guilt can enhance our understanding of OCD and help explain the repetitive nature of the OCS (Chiang et al., 2016; Yap et al., 2018).

### **Emotion regulation in OCD**

According to the cognitive behavioural model, a person engages in compulsions to reduce anxiety, which is essentially an attempt at regulating the emotional distress associated with obsessions (Calkins et al., 2013). It follows that difficulties in emotion regulation can have an impact on OCS. Growing evidence supports this conjecture and show that emotion regulation difficulties are higher in OCD patients compared to healthy controls, and are positively associated with OCS in non-clinical samples even after controlling for anxiety and depression (Khosravani et al., 2020; Stern et al., 2014; Yap et al., 2018).

Emotion regulation has been conceptualised as involving six components: emotional awareness, emotional clarity, acceptance of emotions, access to emotion regulation strategies, impulse control, and engagement in goal-directed behaviours (Gratz & Roemer, 2004). In a recent systematic review of emotion regulation difficulties in OCD, the non-acceptance of emotions was found to be most consistently and strongly associated with OCS in both clinical and nonclinical samples (See et al., 2022). The nonacceptance of emotions (NOE) is defined by the tendency to not accept one's emotions or have negative secondary emotional responses to negative emotions (e.g., becoming angry with oneself for feeling upset). Notably, NOE has been most strongly associated with OCS dimensions of "responsibility for harm", "unacceptable thoughts" (Berman et al., 2018; Yap et al., 2018) and "neutralising" and "obsessing" symptoms (Khosravani et al., 2018; Macatee et al., 2013). Yap et al. (2018) suggested that the nonacceptance of emotions explains the repetitive nature of compulsions. Whilst negative appraisals trigger negative emotions and the urge to neutralise, the nonacceptance of emotions contributes to increased emotional intensity and drives the need for the complete elimination of negative emotions through rituals and compulsions.

### Guilt and fear of guilt

One negative emotion that may be particularly strong and difficult to eliminate in OCD is guilt. Early cognitive theories of OCD suggest that negative appraisals about intrusive thoughts in OCD, combined with an inflated sense of responsibility lead to excessive concerns about having these thoughts, and a belief that they will cause harm if the thoughts are not neutralised (Salkovkis, 1985). This inflated responsibility then leads to high levels of guilt. Consistent with this theory, significantly higher levels of trait guilt (TG), which refers to the dispositional tendency to feel quilt beyond the immediate circumstance, have been found in people with OCD relative to non-clinical and anxious controls (D'Olimpio et al., 2013). Positive correlations between guilt and obsessive compulsive symptoms have also been found in both healthy individuals and in people with OCD (Cândea & Szentagotai-Tătarbc, 2018; Stewart & Shapiro, 2011).

However, there are also some mixed findings in the association between trait guilt and OCS. Steketee et al. (1991) found a significant association between guilt and OCS but also showed that guilt levels in patients with OCD were similar to those with anxiety disorders. Tangney et al. (1992) found a weak association between guilt and OCS, which became non-significant after controlling for shame. Likewise, some studies have failed to find any significant association between OCS and guilt (Melli et al., 2015; Weingarden & Renshaw, 2014).

Several researchers have suggested that rather than guilt, the fear of guilt (FOG), which is a specific type of NOE, is more central to the emergence, development, and maintenance of both obsessions and compulsions (Chiang et al., 2016; Mancini & Gangemi, 2004). Individuals with OCD often act compulsively to prevent feelings of guilt that would indicate a failure to uphold personal moral standards and responsibility (Chiang et al., 2016). The induction of guilt for violating personal moral standards leads to increased checking and washing behaviours in non-clinical individuals (D'Olimpio & Mancini, 2014). The Fear of Guilt Scale (Chiang et al., 2016), a measure developed specifically to measure FOG in OCD, has been shown to highly correlate with OCS in nonclinical samples and predict OCS severity after controlling for state and trait guilt, anxiety, depression, and neuroticism.

Since feelings of guilt are positively associated with OCS, and individuals with OCS tend to have difficulties with accepting negative emotions, it follows that non-acceptance of negative emotions may influence the relationship between TG and OCS. Namely, individuals who do not accept their emotions may be more negatively impacted by unprocessed guilt feelings and consequently engage in increased obsessive-compulsive behaviour to regulate their guilt. Furthermore, since FOG is associated with increased OCS and may be a factor in the development and maintenance of OCD, FOG may also influence the relationship between TG and OCS. As a type of emotional non-acceptance, FOG may have a more specific moderating effect on the relationship between TG and OCS compared with general NOE. Additionally, since depressive and anxiety symptoms are common in OCD (Pallanti et al., 2011) and are associated with emotion regulation difficulties (Aldao et al., 2010), they represent potential confounds.

### Aim and hypotheses

The general aim of this study is to deepen our understanding of emotional experiences and emotion regulation difficulties as they relate to OCS and how these might inform and update future clinical interventions. Namely, the study will investigate the influence and interaction of TG and the nonacceptance of emotions on OCS in an unselected non-clinical community sample. A better understanding of OCS may also assist with early intervention and prevention of OCD development.

Based on previous findings, we expect positive associations between OCS and all other key variables. Namely, the associations between (1) OCS and TG, (2) OCS and FOG, and (3) OCS and NOE. We also expect that both NOE and FOG will significantly moderate the relationship between TG and OCS. Therefore, we expect the association between TG and OCS will be stronger among individuals who have difficulties in accepting their emotions and are fearful of guilt than those who are more accepting of their emotions and less fearful of guilt.

### Method

### **Participants**

A sample of 300 Amazon Mechanical Turk (MTurk) was recruited online via cloudresearch.com, a participantsourcing platform for online research (Litman & Robinson, 2020). All participants were from the US and aged 18 and over. They required a minimum of 98% on their MTurk approval rating and were cloudresearch.com approved participants. A nominal sum of USD 1.50 was paid to participants who completed the study. A total of sixty-nine participants were removed due to short completion times under five minutes (n = 54), failing validity checks (n = 10), missing response values (n = 2), and significant outliers (n = 3).

The final sample consisted of 231 participants ranging from 20 to 73 years in age (mean [M] = 40.16, standard deviation [SD] = 11.42). There were 108 females (47%), 120 males (52%), and 3 individuals who identified as transgender, genderqueer, and intersex. The majority of participants identified as White/ Caucasian (65%), followed by Hispanic (12%), African American (11%), and Asian Eastern (5%). Most participants were employed (83%) with at least thirteen years of education (85%). Over half of participants reported being never married (52%), followed by married (34%) and divorced (13%).

### **Materials**

Participants provided demographic information including age, gender, sex, ethnicity, education, employment, and marital status. They then completed the following self-report measures, which demonstrated good to excellent internal consistency, with Cronbach's alphas ranging from .71 to .95 (see Table 1).

### *Obsessive Compulsive Inventory-Revised (Foa et al., 2002)*

The Obsessive Compulsive Inventory-Revised (OCI-R) is a self-report measure assessing a broad range of obsessive and compulsive symptoms. It consists of 18 questions rated on a 5-point Likert scale. In line with recent research, we excluded the 3-item hoarding subscale in our analyses and used the OCI-OCD subscale comprising items that measured the five dimensions of OCD Ordering, (Checking, Obsessing, Washing, and Neutralising). The total score of this 15-item measure (ranging 0-60) is calculated by summing the scores of each item. It has very good psychometric properties (Angelakis et al., 2017; Khosravani et al., 2020; Wootton et al., 2015).

## Difficulties in Emotional Regulation Scale (Gratz & Roemer, 2004) – Nonacceptance of Emotions Subscale

The Difficulties in Emotion Regulation Scale (DERS) is the most widely used self-report measure of emotion regulation abilities, conceptualised as an individual's perceived ability to understand, identify, respond to,

Table 1. Descriptive statistics and correlations among study variables (n = 231)

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Variable	α	М	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. OCI-R-Washing	.90	2.48	3.22	_												
2. OCI-R-Obsessing	.91	3.17	3.33	.45*	-											
3. OCI-R-Ordering	.92	3.99	3.25	.53*	.42*	-										
4. OCI-R-Checking	.86	3.47	3.19	.58*	.54*	.54	-									
5. OCI-R-Neutralizing	.85	2.03	3.02	.47*	.46*	.60	.56*	_								
6. OCI-OCD	.93	15.13	12.51	.78*	.74*	.79	.82*	.78*	_							
7. NOE	.95	12.86	6.42	.37*	.60*	.46	.47*	.44*	.60*	_						
8. TG	.89	61.23	13.12	.07	01	.03	.02	.10	.05	.01	_					
9. FOG-Punishment	.87	37.55	12.16	.38*	.43*	.37	.38*	.39*	.5*	.53*	04	-				
10. FOG-Harm Prevention	.85	29.66	8.68	.31*	.34*	.35	.34*	.3*	.42*	.58*	04	.76*	-			
11. FOG-Total	.84	67.21	19.59	.37*	.42*	.39	.39*	.38*	.49*	.59*	05	.96*	.92*	-		
12. DASS-Depression	.87	5.09	4.79	.37*	.57*	.4*	.42*	.37*	.55*	.53*	.03	.29*	.29*	.31*	-	
13. DASS-Anxiety	.70	3.12	3.07	.40*	.50*	.39*	.41*	.43*	.54*	.43*	.06	.29*	.24*	.28*	.67*	_

 $\alpha$  = Cronbach's alpha; M = mean; SD= standard deviation; OCI-R = Obsessive Compulsive Inventory-Revised; OCI-OCD = total score of the OCI-R OCD subscales; NOE = Nonacceptance of Emotions subscale from the Difficulties with Emotion Regulation Scale; TG = trait guilt subscale from the Guilt Inventory; DASS = Depression Anxiety Stress Scales; FOG = Fear of Guilt Scale; \*p < .001 (2-tailed).

accept, and manage their emotions. The DERS assesses six areas of emotion regulation, including the Nonacceptance of Emotions (NOE) subscale that was used in this study. This scale measures an individual's tendency to not accept reactions to their distress or have negative secondary emotional responses to negative emotions. It consists of six items rated on a 5-point Likert scale. The DERS has previously demonstrated good to excellent psychometric properties, including internal consistency, test-retest reliability, predictive validity, and validity in various clinical populations (Bardeen et al., 2012; Hallion et al., 2018; Perez et al., 2012).

### Guilt Inventory (Kugler & Jones, **1992**) – Trait Guilt Subscale

The Guilt Inventory (GI) is a self-report measure of three domains of guilt, including trait guilt (dispositional tendency), state guilt (current affect), and moral standards (rigidity of moral beliefs). The Trait Guilt subscale was used in this study, which measures a dispositional sense of guilt beyond immediate circumstances. The subscale consists of 20 items rated on a 5-point Likert scale, with higher values indicating higher levels of TG. Numerous items are worded in the opposite direction to indicate lower levels of TG and are therefore reverse coded. The GI has previously demonstrated acceptable levels of internal consistency and test-retest reliability, and evidence supports its concurrent validity when compared with other tools assessing guilt and related constructs (Jones et al., 2000; Kugler & Jones, 1992).

### Fear of Guilt Scale (Chiang et al., 2016)

The Fear of Guilt Scale (FOGS) was initially developed to examine the role of FOG in OCD. The scale measures trait levels of FOG on two primary dimensions – Punishment (i.e., drive to punish oneself for guilt) and Harm Prevention (i.e., belief that one can and should prevent guilt). The scale consists of 17 items rated on a 7-point Likert scale (ranging from strongly disagree to strongly agree). The FOGS has demonstrated excellent reliability with high internal consistency (Chiang et al., 2016), as well as good convergent validity and correlations with related constructs including anxiety, guilt, and OCS (Chiang et al., 2016). The FOGS has also been shown to significantly predict OCS symptom severity over other measures of depression, neuroticism, and inflated responsibility beliefs (Chiang et al., 2016).

### Depression Anxiety Stress Scales – 21 (Lovibond & Lovibond, **1995**) – Anxiety and Depression Subscales

The Depression Anxiety Stress Scales – 21 (DASS-21) is a shortened version of the DASS that measures the negative emotional states of depression, anxiety, and stress. It is used widely in clinical and non-clinical samples to screen for relevant emotional symptoms (Oei et al., 2013). This study administered the Depression and Anxiety subscales of the DASS-21. The two scales consist of 7 items each rated on a 4-point severity/ frequency scale. Total scores are calculated by summing the scores for the relevant items. The DASS-21 has been validated in several populations, such as American, Hispanic, and African adults, with findings indicate good to excellent levels of psychometric reliability and validity (Crawford et al., 2009).

### Procedure

The study was approved by the Australian Catholic University's Human Research Ethics Committee (ACU HREC 2022-2467E). MTurk participants were directed to complete the online survey via Qualtrics.com and notified that it will take approximately 15–20 minutes. Participants were asked to find a quiet and private space to complete the survey and were cautioned that some questions might elicit distress. After providing informed consent, participants provided demographic information and then completed the series of self-report measures in the order outlined above. Several validity/attention checks were embedded throughout the survey to ensure the validity of participant responses (see Agley et al., 2022). Participants were free to withdraw from the study at any stage by exiting the online browser, however no withdrawals were recorded. Before completing the study, participants were asked to complete a self-report validation statement. They were then provided with a debriefing statement including the purpose of the study, the inclusion of validity items, and details of support and counselling services should they feel distressed.

### Data analysis

Statistical analyses were performed using SPSS version 28 (IBM Corp, 2021). All self-report measures administered demonstrated good to excellent internal consistency, with Cronbach's alphas ranging from .71 to .95. We tested for differences in OCS between gender, sex, ethnicity, employment status, education, and marital status by performing independent samples *t*-tests and one-way ANOVAs. Sociodemographic subgroups with n < 30 were combined with other subgroups (e.g., "separated" and "divorced") to ensure adequate statistical power. Age, anxiety, and depression were tested as covariates by performing Pearson correlations between these variables and OCI-OCD.

A moderation analysis (multiple linear regression) was conducted using Hayes (2022) PROCESS macro to investigate whether the relationship between guilt and obsessive-compulsive symptoms was moderated by NOE or FOG while controlling for covariates. Variables were mean centred to address multicollinearity and simple slopes analyses were conducted.

### **Results**

A summary of descriptive statistics is displayed in Table 1. Independent samples *t*-tests and one-way ANOVAS did not reveal any differences in OCS between gender, sex, ethnicity, employment, education, or marital status. Pearson correlations did not reveal significant association between age and OCS but showed large positive associations between OCS and DASS-Depression and DASS-Anxiety. Thus, only anxiety and depression symptoms were included as covariates. Based on the recommended cut-off score of 12 (Wootton et al., 2015), 46.32% (n = 107) of the sample had clinically significant OCS. The high proportion of

participants with high OCS is consistent with previous research showing high levels of psychopathology among MTurk participants (Arditte et al., 2016).

### **Correlations**

Pearson correlations among variables are presented in Table 1. There was a large positive correlation between OCI-OCD and NOE. Large correlations between NOE and the OCI-R-Obsessing, OCI-R-Checking, and OCI-R-Neutralising subscales were also noted. TG did not show significant associations with any variable. There was a moderate association between total OCI-OCD and FOG and its subscales. Large correlations were also found between NOE and FOG-Total scores and its subscales.

### Multiple regression analyses

### Moderator model 1

A linear multiple regression (moderation) was conducted to test the moderating effects of NOE on the relationship between TG and OCS, while controlling for anxiety, and depression. All assumptions for the regression analysis were met.

The regression model was statistically significant in predicting OCS, *F* (5, 225) = 44.12, p < .001,  $R^2 = .50$ . The interaction term (TG x NOE) had a statistically significant effect on the model, b = 0.02, 95% CI [0.006, 0.03], t = 2.85, p = .005. NOE significantly and independently positively predicted OCS, p < .001. However, TG did not significantly predict OCS. See regression coefficients and standard errors in Table 2.

The simple slopes analysis showed that when NOE is low (1 SD below the mean), there was a negative but non-significant relationship between TG and OCS (b = -0.11, p = .095). At the mean value of NOE, there was no significant relationship between TG and OCS (b = 0.01, p = .816). However, when NOE is high (i.e., 1 SD above the mean), there was a significant positive relationship between TG and OCS (b = 0.13, 95% CI [0.02, 0.25], t = 2.25, p = .025). (Figure 1).

Table 2. Linear Model of predictors of obsessive-compulsive symptoms with non-acceptance as moderator variable (n = 231).

	В			
Variables	95% CI for B	SE B	t	p
Constant	9.41 [7.43, 11.39]	1.00	9.38	<i>p</i> < .001
Trait guilt (centred)	0.01 [-0.08, 0.1]	0.05	0.23	<i>p</i> = .816
Non-acceptance (centred)	0.75 [0.53, 0.97]	0.11	6.81	<i>p</i> < .001
Trait guilt x Non-acceptance	0.02[0.01, 0.03]	0.007	2.85	<i>p</i> = .005
Depression (covariate)	0.48 [0.14, 0.82]	0.17	2.80	<i>p</i> = .006
Anxiety (covariate)	1.04 [0.54, 1.54]	0.25	4.12	<i>p</i> < .001

 $R^2 = .50; B =$ Unstandardized beta coefficient.



Figure 1. Simple slopes equations of the regression of obsessive-compulsive symptoms on trait guilt at three levels of emotional non-acceptance (low, mean, high). The regression of obsessive-compulsive symptoms on trait guilt is only significant for individuals with high levels of emotional nonacceptance (top line).

### Moderator model 2

A second linear multiple regression was conducted to test the moderating effect of FOG on the relationship between TG and OCS, while controlling for anxiety, and depression. Similarly, all assumptions for linear multiple regression were met. The regression model was statistically significant in predicting OCS, *F* (5, 225) = 39.93, *p* < .001,  $R^2$  = .47. However, the interaction term (TG x FOG) did not have a statistically significant moderating effect on the model, *p* = .115. FOG significantly and positively predicted OCS (*b* = 0.21, 95% CI [0.14, 0.27], *t* = 6.20, *p* < .001), while TG did not significantly predict OCS. See regression coefficients and standard errors in Table 3.

An exploratory analysis was further run to investigate if FOG scales Harm Prevention and/or Punishment independently moderated the association between TG and OCS. Findings showed neither Harm Prevention

**Table 3.** Linear Model of predictors of obsessive-compulsive symptoms with fear of guilt as moderator variable (n = 231).

	В			
Variables	95% CI for B	SE B	t	р
Constant	8.13 [6.24, 10.03]	0.96	8.48	p < .001
Trait guilt (centred)	0.04 [-0.06, 0.13]	0.05	0.76	p = .447
Fear of guilt (centred)	0.21 [0.14, 0.27]	0.03	6.2	p < .001
Trait guilt x fear of guilt	0.004[-0.00, 0.01]	0.00	1.58	p = .115
Depression (covariate)	0.69 [0.36, 1.02]	0.17	4.13	p < .001
Anxiety (covariate)	1.13 [0.62, 1.64]	0.26	4.39	p < .001

 $R^2 = .47$ . B = Unstandardized beta coefficient.

(p = .065) nor Punishment (p = .118) had a significant moderation effect on the model.

### Discussion

The findings supported our first hypothesis that nonacceptance of emotions (NOE) and the fear of guilt (FOG) are positively associated with obsessivecompulsive symptoms (OCS) even after controlling for anxiety and depression. They did not, however, support the expected association between trait guilt (TG) and OCS. Notably, results supported the second hypothesis, showing NOE positively moderated the relationship between TG and OCS. Interestingly, examination of simple slopes showed the association between TG and OCS was only significant for individuals with high levels of NOE. Unexpectedly, results did not support the third hypothesis, as FOG did not moderate the relationship between TG and OCS.

Our results are consistent with a recent systematic review showing significant associations between NOE and OCS in non-clinical or unselected samples (See et al., 2022). One explanation for the strong association between NOE and OCS is that individuals with elevated OCS tend to be more fearful of a perceived loss of control, including emotional experiences (e.g., Moulding & Kyrios, 2006), and are thus less accepting of their emotions. The strong association may also be explained by the effects of emotional suppression, a construct closely related to NOE. Emotional suppression and the avoidance of inner experiences are understood to increase distress and symptoms through processes such as disturbances in learning and extinction (Hayes et al., 1996), or through the "rebound effect" (Wegner, 1994), which describes an increase in preoccupation with thoughts due to their active suppression. Furthermore, adversely reacting to negative emotional experiences with other negative emotions, such as anger, guilt, or shame, compromises the ability to effectively process negative emotions (Kumar et al., 2018), and may therefore sustain their impact on OCS.

Additionally, our findings support the growing body of research implicating FOG in OCD (Chiang et al., 2016; D'Olimpio & Mancini, 2014; Mancini & Gangemi, 2004; Salkovskis & Forrester, 2002), and the significant correlations previously found between FOG and OCS in non-clinical samples (Chiang et al., 2016). Indeed, the threat of guilt, independent of the experience of guilt, might be sufficiently aversive to motivate the need to neutralise obsessions with overt or covert compulsions such as checking and washing.

Our non-significant finding on the relationship between TG and all OCS dimensions is surprising given the role of guilt highlighted in previous studies (D'Olimpio et al., 2013; Melli et al., 2017; Savoie, 1996; Shafran et al., 1996; Steketee et al., 1991). However, it lends support to Melli et al. (2015) who showed TG did not predict any OCS despite weak correlations with some OCD dimensions. These inconsistencies may be accounted for by differences in sample types (i.e., clinical versus non-clinical), measures used to operationalise OCS (e.g., OCI-OCD vs Dimensional Obsessive-Compulsive Scale; Abramowitz et al., 2010) and the assessment of different domains of guilt (e.g., TG vs guilt sensitivity; Melli et al., 2017). Importantly, our findings indicate that differences between samples on the nonacceptance of emotions might affect the strength of the association between TG and OCS.

Our second hypothesis results provide novel insight into the role of NOE in understanding the association between TG and OCS. Considering the non-significant relationship between TG and OCS, however, this result should be interpreted with some caution. Our observation of the moderating influence of emotional nonacceptance is logically consistent with previous findings showing OCD is both positively associated with guilt (see Stewart & Shapiro, 2011, for a review) and difficulties in accepting negative emotions (see See et al., 2022, for a review), suggesting a possible interplay between guilt and non-acceptance in obsessivecompulsive presentations. Our findings indicate that this association only holds for individuals with strong difficulties in accepting their emotions and very high levels of OCS. Namely, such individuals are likely to experience more severe OCS due to stronger tendencies to feel guilty (i.e., TG). In other words, guilt feelings (e.g., feeling "not right" with oneself for making mistakes) have a more profound negative impact on the severity of personal obsessions (e.g., difficulty controlling thoughts about responsibility for harm) and/or compulsions (e.g., repeatedly checking things are "right").

These findings further delineate between low and elevated levels of OCS, as the relationship between TG and OCS was only significant for participants with elevated levels of OCS (see Figure 1). Meanwhile, our findings indicate that for individuals who are more accepting of their emotions – specifically when nonacceptance is average or low – OCS are significantly lower than when individuals do not accept their emotions, and not dependent on their degree of TG. In other words, regardless of how much dispositional guilt one has, individuals who were more accepting of their emotional responses tended to have lower OCS than individuals with difficulties in accepting their emotions.

These differences observed in the association between TG and OCS in participants with high versus average/low levels of emotional acceptance may be indicative of the adaptive nature of guilt. Perhaps by adopting a more vulnerable and accepting stance towards negative emotions, including guilt, individuals can experience guilt in a reparative way that does not increase distress and associated OCS. For example, feeling guilty for having violated a social norm may encourage someone to behave more cautiously in the future and in turn resolve their feelings of guilt. Indeed, it has been argued that, despite its unpleasantness, the trait tendency to experience guilt is associated with positive interpersonal and prosocial consequences (e.g., Cohen et al., 2012; Tangney et al., 2007), which in turn may reduce personal distress. Meanwhile, by adopting a non-accepting attitude towards negative emotions, perhaps individuals experience guilt (or suppressed guilt) in a maladaptive way that increases OCS. For example, by avoiding the feeling of guilt following a moral wrongdoing, a person compromises their ability to process the negative emotion, and in turn, may maintain or worsen its impact on their OCS.

The findings did not support our third hypothesis that FOG will moderate the relationship between TG and OCS. Exploratory analyses further showed that neither FOG subscales moderated the association between TG and OCS. Such nonsignificant findings bear important limitations to the conceptual model of OCD explored in this study. Nevertheless, the moderation outcomes may have been impacted by the lack of variation in TG and the non-significant relationship between TG and OCS. Alternatively, the nonsignificant outcome suggests that FOG might act independently from the tendency towards guilt feelings and should perhaps be examined independently in OCD models.

### Implications

One implication of our study is the need to attend to experiences of guilt and emotional appraisals in OCD models and, pending further research, clinical intervention. Our findings suggest that individuals with a greater acceptance of their emotions are more likely to experience less frequent and severe OCS, and their OCS further improve as their levels of trait guilt decrease. In turn, these findings indicate the importance of the relationship between OCS, guilt feelings and how individuals respond to and appraise their own emotions.

Interestingly, a preliminary multiple-baseline study with four patients showed that increasing acceptance of being guilty in non-symptomatic domains led to a significant reduction in OCS (Cosentino et al., 2012). Furthermore, increasing emotional acceptance has been shown to increase the willingness to participate in distressing tasks (Levitt et al., 2004), which might translate to exposure and response prevention (ERP) treatment. There is also evidence that, in cases where ERP is met with patient resistance or simply does not work, an alternative treatment that focuses on increasing emotional awareness and regulation skills might prove more effective. For example, acceptance and commitment therapy (Twohig et al., 2010), and dialectical behaviour therapy skills training (Valentine et al., 2015) have yielded promising results in the treatment of OCD. Finally, given the high comorbidities with emotional disorders observed in OCD (Torres et al., 2013), transdiagnostic approaches (e.g., Unified Protocol; Farchione et al., 2012) may be indicated to target shared underlying mechanisms such as avoidance, self-criticism, and emotional non-acceptance.

### Limitations and future research

Several limitations need to be considered in the present study. First, the cross-sectional design limits our ability to infer causality between variables. Thus, we cannot determine whether TG, FOG and NOE lead to OCS or are instead consequences of OCS. Future studies should utilise experimental and longitudinal designs to assess prepost changes on these variables within a targeted therapeutic intervention (e.g., increasing emotional acceptance) compared to active controls. Second, our findings are limited in generalisability due to sample characteristics. The sample was non-clinical and skewed towards white/Caucasian individuals with extended years of tertiary education. Future studies should investigate the same conceptual model in a clinical sample with a more diversified cultural and educational profile. Third, while MTurk crowdsourcing is an appropriate tool for studying psychopathology in subclinical populations (Arditte et al., 2016), some studies indicate issues relating to malingering and exaggeration of symptoms among participants (see Shapiro et al., 2013, for a review). Despite this, our use of validity/attention checks and conservative data screening significantly reduced these risks while increasing the reliability of our data. Fourth, the use of self-report measures exclusively is another limitation. Namely, the relationships among variables could be inflated as a result. Future studies may benefit from utilising interviews, behavioural measures, and/or experimental instruments (e.g., Reeves et al., 2010) to measure guilt and its various domains, such as moral, interpersonal, and state-trait guilt. Despite these outlined limitations, the present study provides valid and important implications for future research in the prevention, assessment, and treatment of OCS.

Finally, we only assessed the influence of NOE on one emotion – guilt. Further research is warranted on how NOE interacts with other negative emotions, such as shame (Laving et al., 2022), anger (Cludius et al., 2021), and the fear of self (Aardema et al., 2021), and with other OCD related behaviour, such as reassurance seeking and checking (Champion & Grisham, 2022).

### Conclusions

Our study showed that the nonacceptance of emotions and fear of guilt were more important concepts to consider in understanding OCS compared with trait guilt. In particular, variations in nonacceptance of emotion may explain why there are mixed findings in past research on the association between trait guilt and OCS. The results of this study, taken together with previous findings from related studies (Khosravani et al., 2018; See et al., 2022; Yap et al., 2018), suggest the need for evaluating whether the training of emotional acceptance strategies, either as an alternative or adjunct to ERP, can improve treatment outcomes for individuals with OCS.

### **Disclosure statement**

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