Fear of Guilt in Obsessive-Compulsive Disorder

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

Obsessive-compulsive disorder (OCD) is a significantly impairing anxiety disorder for which the most successful treatment, cognitive behaviour therapy, has 50-60% success rates, taking into account treatment refusals and dropout rates (Fisher & Wells, 2005). Thus, factors that contribute to the persistence of OCD and interfere with treatment are likely being overlooked. Indeed, Mancini and Gangemi (2004) have proposed that individuals with OCD have greater *fear* of guilt than others; that is, they dread being judged as guilty for not having done everything in their power to prevent some negative outcome. This fear of guilt fuels obsessions and compulsions as individuals attempt to prevent, avoid, or neutralise the feared guilt. However, few studies have explored fear of guilt in OCD, and no scales exist to measure this construct. The role of fear of guilt in OCD was therefore examined across two studies.

Study 1 explored the core features of fear of guilt in OCD, as well as the validity and reliability of the Fear of Guilt Scale (FOGS), a measure developed specifically to assess levels of trait fear of guilt in OCD. Results indicate that the FOGS is a valid and reliable, two-factor measure, and greater FOGS scores significantly predict more severe OCD symptoms among nonclinical participants. Study 2 aimed to determine whether fear of guilt evokes caution and feelings of doubt during the decision-making process, thereby making it more difficult to know when to stop and explaining perseveratory behaviour, such as compulsions in OCD. Findings suggest that greater fear of guilt does not predict more time taken or information needed to make decisions, but higher fear of guilt predicts feelings of uncertainty when deliberating, as indicated by ratings of greater difficulty making decisions, lower confidence in having made the right decisions, and less satisfaction with decisions made. Implications of these findings and the role that fear of guilt may play in the development and persistence of OCD are discussed.

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Introduction

Obsessive-compulsive disorder (OCD) is a debilitating anxiety disorder that afflicts 1.6% of the population at some point in their lifetime (Kessler et al., 2005) and significantly impairs quality of life across several domains, including social life, self-worth, and community (Norberg, Calamari, Cohen, & Riemann, 2008). OCD is characterised by recurrent, intrusive, and distressing thoughts, impulses, or images (obsessions) and repetitive behaviours or mental acts that the individual feels compelled to perform in order to relieve anxiety (compulsions). Common obsessions include fears about germs or contamination, doubting thoughts, and aggressive impulses (Purdon & Clark, 1993) and typical compulsions include excessive washing and cleaning, ordering and arranging, and repeated checking (Muris, Merckelbach, & Clavan, 1997).

Cognitive-behavioural models of the development and persistence of OCD highlight the fact that obsessions are universal experiences, with 99% of the population reporting having experienced at least one intrusive image, impulse, or thought at some point (Purdon & Clark, 1993; Rachman & de Silva, 1978). According to leading models of OCD, individuals with OCD differ from nonclinical individuals in their negative appraisals, or interpretations, of the probability and severity of harm and of the significance and meaning of their obsessions. People with OCD tend to overestimate the severity and chance that harm will occur and also tend to believe that harm is more likely if they are, rather than someone else is, in charge. At the same time, people with OCD tend to have an overvalued sense of responsibility for harm, such that any responsibility for a negative outcome is understood to equal full responsibility for the outcome and that failing to prevent harm is akin to actually causing harm (e.g., “Now that I know

this [content of the obsession] could happen, I have to prevent it; else, I might as well have done it myself"). The assumption of responsibility for negative outcomes evokes the compulsion, which is enacted to try to prevent the feared negative outcome, even if it is not logically connected with the outcome (Rachman, 1995; Salkovskis, Shafran, Rachman, & Freeston, 1999).

In addition to appraisals of harm and responsibility, individuals with OCD often report that the intrusive thoughts, images, or impulses reveal their true personality and are evidence that they are (or at least may be) immoral, careless, or otherwise terrible (Rachman, 1995; Salkovskis et al., 1999). Additionally, for the person vulnerable to OCD, the intrusive thought is often perceived as being the moral equivalent of having performed the action itself (moral thought-action fusion) and is viewed as being a precursor to action, its very recurrence thus increasing the probability that the feared harm will take place; both types of thought-action fusion are likely to lead to feelings of guilt (Rachman, 1995). Purdon and Clark (1999) propose that whereas people not prone to developing OCD tend to assimilate aberrant thoughts into the self-view (i.e., "Gee, even a person like me can have a thought like this"), individuals prone to developing OCD may be more likely to accommodate the self-view to be consistent with the thought (i.e., "Oh my goodness, perhaps I am a homicidal maniac at heart!").

Individuals with OCD also report greater uncertainty and dichotomy in their self-concept (i.e., self-ambivalence); that is, they report conflicting beliefs about their self-construct, have mixed feelings about their self-worth, and view themselves in dichotomous ways (e.g., "Either I am a good or a bad person"; Bhar & Kyrios, 2007). Given that individuals with OCD are high in self-ambivalence and the content of the obsessions often contradicts valued aspects of the self or violates valued perceptions of the self (Purdon & Clark, 1999; Rowa & Purdon, 2003), intrusions are especially distressing.

In sum, cognitive-behavioural models assert that beliefs about harm, overvalued responsibility, thought-action fusion, and over-importance of the meaning of thoughts drive individuals to make attempts to neutralise the harm (e.g., wash and check repeatedly), compensate for the negative outcome (e.g., perform rituals, seek reassurance), avoid future intrusive thoughts (e.g., suppress thoughts or avoid thought triggers), and become more vigilant for signs of preventable harm. These behaviours are negatively reinforced because they tend to briefly relieve the individual of anxiety. Yet, ironically, this selective attention for obsessions triggers them, thus affirming beliefs that the thought is important and meaningful (why else would it recur even when you don't want it to?) and evoking the compulsion. That harm does not occur is attributed to the performance of the compulsion rather than to the fact that the feared outcome was vague and uncertain in the first place. The insidious cycle thus persists (Rachman, 1995; Salkovskis et al., 1999).

These models have received substantial empirical support and inform standard cognitive-behaviour treatment protocols, which are the most successful, first-line psychological treatment for OCD, with success rates of 80-90%. However, when treatment refusal and dropout rates are taken into account, the success rate is much less impressive, dropping to 50-60% (Fisher & Wells, 2005). After more than 20 years of research dedicated to identifying and developing means of modifying negative appraisals of obsessions we have been unable to improve this success rate. Thus, psychological models may be overlooking factors that contribute to the persistence of OCD and interfere with treatment success.

OCD, Morality and Guilt

More recently, OCD research has begun to focus on understanding the persistence of compulsions and the motivating factors involved in compulsively performing perseverative

behaviours. In particular, researchers are now exploring the role that heightened moral sensitivity and elevated concern about moral issues may play in perpetuating obsessive-compulsive (OC) phenomena (e.g., Franklin, McNally, & Riemann, 2009; Doron, Sar-El, Mikulincer, & Kyrios, 2012).

Rachman (1980) first described individuals with OCD as being of tender conscience, fearing that they would be judged in a negative light or rejected by others if the presence and content of their obsessions were to be known. Since then, other researchers have also noted that OCD symptoms appear to be intricately linked with moral aspects of the individual's self-concept. Doron, Kyrios, and Moulding (2007) describe sensitive self-domains as domains of the self that individuals highly value but in which they feel incompetent. Studies have found that sensitivity in the morality self-domain is associated with higher levels of OC-related beliefs (including an inflated sense of responsibility, perfectionism, and belief that one should be able to control one's thoughts) and greater severity of OC symptoms, after controlling for self-worth, both in a nonclinical sample (Doron et al., 2007) and in a sample of participants with OCD. Furthermore, self-sensitivity in the morality domain appears to be specific to the experience of OCD: individuals with OCD showed significantly more sensitivity in the morality domain compared to community controls, whereas individuals with other anxiety disorders did not differ from the control sample in morality self-ratings (Doron, Moulding, Kyrios, & Nedeljkovic, 2008). Thus, moral concerns and moral emotions may strongly impact the experience and severity of OCD symptoms.

Certainly, clinical anecdotal evidence tells us that guilt is an important part of the phenomenology of OCD. Guilt is a moral emotion involving feelings of regret or remorse over a perceived transgression and implies responsibility or culpability for that transgression. Whereas

the self is often the focus of evaluation in shame, encouraging the individual to escape or withdraw, guilt involves an intense preoccupation with one's behaviour and is associated with the drive to rectify, repair, or resolve the situation (Tangney, Miller, Flicker, & Barlow, 1996).

For example, in OCD, guilt is a primary concern in moral, sexual, and religious obsessions. Guilt may also be a factor in aggressive, contamination-related, and doubting compulsions (Rachman, 1993; Shafran, Watkins, & Charman, 1996; Shapiro & Stewart, 2011; Tallis, 1994). Not-just-right-experiences (NJREs), in which the individual experiences uncomfortable sensations that things are not quite right, are frequently reported by individuals with OCD and have been linked to increased feelings of guilt (Mancini, Gangemi, Perdighe, & Marini, 2008). Yet, despite anecdotal reports of the significance of guilt in OCD, study results tend to be mixed, and there is no consistent evidence suggesting that individuals with OCD differ from others in levels of trait or state guilt (Shafran et al., 1996; Steketee, Quay, & White, 1991).

Mancini and Gangemi (2004a) have instead posited that individuals with OCD are higher in *fear* of guilt rather than in trait or state guilt per se. That is, individuals with OCD fear that they will be judged as guilty for not having done everything in their power to prevent the negative occurrence. They may feel that they are being judged by or being held to high moral standards, whether the judgment is done by him/herself or by some real or imagined third party, with stringent criteria for satisfactory performance and successfully meeting such standards. Thus, individuals with OCD may not necessarily be behaving consistently with their own morals, of whose competence they may feel uncertain, but with the morals they feel expected to uphold. Indeed, Bhar and Kyrios (1999) noted that socially prescribed perfectionism – that is, the belief that others have perfectionistic standards for oneself – predicted a significant amount of variance in OCD symptoms, over and above depression, in a nonclinical sample.

Importantly, Mancini and Gangemi (2004a) noted that in OCD, the distress experienced as a result of feared guilt arises not from fear of the negative outcome itself, but from fear of being held as responsible for the negative outcome or resultant harm. Thus, the focus is on one's own performance, and whether one's actions would meet the moral standards to which one is held, rather than on the negative outcome to be prevented. This may explain why the focus in compulsions is often on completing the behaviours properly or repeating the behaviours until the individual is satisfied with his/her performance.

High fear of guilt may drive obsessions and compulsions in individuals with OCD, as they aim to avoid, prevent, or neutralise the feared feeling of guilt and reduce feelings of moral violation. Specifically, fear of guilt may cause individuals to be vigilant for and sensitive to ways in which actions or inactions could potentially cause harm. In support of this, Gangemi, Mancini, and van den Hout (2007) found that individuals who are prone to feeling guilty tend to use state feelings of guilt as indicators of threat and risk in a situation more than those who are lower in trait guilt.

The feared feeling of guilt would then also motivate individuals to ensure that harm has not, is not, and will not occur. These pressures would lead individuals to perseverate until the possibility of being held responsible for that harm is perceived to have passed (i.e., they will continue until they no longer feel that there is any danger for which they could be held responsible). Unfortunately, it is nearly impossible to prove conclusively that danger has passed or that the possibility of harm no longer exists (i.e., the absence of something; Mancini & Gangemi, 2004a). In this way, fear of guilt may create uncertainty, making it difficult to decide when to stop, and leading individuals to perseverate until they have achieved an internal sense of knowing and/or adopt arbitrary stop rules to help them decide how much is sufficient

(Szechtman & Woody, 2004; Wahl, Salkovskis, & Cotter, 2008). We hypothesise that greater fear of guilt in individuals with OCD would manifest itself through two types of behaviours: reactive behaviours performed in response to the feeling of guilt and proactive behaviours performed to prevent or minimise guilty feelings.

First, the experience of guilt and the elevated fear associated with feeling guilty drives the individual with OCD to immediately atone or compensate for the guilt. These reactive behaviours may include reassurance seeking; repeated checking, washing, or other compensatory rituals; post-event processing to prepare for similar situations in the future; depriving oneself of enjoyable activities; and otherwise attempting to atone for one's sins or to punish oneself. It may be especially important for individuals with OCD to atone for wrongdoings as soon as possible, driving them to react immediately to obsessions and triggers, because a delay in atonement may be perceived as an attempt to evade responsibility or get away with immoral behaviours.

Indeed, in a study by Mancini and Gangemi (2004), students who experienced moral emotions in response to a hypothetical situation, either as a victim of an injustice or the perpetrator guilty of the act, always chose to respond with an action that would re-establish justice. Regardless of whether the options were framed as risky or riskless choice, victims would seek justice while guilty individuals chose to atone for their wrongdoings. Thus, moral emotions direct the choices one makes. More specifically, the experience of guilt drives individuals to seek atonement. It is thus conceivable that high fear of guilt individuals would feel the need to atone or punish themselves, further exacerbating any compulsions that would also serve as reactive behaviours. These individuals may then feel relief or a sense of justice after performing reactive behaviours, further reinforcing these responses and perpetuating the cycle of OCD.

Second, the experience of heightened fear of guilt may be so unpleasant that individuals with OCD are encouraged to avoid feeling guilty at all costs, consequently performing proactive behaviours to prevent feeling the feared guilt or to minimise the intensity of the guilty feeling. These proactive behaviours may include hypervigilance for possible guilty events (i.e., negative outcomes for which one would bear responsibility for that outcome); reassurance seeking to ensure no wrong has been done; preemptive, repeated checking and cleaning; and avoidance of triggers or additional responsibility. Since it is almost impossible to ever completely atone for something, individuals with OCD may deem it safer to prevent ever being in that guilty position, increasing the frequency and intensity of proactive behaviours as their fear of guilt rises.

In fact, Doron et al. (2008) noted that individuals with OCD show increased vigilance for intrusions that threaten their sense of morality, a sensitive self-domain. Wroe, Salkovskis, and Richards (2000) found that individuals with OCD and without OCD alike are more likely to take action to prevent harm in obsession-relevant than obsession-irrelevant situations; however, because those with OCD experience more intrusions in obsession-relevant situations than individuals without OCD (Wroe et al., 2000), greater fear of guilt would mean stronger impetus to perform preventative acts to avoid guilt-evoking obsession-relevant situations. Even in Rachman and Hodgson's (1980) description those with OCD as individuals of 'tender conscience', they noted that such individuals would be likely to be especially vigilant for possible moral violations and ways to prevent being implicated. Thus, individuals with OCD who demonstrate greater fear of guilt may exert greater effort in proactively avoiding or minimising the feeling of guilt.

The fear of guilt construct fits well into existing models of the development and persistence of OCD. In the cognitive-behavioural model outlined by Salkovskis, Rachman, and

colleagues, higher fear of guilt would mean greater concern about responsibility to prevent harm and, additionally, fear that they would be judged as responsible for that harm, should it occur. Similarly, as perceived responsibility for a negative outcome is increased, fear of being guilty for that harm is also heightened. Misappraisals of obsessions would be further exacerbated by fear of guilt, making it more urgent for individuals to perform compulsions in an attempt to avoid, prevent, and/or atone for guilty feelings. The reactive and proactive behaviours hypothesised to arise from heightened fear of guilt encapsulate well the range of OC neutralising, safety, reassurance-seeking, and vigilance behaviours described above in the model of OCD. As these reactive and proactive behaviours are reinforced, by temporarily relieving anxiety-inducing feelings of guilt or by leading individuals to believe in the efficacy of guilt-preventative efforts, these individuals reaffirm their belief that culpability for a negative event is unbearable, perpetuating OCD symptoms.

Fear of guilt is an emerging area of research in OCD literature, and few studies have specifically explored fear of guilt, let alone fear of guilt and OCD. Mancini and Gangemi (2004b) described individuals who experience fear of guilt and heightened responsibility as engaging in a prudential mode of hypothesis testing. In the prudential mode, individuals focus on the worst possible outcome, search for evidence that confirms the worst hypothesis (the "danger hypothesis") – that is, they believe that there is threat and persist in checking if the threat is present rather than trying to prove that there is no threat – and devalue any evidence that disconfirms this negative hypothesis. Individuals further seek to disconfirm any hypotheses involving more positive outcomes and maintain the worst-case hypotheses by continuing to test them in this prudential hypothesis-testing process (Mancini & Gangemi, 2004b).

Preliminary research involving nonclinical participants who completed a complicated deductive task suggests that perceived responsibility is important in driving hypothesis-testing for threat, and fear of guilt plays a significant role, above and beyond the contributions of perceived responsibility, in eliciting this focus on threat. The authors suggest that this prudential-mode of hypothesis testing may explain why individuals with obsessive beliefs in OCD are resistant to change and why individuals perseverate in their attempts to neutralise the danger. That is, much like seeds of doubt planted in their minds, individuals fear being guilty for a negative outcome, because they perceive high responsibility, and proactively check for danger using the prudential mode of hypothesis testing. However, the authors stress the need to explore the presence of prudential-testing strategies among an OCD population in further studies (Mancini & Gangemi, 2006).

Further research conducted on fear of guilt has demonstrated that both fear of guilt and perceived responsibility exacerbate OC tendencies in healthy participants. In a study by Mancini, d'Olimpio, and Cieri (2004), participants were shown eight objects on a screen and asked to accurately recreate the location of all objects. Participants who were informed that poor participant performance on the task would lead to a negative outcome (high responsibility condition) and that they had already performed poorly due to inattention (high fear of guilt group) showed more hesitation in the task, by moving objects more frequently when recreating the configurations, and performed more checks than individuals in the high responsibility condition alone. These two groups also demonstrated more OC-like behaviours than the control group and took longer to complete the task, suggesting that perceived responsibility and fear of guilt are two independent factors that contribute to compulsions (Mancini et al., 2004).

Yet, overall, very little is actually known about fear of guilt in OCD. Studies thus far have used experimental manipulation methods to induce fear of guilt, but they have not concomitantly used rating scales or other inventories to measure fear of guilt. In fact, no empirical measure of fear of guilt exists in the OCD literature, and it is unknown what key factors comprise the construct. Therefore, the aims of Study 1 were to determine the core features of fear of guilt and develop and validate a measure of fear of guilt for OCD research.

In addition, no research has been conducted on possible mechanisms by which fear of guilt is linked to OCD or can explain the persistence of OCD symptoms. While research suggests that fear of guilt induction elicits more compulsions, more hesitation, and a prudential mode of hypothesis testing (Mancini et al., 2004; Mancini & Gangemi, 2004b, 2006), it is unclear whether increases in hesitation and checking are attributable to a focus on danger alone, as proposed by Mancini and Gangemi (2006), or if they reflect broader difficulties with making decisions, lest they be held responsible for the outcome.

Indeed, several researchers consider doubting and indecisiveness a basic characteristic of OCD (Summerfeldt et al., 1998), and research supports the notion that some compulsions arise from difficulty deciding when to terminate the behaviour, because the individuals rely on a subjective, internal sense that it is appropriate to stop (Cougle, Goetz, Hawkins, & Fitch, 2012; Lazarov, Dar, Oded, & Liberman, 2010; Szechtman & Woody, 2004; Wahl et al., 2008).

Researchers have described NJREs as an uncomfortable feeling of incompleteness that motivates individuals to repeat behaviours until it feels 'just right' (Summerfeldt, 2004), and one study found that the number and intensity of NJREs, measured on a questionnaire and induced *in vivo*, predicted the duration of hand washing among nonclinical individuals (Cougle et al., 2011). Wahl and colleagues (2008) also found that individuals with OCD who wash compulsively use

subjective criteria more frequently and consider them more important for terminating washes than non-washing individuals with OCD and healthy controls. Additionally, regardless of type of compulsion, individuals with OCD used more criteria than control participants before stopping, increasing the length of hand washing. This suggests that elevated evidence requirements are a general strategy in OCD and that the use of subjective criteria impedes stopping ability,

In fact, Szechtman and Woody (2004) have proposed that OCD is fundamentally a disorder of stopping, wherein individuals are unable to achieve a satisfying internal sense that they have completed a task (i.e., they are an unable to achieve a 'yedasentience' signal), although they are able to recognise rationally that the task appears complete, and therefore perseverate on tasks for abnormal lengths of time. Interestingly, Lazarov and colleagues (2010) found that OC tendencies may lead individuals to rely more on objective, external cues to guide behaviour in order to compensate for their mistrust of subjective, internal cues. Nonclinical individuals with more OC behaviours performed worse on a relaxation task, displaying greater fluctuations in stress and greater stress overall, than those with fewer OC tendencies. However, when given biofeedback information –external indicators of internal relaxation states – while completing the relaxation task, higher OC individuals performed better than lower OC participants. Thus, higher OC people perform poorly when required to rely on their own internal cues, but when given the opportunity, they are able to use external cues to better guide their behaviour (Lazarov, Dar, Oded, & Liberman, 2010).

Additional research has found that individuals with OCD generally have difficulty making decisions in a more effortful, cognitive task. In a decision-making study involving hypothetical scenarios with varying degrees of risk, individuals with OCD requested more

information about the scenarios than non-anxious controls and took a longer time to deliberate before making choices in low risk and OCD-relevant scenarios, but not in high risk scenarios. The authors attribute this indecisiveness to the possibility that low risk scenarios are considered to be far riskier by individuals with OCD than those without, whereas high risk scenarios were considered equally risky by all (Foa et al., 2003). Although they do not suggest mechanisms that would explain these findings, fear of guilt could be one such factor that leads individuals with OCD to perceive that decisions are riskier than non-anxious individuals would deem them.

We propose that perseveration and indecisiveness of individuals with OCD may perhaps be explained through a cautious decision-making style that is driven by heightened fear of guilt. That is, because they rely on subjective, internal criteria to know when to stop, but do not trust their internal sense of knowing and, furthermore, fear being guilty for harm resulting from a wrong decision, they will show more caution when making decisions and report greater uncertainty in having made the right decision. Study 2 therefore seeks to explore whether high fear of guilt individuals require more time and more information before making decisions and whether they feel more doubt in their performance, leading them to perseverate with compulsions.

Study 1: Development and Initial Validation of a Measure of Fear of Guilt

There is currently no instrument available to measure fear of guilt as it pertains to OCD. Thus, the aims of this study were to: a) operationalize the construct and determine the core features of fear of guilt, b) develop a valid and reliable measure of fear of guilt for empirical use in studies of OCD, and c) determine whether fear of guilt is related to OC symptomatology, such that greater fear of guilt predicts more severe OC symptoms.

Methods

Initial Development of the Fear of Guilt Scale

Three key components of the fear of guilt construct were identified and defined by Drs. Christine Purdon and Adam Radomsky, two experts in OCD research. These three factors were identified as: (1) belief in the overvalued importance and meaning of guilt; (2) reactive behaviours performed in response to the feeling of guilt; and (3) proactive behaviours performed in order to prevent or minimise potential guilty feelings. Drs. Purdon and Radomsky generated a pool of 50 items designed to reflect each of these three factors thought to comprise fear of guilt. The items were presented on a 7-point Likert scale, and participants were asked to rate the extent to which they agreed with each of the statements. See Appendix A for the original, 50-item Fear of Guilt Scale (FOGS), with each item categorised by the factor it was hypothesised to target.

Participants

This study was completed in two parts, wherein undergraduate students completed for course credit the FOGS and various self-report measures of anxiety, depression, guilt, and/or neuroticism. These measures were specifically selected to explore the convergent, discriminant, and concurrent validity of the FOGS. In Group 1, 366 participants completed the FOGS, Guilt Inventory, Depression Anxiety Stress Scale, Obsessive-Compulsive Inventory, and Neuroticism

Scale of the International Personality Item Pool. Participant ages ranged from 17- to 44-years-old, with a mean age of 20 (standard deviation of 3.7 years). Participants in Group 1 were 60% female. In Group 2, 874 participants completed the FOGS and two measures of social anxiety – the Liebowitz Social Anxiety Scale and Social Phobia Inventory – included for discriminant validity analyses. Group 2 participants were 66% female and ranged in age from 17- to 54-years-old (mean of 20, SD of 3.7 years).

Measures

Fear of Guilt Scale (FOGS; Chiang, Purdon, & Radomsky, 2012)

As described above, the preliminary version of the FOGS contained 50 items designed to determine the extent to which respondents fear the guilty feeling and behave in ways to minimise, prevent, or atone for guilt. Items were presented on a 7-point Likert scale.

Obsessive-Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998)

The 42-item OCI is a self-report questionnaire that asks participants to rate the frequency and distress with which they experience common obsessions and compulsions. Items are rated on a 5-point Likert scale and summed to produce a total score of OCD symptom severity. The OCI is recognised to have excellent psychometric properties (Foa et al., 1998).

International Personality Item Pool, Neuroticism Scale (IPIP-N; Goldberg, 2001)

The IPIP-N is a brief, 10-item scale that assesses an individual's tendency to respond to stress with negative affect. Items are rated on a 5-point Likert scale and summed for a total neuroticism score. Preliminary research suggests that this scale has good internal consistency and relates strongly to the corresponding Neuroticism factor of the NEO Personality Inventory (Gow, Whiteman, Pattie, & Deary, 2005).

Guilt Inventory (GI; Kugler & Jones, 1992)

The GI is a 45-item self-report scale that measures an individual's tendency to experience guilt using three different subscales: trait guilt (i.e., dispositional tendency), state guilt (i.e., current affect), and moral standards (i.e., rigidity of moral beliefs). Studies in clinical and social psychology indicate that the GI has acceptable psychometric properties (Jones, Schratter, & Kugler, 2000).

Depression Anxiety Stress Scales, 21-item version (DASS-21; Lovibond & Lovibond, 1995)

The 21-item DASS asks participants to rate their tendency to experience negative emotional states. The DASS-21 is a short version of the parent, 42-item DASS and retains its factor structure. Responses are therefore summed according to three different scales: stress or tension, anxiety, and depression. The DASS-21 has also retained the full DASS' strong psychometric properties (Antony, Bieling, Cox, Enns, & Swinson, 2001).

Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987)

This 24-item scale measures an individual's avoidance of various social situations and level of anxiety experienced during such situations, using a 4-point Likert scale. Scored responses yield separate fear and avoidance scales for performance and social interaction situations, as well as a total social anxiety score. The LSAS is recognised to have good internal consistency, convergent validity, and divergent validity (Heimberg et al., 1999).

Social Phobia Inventory (SPIN; Connor et al., 2001)

The SPIN is a 17-item self-report scale that assesses an individual's level of fear, avoidance, and physiological symptoms in social situations due to social anxiety. The items are rated on a 5-point Likert scale and are summed to produce a total social anxiety severity score. The SPIN is also recognised to have excellent psychometric properties (Connor et al., 2001).

Data Analyses

In order to determine the factor structure and the psychometric properties of the FOGS, exploratory factor, reliability, correlation, and hierarchical regression analyses were performed. Since different measures were completed by the two participants groups, some analyses are replicated across the two groups, and other analyses are conducted on one group alone.

Results

FOGS Factors

To determine the factor structure of the FOGS, an Exploratory Factor Analysis using an oblimin rotation was conducted on data from both participant groups. Use of the oblimin rotation allowed extracted factors to be correlated instead of orthogonal. Analyses of the Scree plots and factor loadings of individual items yielded similar results across both data sets. The most parsimonious and interpretable solution suggested a two-factor structure, and the two factors explained 43.0% of the total variance in the FOGS. Two items ("If I feel guilty, it means I have done something bad" and "Anything I can do to avoid feeling guilty is worth doing") were dropped from the FOGS, because they loaded equally poorly on the two extracted factors. Factor loadings of individual items are displayed in Table 1.

The two extracted factors were labelled based on high-loading items comprising each factor. The first factor consisted of 34 items, and it largely contained content describing an individual's drive to atone for guilt and his/her beliefs about the meaning of guilt. For example, items that loaded onto the first factor include "When I have done something for which I feel guilty, it is only right that I punish myself," and "If I feel guilty, it means that I have failed as a person." Factor 1 was therefore labelled Reactive Response to the feared feeling of guilt. On the other hand, the content of the 14 items comprising the second factor mostly described efforts to

prevent or minimise future feelings of guilt. For instance, high-loading items from the second factor include "I do everything in my power to prevent harm or offence to any living creature," and "When I feel guilty, I am even more careful not to cause harm or offence than I was before." Factor 2 was labelled Proactive Response to guilt.

Total Reactive Response and Proactive Response scores were calculated by summing ratings for items that loaded on each of the extracted factors. All FOGS item ratings were also summed to produce a total FOGS score. Pearson correlations were performed to determine relationships between the two extracted factors and total FOGS score. The Reactive Response and Proactive Response factors were closely related, as expected due to the use of oblimin rotation, and correlations were highly similar across Groups 1 and 2 (respectively, $r = .680$ and .645, $p < .01$). Each factor was also very strongly related to the total FOGS score, with nearly identical correlations in both groups. The Reactive Response factor and total score were correlated at $r = .981$ and .975, $p < .01$, while the Proactive Response factor and total FOGS score were correlated at $r = .811$ and .798, $p < .01$.

Internal Consistency

The overall reliability of the scale was .96 in both groups, suggesting excellent reliability. Cronbach's alpha was also calculated for each of the individual subscales, and results from both groups indicate that the two factors are similarly high in internal consistency. The Reactive Response factor had alphas of .962 and .958 in Groups 1 and 2, respectively, whereas the Proactive Response factor yielded alphas of .854 and .877.

Convergent Validity

In order to determine the extent to which this measure of fear of guilt converged with questionnaires measuring related constructs, participant scores on the FOGS scales were

correlated with scores from guilt and anxiety inventories completed by Group 1. More specifically, participant scores on the FOGS Reactive Response and Proactive Response scales were correlated with scores on the GI State Guilt, Trait Guilt, and Total Guilt scales, the DASS Stress and Anxiety scales, and the OCI Total score. All correlations are displayed in Table 2. Results suggest that the Reactive Response factor is strongly correlated with ratings of state and trait guilt, stress and anxiety, and severity of OCD symptoms, with correlations ranging from .43 to .57 ($p < .01$). Proactive Response is less strongly related to the same constructs, with weak to moderate correlations of .20 to .38 ($p < .01$).

Discriminant Validity

To assess the FOGS' ability to successfully discriminate fear of guilt from more weakly related constructs, FOGS factor scores were correlated with Group 1 participant measures of depression, neuroticism, and moral standards, as well as Group 2 social anxiety scales. FOGS Reactive Response and Proactive Response correlations with DASS Depression, IPIP Neuroticism, GI Moral Standards, SPIN Total, and LSAS Total are presented in Table 3. Findings indicate that Reactive Response is weakly related to the rigidity of one's moral standards ($r = .22$, $p < .01$), but moderately correlated with scores on depression, neuroticism, and social anxiety measures ($r = .32$ to .43, $p < .01$). The Proactive Response factor is weakly related to the same scales ($r = .18$ to .23, $p < .01$).

Concurrent Validity

A hierarchical regression analysis was also conducted to determine whether fear of guilt, as measured by FOGS factors, could significantly predict severity of OCD symptoms after controlling for participant levels of anxiety, depression, neuroticism, and guilt. Group 1 study variables were entered in three steps, with total OCI score as the dependent variable. DASS

Anxiety, Stress, Depression, and IPIP Neuroticism scores were entered first (Step 1), followed by GI State Guilt, Trait Guilt, and Moral Standard scores (Step 2), and, lastly, FOGS Reactive Response and Proactive Response scales (Step 3).

Overall, the regression model was significant, $R^2 = .51$, F (9,337) = 38.87, $p < .001$. In Step 1, anxiety, stress, depression, and neuroticism accounted for 45% of the variance in OCI scores ($p < .001$). Guilt variables in Step 2 only explained 1% additional variance in OCI scores, which was not significant at $p = .14$. However, the addition of fear of guilt scales in Step 3 significantly increased the variance explained by 5% ($p < .001$).

Notably, comparisons of zero-order and semi-partial correlation analyses of predictor variables with OCI score suggest that Proactive Response is being suppressed by Reactive Response. While the relationship between Proactive Responses to feared guilt and OCD symptom severity appears to be positive ($r = .21$), the negative semi-partial correlation ($r = -.12$) indicates that there is a week negative relationship between the two variables when accounting for the Reactive Response variable. This suppression is likely due to shared variance between Proactive Responses and Reactive Responses, a positive relationship, and another positive relationship between Reactive Responses and the DV. Thus, typically, the greater one's tendency to perform proactive behaviours to prevent or minimise guilt, the lower the severity of one's OCD symptoms; however, the relationship between Reactive Response and OCI scores masks this relationship; More detailed results are shown in Table 4.

Table 1. Factor loadings of items from the Fear of Guilt Scale.

Group 1 (N = 366)		
Item No.	**Factor 1 – Reactive Response**	**Factor 2 – Proactive Response**
28	.852	-.077
33	.844	-.133
30	.802	.035
35	.796	-.116
29	.785	.021
34	.784	.018
39	.780	-.023
40	.754	.012
25	.753	.021
32	.723	.158
44	.712	.055
24	.710	.013
41	.687	.072
2	.682	-.195
37	.677	-.226
47	.633	.161
9	.616	.046
36	.610	.118
45	.586	.142
31	.567	.154
46	.564	.019
20	.536	.146
27	.527	.305
43	.514	.279
48	.508	.173

Item No.	**Factor 1 – Reactive Response**	**Factor 2 – Proactive Response**
1	.497	.097
16	.452	.090
12	.442	.333
5	.410	.162
15	.388	.228
8	.373	.328
10	.366	.332
23	.315	.262
6	-.136	.814
4	-.289	.797
14	-.052	.779
11	.054	.682
7	.168	.549
26	.115	.542
21	.093	.524
17	.107	.488
49	.065	.487
19	.173	.480
50	.051	.475
22	.164	.395
18	.122	.391
13	.321	.375
3	.333	.344
42	.138	.273
38	.094	.231

Continued Table 1. Factor loadings of items from the Fear of Guilt Scale.

Group 2 (N = 874)		
Item No.	**Factor 1 – Reactive Response**	**Factor 2 – Proactive Response**
39	.838	-.133
28	.833	-.133
33	.832	-.184
29	.814	-.055
30	.792	-.028
35	.754	-.146
40	.747	.036
24	.735	.003
34	.727	-.051
32	.713	.094
25	.706	.071
2	.674	-.164
41	.667	-.030
37	.652	-.142
44	.647	.099
47	.640	.035
45	.625	.053
20	.610	.119
9	.601	.040
43	.585	.218
36	.583	.198
27	.561	.288
12	.548	.231
31	.543	.128
48	.539	.199

Item No.	**Factor 1 – Reactive Response**	**Factor 2 – Proactive Response**
46	.534	.003
1	.525	.042
5	.426	.121
13	.403	.186
15	.401	.315
3	.400	.273
16	.394	.123
8	.377	.289
10	.343	.316
23	.328	.311
42	.291	.269
11	.046	.731
14	-.048	.697
4	-.230	.690
6	-.119	.657
26	.039	.598
18	.113	.581
21	.149	.567
19	.212	.559
7	.227	.528
50	.119	.524
49	.148	.520
17	.169	.485
38	.004	.458
22	.301	.395

Table 2. Correlations between FOGS factors and measures of related constructs completed by Group 1 (N = 366).

	GI State Guilt	GI Trait Guilt	GI Total Guilt	DASS Stress	DASS Anxiety	OCI Total
FOGS Reactive Response	.481	.568	.573	.425	.459	.518
FOGS Proactive Response	.264	.355	.384	.232	.215	.204

*All correlations are significant at the $p < .01$ level.

Table 3. Correlations between FOGS factors and measures of weakly related constructs.

	Group 1 (N = 366)			Group 2 (N = 874)	
	DASS Depression	IPIP Neuroticism	GI Moral Standards	SPIN Total	LSAS Total
FOGS Reactive Response	.383	.427	.218	.416	.317
FOGS Proactive Response	.179	.179	.228	.215	.209

*All correlations are significant at the $p < .01$ level.

Table 4. Hierarchical multiple regression analysis predicting OCD symptom severity.

	R^2	$R^2\Delta$	Sig. *F* Δ	β	Sig. β	Zero-order correlation	Semi-partial correlation
Step 1	**.45**	**.45**	**.00**				
Neuroticism (IPIP-N)				.03	.65	.43	.02
Depression (DASS)				-.05	.47	-.04	-.03
Anxiety (DASS)				.42	.00	.34	.25
Stress (DASS)				.16	.02	.58	.09
Step 2	**.46**	**.01**	**.14**				
State Guilt (GI)				-.07	.33	.40	-.04
Trait Guilt (GI)				.08	.27	.45	.04
Rigid Moral Standards (GI)				-.02	.71	.07	-.01
Step 3	**.51**	**.05**	**.00**				
FOGS Reactive Response				.35	.00	.51	.22
FOGS Proactive Response				-.17	.00	.21	-.12

Discussion

The purpose of this study was to operationalize and identify the core features of fear of guilt, develop and assess the validity of a measure of fear of guilt in OCD, and elucidate the relationship between fear of guilt and OCD. To that effect, the FOGS was developed and administered to two large samples of undergraduate students. Analyses were then conducted to determine the factor structure, internal consistency, and validity of the scale.

Results of the exploratory factor analysis suggest a two-factor structure for the fear of guilt construct, as measured by the FOGS. The Reactive Response factor captures the drive to atone or punish oneself following feelings of guilt, as well as one's beliefs about the importance of guilt. The Proactive Response factor reflects efforts to pre-emptively prevent or minimise guilt. These two factors are consistent with the latter two constructs proposed while developing the scale. Items from the third proposed factor, the belief in overvalued importance and meaning of guilt, were distributed between the two extracted factors, but most of the items from this proposed factor were found to load more highly on the Reactive Response factor.

The two subscales and the total FOGS score were expected to correlate with one another, due to the use of a non-orthogonal factor extraction method, and findings indicate that all three scales are, in fact, strongly correlated with one another. The FOGS also showed excellent reliability overall, and both the Reactive Response and Proactive Response subscales demonstrated high internal consistency. These findings were consistent and virtually identical across the two different participant groups.

The FOGS also demonstrated good convergent validity. Correlations between fear of guilt and related measures of guilt, anxiety, and OCD symptomatology ranged from .4 to .6 for Reactive Responses and .2 to .4 for Proactive Responses. The Proactive Response factor was

less strongly correlated with these related constructs than expected. Thus, perhaps the tendency to act proactively to minimise or preclude oneself from guilt, due to one's fear of guilt, may in fact be successful and allow individuals to feel less state guilt, trait guilt, and anxiety, and perform fewer OC behaviours than expected. Alternatively, this might suggest that proactive responses are, in fact, performed before the anxiety and stress associated with guilt take place and, therefore, tap into slightly different constructs than guilt, anxiety, or OC phenomena.

Additionally, the FOGS was able to discriminate fear of guilt from more weakly related constructs, such as depression, neuroticism, social anxiety, and rigid moral standards. Correlations between these measures and Reactive Responses ranged from .2 to .4, while Proactive Response factor correlations with the same scales were .2. However, correlations between the Reactive Response factor and discriminant measures – in particular, neuroticism and social anxiety – were stronger than expected. This might be accounted for if the FOGS also captures emotional reactivity to stress, as in neuroticism, and if the threat of guilt, a significant and feared feeling, poses as an emotional stressor to which the individual must react. Additionally, social concerns may be inherent in fear of guilt – that is, individuals worry that others will perceive them as guilty and find this anxiety intolerable – thus mapping well onto the fear of negative evaluation that is characteristic of social phobia. This would much resemble the significant relationship between socially prescribed perfectionism and OCD symptoms described by Bhar and Kyrios (1999). Overall, these patterns of correlations suggest that, as hypothesised, the FOGS is related to measures of anxiety, guilt, depression, neuroticism, and OCD symptom severity, but the FOGS is not redundant with these measures.

Furthermore, fear of guilt, as measured by the FOGS, significantly predicted the severity of current OCD symptoms after levels of state and trait guilt, depression, anxiety, and

neuroticism. Beta coefficients for the two FOGS factors indicate that they have different relationships with OCD symptomatology. Greater reactive responses are predictive of more severe OCD symptoms, whereas nonclinical individuals scoring higher on the Proactive Response subscale are likely to experience fewer OCD symptoms, perhaps due to successful deployment of strategies to ameliorate situations that would otherwise lead to guilty feelings. Moreover, as predicted, trait and state guilt did not significantly predict severity of symptoms.

In sum, study findings suggest that fear of guilt, but not trait or state guilt, is predictive of OCD severity and may thus be a mechanism through which obsessions and compulsions can be understood. However, results of this study are limited by the nonclinical participant sample; future studies should therefore assess the validity and predictive power of the scale using clinical OCD and other anxiety disorder populations. Further research is also needed to determine the test-retest reliability of the scale and to replicate the convergent and discriminant validity of the FOGS when more specific measures than those administered in this study are used to control for anxiety, depression, guilt, and neuroticism. Nevertheless, the FOGS has demonstrated good psychometric properties, and its two-factor structure appears to validly and reliably measure of fear of guilt in the context of OCD.

Study 2: Does Fear of Guilt Predict a More Cautious Decision-Making Style?

No research has been conducted on mechanisms which may explicate the link between fear of guilt and OCD symptoms. We posit that perseveration can be explained through a cautious decision-making style and feelings of uncertainty, which are driven by the feared feeling of guilt. That is, individuals with OCD are higher in fear of guilt and have more difficulty determining that they will no longer be culpable for harm, while simultaneously finding it more important for them to know. These fears drive these individuals to be more cautious and/or doubt themselves more, and they perseverate until they feel that they will not be held guilty for harm.

Some research indicates that individuals with OCD do, in fact, tend to be indecisive, requiring more information before making decisions (Foa et al., 2003) and taking longer to complete tasks (Summerfeldt et al., 1998). However, other research suggests they take the same amount of time as control participants to deliberate when making decisions about moral dilemmas (Franklin et al., 2009). Thus, this study aimed first to determine whether fear of guilt evokes caution in decision-making. In particular, one aim was to clarify whether greater fear of guilt leads individuals to require more information and more time before making a decision, especially when it is not clear which option is the "right" choice.

Moreover, fear of guilt may orient people to potential harm, but it is difficult to know whether one course of action may lead to more harm than other. Consequently, even after having made a decision, it may be possible for individuals to continue to doubt that they have made the right decision. This study's second aim was therefore to explore whether individuals who have greater fear of guilt, and are particularly sensitive to revealing possible incompetence in moral behaviour, experience greater feelings of doubt and discomfort about the decisions they

make. More specifically, would greater fear of guilt drive individuals to experience more difficulty when making decisions, less satisfaction with decisions made, and less confidence in having made the right decision?

Furthermore, since the main hypothesised concern in those who excessively fear guilt is not the probability of harm itself but the thought of being held responsible for that harm, the study aimed, thirdly, to elucidate whether greater fear of guilt leads individuals to prefer certain types of information over others. For example, these individuals may find that knowing others' opinions (i.e., how others would behave in the same situation), rather than relying on their own appraisal of the facts, allows them to feel that they have shared the responsibility (e.g., "I chose option A because my mother said it was the better option") and thus decreases the possibility of culpability in the event of a negative outcome. Thus, the third aim of the study was to determine if, given the opportunity, individuals with elevated fear of guilt will prefer information from specific sources – namely, others' opinions – which would absolve them of some guilt in case they make a wrong decision (e.g., "It's not my fault, because my mother said it was the better option").

Methods

Participants

Participants in this study were 63 undergraduate students enrolled in the introductory psychology course at the University of Waterloo. Participants were invited to complete the study for course credit based on scores above or below one standard deviation on the short version of the FOGS (FOGS-SV; i.e., Total FOGS-SV score < 60 or > 100). The mean participant age was 20 (SD = 2.97 years), and the sample was 63.5% female.

Procedure

Participants were recruited based on scores from the FOGS-SV, which was completed with several other screener questionnaires as part of mass testing procedures. Participants were selected from both ends of the FOGS-SV score distribution (i.e., high and low in fear of guilt on the screener scale) in order to increase the probability of obtaining greater variance and range in FOGS scores, given that their scores on the full FOGS were likely to regress toward the mean. All participants completed five steps in this study: baseline measures, a stove task that afforded an opportunity to activate state fear of guilt, state fear of guilt induction or no induction (randomly assigned), a decision-making task, and ratings of the decision-making experience. Please refer to Figure 1 for a visual depiction of study procedures.

First, informed consent was obtained, and participants completed baseline questionnaires measuring trait fear of guilt (FOGS), presence and severity of OCD symptoms (*Vancouver Obsessional Compulsive Inventory*), and state affect (*Positive Affect and Negative Affect Schedule*, PANAS). These questionnaires were included to help determine whether participants assigned to the different fear of guilt induction groups differed in trait characteristics and to examine the various contributions of fear of guilt and state affect to decision-making style.

Second, participants were given a description and demonstration of the stove task, asked to complete a second PANAS ("pre-stove task PANAS") and five visual analogue scales ("pre-stove task VAS," see *Measures* below), and then video recorded while completing the stove task. In this complex stove task, the indicator light was covered and all knobs were removed so that participants were unable to determine visually whether any burners were on. Participants were then given one knob with which they could adjust the four burners to various levels in specified sequences. If completed correctly, all four burners would be off at the end of the task; if

performed incorrectly, some of the burners could be left on. Participants then placed a pot of dry rice on the top right burner and left the room to complete the next phase of the study. This stove task is based on an experimental checking paradigm by Radomsky, Gilchrist, & Dussault (2008), but differs in that there is a real possibility of causing harm if the task is not completed properly (i.e., burning the dry rice and starting a fire if the burner is left on). As well, participants were left to complete the task alone and were informed that the experimenter would not return to the room; therefore, participants had greater responsibility for harm that might have occurred as a result of improper task completion.

Third, participants were randomised to either have state fear of guilt induced or not. Those who had fear of guilt induced received a comment from the experimenter ("I hope you turned off all the burners; otherwise, I'll get in trouble") designed to trigger doubts about not having completed the task correctly and increase the potential for guilt (i.e., participants may feel culpable if the experimenter were to get in trouble for their poor performance). Those who did not have fear of guilt induced received no comment. All participants completed a third PANAS and the same set of VAS ("post-stove task PANAS and VAS").

Fourth, all participants were introduced to the computerised decision-making (DM) task and given measures to complete prior to the task ("pre-DM task PANAS and VAS"). This DM task is based on Foa and colleagues' (2003) experimental paradigm, which explored clinical OCD participants' decision-making strategies in hypothetical scenarios. This DM task design, in particular, was chosen because the deliberation process is left open-ended, and participants are left to determine for themselves how much time and information they need before they make their decision. However, the DM task designed for this study involved the creation of original

scenarios and modifications of Foa et al.'s design in order to better standardise the task, remove variance from possible confounding factors, and realistically raise the stakes.

In our DM task, twelve hypothetical scenarios were presented to participants; each scenario involved a choice between two options (A or B) and a threat of a negative outcome should the participant make the wrong choice. One piece of information was always provided, and participants could either choose to receive additional information (for a maximum of four total pieces) or to make their decision after receiving each piece of information, thus completing the scenario. In this way, participants could choose how much information they wanted and how long to spend deliberating before making a decision. This design differs from that of Foa et al. (2003) in that each scenario includes the threat of a negative outcome, and all information about the scenarios provided is standardised to come from four specific types of sources, rather than being attributed to varied and assorted sources.

Unbeknownst to participants, the four pieces of information available for each scenario fell into four specific categories: small-scale fact (e.g., a difference in cost), large-scale fact (e.g., findings of a large study), small-scale opinion (e.g., a parent's recommendation), and large-scale opinion (e.g., findings of a poll of experts). The information was ambiguous, suggesting only slight advantages, and counterbalanced such that both facts and both opinions – and, similarly, both small-scale and both large-scale pieces – were never in agreement that A or B was the better option. In order to become familiarised with the task, participants completed a practice scenario before the 12 scenarios were presented. The DM task was programmed on e-prime, which allowed for the randomisation of the order in which scenarios and information were presented, as well as the measurement of decision-making duration through reaction time data (i.e., time spent deliberating each slide).

Last, all participants were presented with each scenario and decision they had made and then asked to complete several sets of ratings about how they had felt about their decisions and how helpful each piece of information had been, using the Decision-Making Process Rating Questionnaire. Finally, each participant completed a post-DM task PANAS and VAS, and then was debriefed.

Measures

Fear of Guilt Scale, Short Version (FOGS-SV)

This scale consists of 20 items, the 10 highest loading items on each of the two factors from the full Fear of Guilt Scale. The FOGS-SV is rated on a 7-point Likert scale and was used as a screening tool to measure trait fear of guilt.

Fear of Guilt Scale (FOGS; Chiang, Purdon, & Radomsky, 2012)

The revised, 48-item FOGS from Study 1 was used to measure trait levels of fear of guilt. See Study 1 for additional information about the psychometric properties of the inventory.

Vancouver Obsessional Compulsive Inventory (VOCI; Thordarson, Radomsky, Rachman, Shafran, Sawchuk, & Hakstian, 2004)

This 55-item scale measures the frequency and severity of several common OCD-type thoughts and behaviours experienced by individuals. Participants rate their agreement with items on a 5-point Likert scale, and items load onto six subscales, or factors (Contamination, Checking, Obsessions, Hoarding, Just Right experiences, and Indecisiveness), and one total scale score. The VOCI has also demonstrated strong psychometric properties, such as good internal consistency, high test-retest reliability, and good convergent and discriminant validity (Thordarson et al., 2004).

Positive Affect and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)

The PANAS asks respondents to rate, on a 5-point Likert scale, the extent to which they are currently experiencing (i.e., as state affect) ten positively valenced emotions and ten negatively valenced emotions. The ratings are totaled such that two scales are produced – positive affect and negative affect. The PANAS has been widely used as a measure of state affect, and it has consistently demonstrated excellent psychometric properties (Watson, Clark, & Tellegen, 1988).

Visual Analogue Scales (VAS)

At baseline, before and after the stove task, and before and after the DM task, participants were asked to rate, on a 150-mm line, where they fell on five state variables. Individuals were asked to consider the likelihood of harm, severity of harm, responsibility for harm, guilt, and fear of guilt, should harm occur as a result of their performance on the task (i.e., not turning off the stove correctly on the stove task and making the wrong decision in the DM task). The baseline set of VAS pertained to the participant's projected performance on the stove task. Scores were based on the measured length of the line, in mm, from the furthest left edge to the participant's vertical mark on the line.

Decision-Making Process Ratings Questionnaire

This questionnaire consists of five items to be completed for each of the 12 scenarios in the DM task. For each scenario, participants rated on an 11-point Likert scale ("0=not at all" and "10=extremely") how difficult it had been to make that decision, how satisfied they were with that decision, and how confident they were that they had made the right decision. As well, participants were shown all the pieces of information they had received for each scenario. They then ranked the pieces of information in order of how important each had been in helping them

make their decision (i.e., first, second, etc.) and provided a rating of how much weight each piece had contributed to their decision-making (i.e., two pieces of information with equal bearing on the final decision would be rated 50%-50%).

Data Analyses

In order to determine whether or not the fear of guilt induction was successful, a manipulation check was performed by conducting a repeated measures analysis of variance (repeated measures ANOVA) comparing the fear of guilt *vs.* no induction groups before and after the manipulation. A series of hierarchical regression analyses were also performed to determine whether study variables – most notably, state and trait fear of guilt – could predict how carefully participants mulled over decisions and how uncertain they reported feeling about their decisions. Correlation analyses were also performed to ascertain whether there was any relationship between fear of guilt and the type of information preferred by participants.

Hypotheses

1. Higher fear of guilt evokes greater caution in decision-making, which can be demonstrated through objective indicators of cautious deliberation, such as requesting more information and taking more time to make decisions.

2. Higher fear of guilt evokes feelings of doubt about decisions made, which are evident through subjective ratings of the decision-making process, such as greater difficulty making decisions, less satisfaction with decisions made, and less confidence in having made right decision.

3. Individuals who are higher in fear of guilt will prefer to receive additional information in the form of others' opinions over other types of information, such as facts. Thus, higher fear of guilt will be associated with a greater frequency of this preferred type of information (as they persist in requesting more information until they receive this specific source of information), greater importance in the decision-making process assigned to informative opinions, and a larger percentage of the decision made attributed to opinions.

Results

Demographics

Results from a chi-squared test and several *t*-tests suggested that participants randomised to the fear of guilt induction group (i.e., the group that received the comment) were not significantly different from those randomised to the no induction group (i.e., the group that received no comment) on various demographic variables and baseline measures. Specifically, the two groups did not significantly differ on participant gender, age, level of trait fear of guilt, endorsement of OCD symptomatology, and baseline positive and negative affect. See Table 5 for more detailed results.

Manipulation Check

To determine whether the manipulation was successful for those randomised to have fear of guilt induced, the two groups were compared on their ratings of state fear of guilt before and after the induction task. Since the induction task in our study included both the complex stove task and the comment following the stove task, participants' pre- and post-stove task VAS ratings were compared. A successful fear of guilt induction would be expected to result in: a) no

significant difference in pre- and post-stove task fear of guilt VAS ratings for the no induction group; b) significantly higher post-stove task fear of guilt VAS ratings than pre-stove task for the induction group; c) no significant difference in fear of guilt VAS *between* the no induction and induction groups pre-stove task; and d) significantly higher post-stove task VAS ratings for the induction group than no induction group.

A repeated-measures ANOVA was performed to compare state fear of guilt ratings before and after the induction (i.e., pre- and post-stove task VAS ratings of fear of guilt) between the fear of guilt induction and no induction groups. Results suggest that fear of guilt did not change significantly over time, $F(1,59) = 1.79$, $p = .19$, nor did they differ significantly between groups $F(1,59) = .02$, $p = .88$. The interaction between group and time of rating was also not significant, $F(1,59) = .41$, $p = .53$.

Another repeated-measures ANOVA was completed to determine whether the manipulation had resulted in any change in state guilt, rather than state fear of guilt. Again, guilt ratings did not change significantly over time, $F(1,59) = .04$, $p = .84$, nor did the groups differ significantly in ratings of guilt, $F(1,59) = 1.18$, $p = .28$. Although the interaction of group by time appeared to be significant, $F(1,59) = 5.77$, $p = .02$, post-hoc *t*-tests indicate that the induction and no induction groups were not significantly different in state guilt before the stove task ($t[1,59] = -.311$, $p = .76$) or after the induction task ($t[1,59] = -1.86$, $p = .07$). Thus, the induction task did not result in any significant increase in fear of guilt post-stove task, nor did it result in significantly higher fear of guilt ratings compared to the no induction group.

Since the fear of guilt manipulation was unsuccessful (i.e., the Comment and No Comment groups are effectively the same in state guilt and fear of guilt after the induction task), all subsequent analyses do not differentiate between the fear of guilt induction and no induction

groups. Rather, continuous data, such as trait fear of guilt (through baseline FOGS scores) and state fear of guilt (pre-task fear of guilt VAS ratings) are used in the following analyses.

1) Does higher fear of guilt evoke caution in decision-making?

To determine whether higher trait or state fear of guilt could predict greater caution in decision-making, taking into account ratings of state responsibility and likelihood of harm, two hierarchical regression analyses were conducted. Caution in decision-making was operationalized in two ways: requesting more information and taking a longer time before making decisions. Therefore, the dependent variables (DVs) for the two different regression analyses were, respectively, total amount of information requested in the whole task and total time taken to complete all of the scenarios.

In both sets of analyses, five independent variables (IVs) were entered as predictors on two steps: FOGS Reactive and Proactive scales (Step 1), followed by pre-DM VAS ratings for state fear of guilt, responsibility, and harm likelihood (Step 2). In the first regression analysis, the five predictor variables did not significantly predict the total number of pieces of information requested across all scenarios. The model was not significant, $R^2 = .07$, $F(5,55) = 0.83$, $p = .54$. Similarly, the second regression analysis did not yield significant results, with the variance in the predictor variables not accounting for a significant amount of the variance in total time taken to complete all scenarios, $R^2 = .10$, $F(5,55) = 1.27$, $p = .29$. Detailed results are displayed in Tables 6 and 7.

2) Does higher fear of guilt evoke feelings of doubt about decisions made?

Three additional sets of hierarchical regression analyses were performed to determine whether fear of guilt could significantly predict feelings of doubt or uncertainty when making decisions. Feelings of doubt about decisions made were measured after the DM task using 3

dependent variables: 1) ratings of the difficulty of each decision, 2) ratings of one's satisfaction with each decision, and 3) ratings of one's confidence in having made the right decision. In each of these regression analyses, the same predictor variables were once again entered in the same order: trait fear of guilt in Step 1 (FOGS Reactive Response and Proactive Response scales), and then state fear of guilt, responsibility for harm, and harm likelihood in Step 2 (VAS ratings).

In the hierarchical regression analysis in which the five IVs were used to predict the average difficulty of decision – averaged across all 12 scenarios – the model was significant at R^2 = .25, $F(5,54) = 3.57$, $p = .006$. Together, the trait fear of guilt variables in Step 1 accounted for 11% of the variance in the average rating of difficulty ($p = .04$). Similarly, the set of state variables in Step 2 uniquely explained 14% of the variance in the DV ($p = .02$). At an individual variable level, only the state fear of guilt VAS ($p = .05$) significantly predicted the average difficulty rating; this relationship is positive. While the Reactive Response variable significantly predicted the DV when first entered, it lost statistical significance when the state variables were entered ($p = .02$ to .11), likely because some of the variance originally explained by trait fear of guilt was later captured by the state fear of guilt variable. See Table 8 for full results.

The regression model in which trait fear of guilt, state fear of guilt, responsibility for harm, and harm likelihood were used to predict the average rating of satisfaction with decision was also significant, $R^2 = .32$, $F(5,54) = 5.02$, $p = .001$. Step 1 (trait fear of guilt) variables again accounted for a statistically significant 19% of the variance in average satisfaction rating ($p = .002$), while Step 2 variables (state fear of guilt, responsibility, and harm likelihood) explained an additional unique 12% of the variance ($p = .03$). Three individual predictor variables significantly predicted the average satisfaction rating: Reactive Response ($p = .003$), responsibility for harm ($p = .03$), and likelihood of harm ($p = .04$).

Results of zero-order and semi-partial correlation analyses of the predictor variables with the DV indicate that the responsibility for harm variable is being suppressed by the two state variables also being entered on the same step – harm likelihood and state fear of guilt. The zero-order correlation between the responsibility rating and average satisfaction is -.03 (p = .85), but the semi-partial correlation, which holds the other two IVs constant, is .25 (p = .07). Additional correlation analyses suggest that while responsibility, on its own, is positively related to one's satisfaction with decision, responsibility for harm also shares variance with the fear of guilt VAS and harm likelihood VAS, outside of their relationships with satisfaction with one's decisions. However, both fear of guilt and harm likelihood VAS variables have negative relationships with the criterion variable, and these negative relationships suppress the positive relationship between responsibility and decision satisfaction, because of shared variance between the three IVs. See Table 9 for regression results and correlations.

In addition, when the five IVs were entered in a hierarchical regression analysis to predict the average rating of confidence in having made the right decision, the model was significant at R^2 = .34, $F(5,54) = 5.65$, $p < .001$. When the trait fear of guilt variables were first entered, they explained 17% of the variance in average confidence rating (p = .005), and when state variables were added, they explained an additional, significant 17 % of the variance in the DV (p = .005). Nearly all IVs are significant, individual predictors in the regression equation: Reactive Response (p = .006), Proactive Response (p = .02), state responsibility (p = .02), and state harm likelihood (p = .005).

Similar to correlation analysis results from the average satisfaction regression the responsibility VAS was suppressed by the other two VAS variables in the same manner. Whereas the zero-order correlation of responsibility with average confidence was -.02 (p = .89),

the semi-partial correlation was .27 (p = .04). Thus, the same relationships exist in that responsibility and confidence are somewhat positively related (so as beliefs in responsibility for harm increase, so too does one's confidence in having made the right decision), but shared variance exists between one's feelings of responsibility for harm, beliefs about likelihood of harm, and state fear of guilt. Therefore, the latter two variables' negative relationships with the criterion variable suppress that of the responsibility variable, making it appear that no relationship exists.

Reactive Response suppression of Proactive Response was also replicated here - the zero-order correlation between Proactive Response and average confidence is effectively zero (r = .03, p = .81), but the semi-partial correlation is .27 (p = .02) . As in Study 1, Proactive Response is positively related to the criterion variable – in this case, confidence in having made the right decision – but shares some variance with Reactive Response, which is negatively related to the DV. The nature of these relationships would suggest that Proactive Response is not correlated with confidence in decision-making, though the variance unique to Proactive Response (when holding Reactive Response steady) is actually weakly positively related to the DV. Full results are presented in Table 10.

3) Does higher fear of guilt lead individuals to prefer certain types of information over others?

To determine if participants exhibited preferences for certain types of information over others, several correlation analyses were performed. For each of the four types of information, trait fear of guilt (i.e., FOGS Total score) was correlated with three indicators of preference: average frequency of that type of information over the course of the DM task, average rank of importance ascribed to that type, and average weight attributed to that type of information in the DM process. Please refer to Table 11 for all 12 correlations. Only one correlation – that of

FOGS Total and the average rank attributed to small-scale facts – was significantly different from zero (r = .29, p = .02). All other correlations were not statistically significant. The correlation of fear of guilt with average small fact rank was compared to the other non-independent correlations of fear of guilt and average rank of the other three types of information (for dependent correlations measured on the same subject, as described by DeCoster [2007]). Results suggested that none of the correlations were significantly different from that of fear of guilt with average small fact rank (*vs.* large-scale fact, z = .70, p = .48; *vs.* small-scale opinion, z = 1.60, p = .11; *vs.* large-scale opinion, z = 1.5 , p = .13).

Table 5. Differences between fear of guilt induction and no induction groups on demographic variables and baseline measures.

	Fear of Guilt Induction Group Mean (SD)	**No Induction Group Mean (SD)**	***t***	***p*-value**
Gender	58% female	70% female	$\chi^2 = 1.05$	.31
Age	20.45 (3.70)	19.63 (1.83)	-1.10	.28
Trait Fear of Guilt (FOGS Total)	185.00 (42.93)	179.07 (45.10)	-.53	.60
OCD Symptoms (VOCI Total)	40.24 (31.24)	46.80 (34.39)	.79	.43
Baseline Positive Affect (PANAS)	21.16 (6.27)	24.13 (6.86)	1.77	.08
Baseline Negative Affect (PANAS)	14.12 (5.71)	14.87 (5.06)	.55	.59

Figure 1. Visual depiction of study procedures.

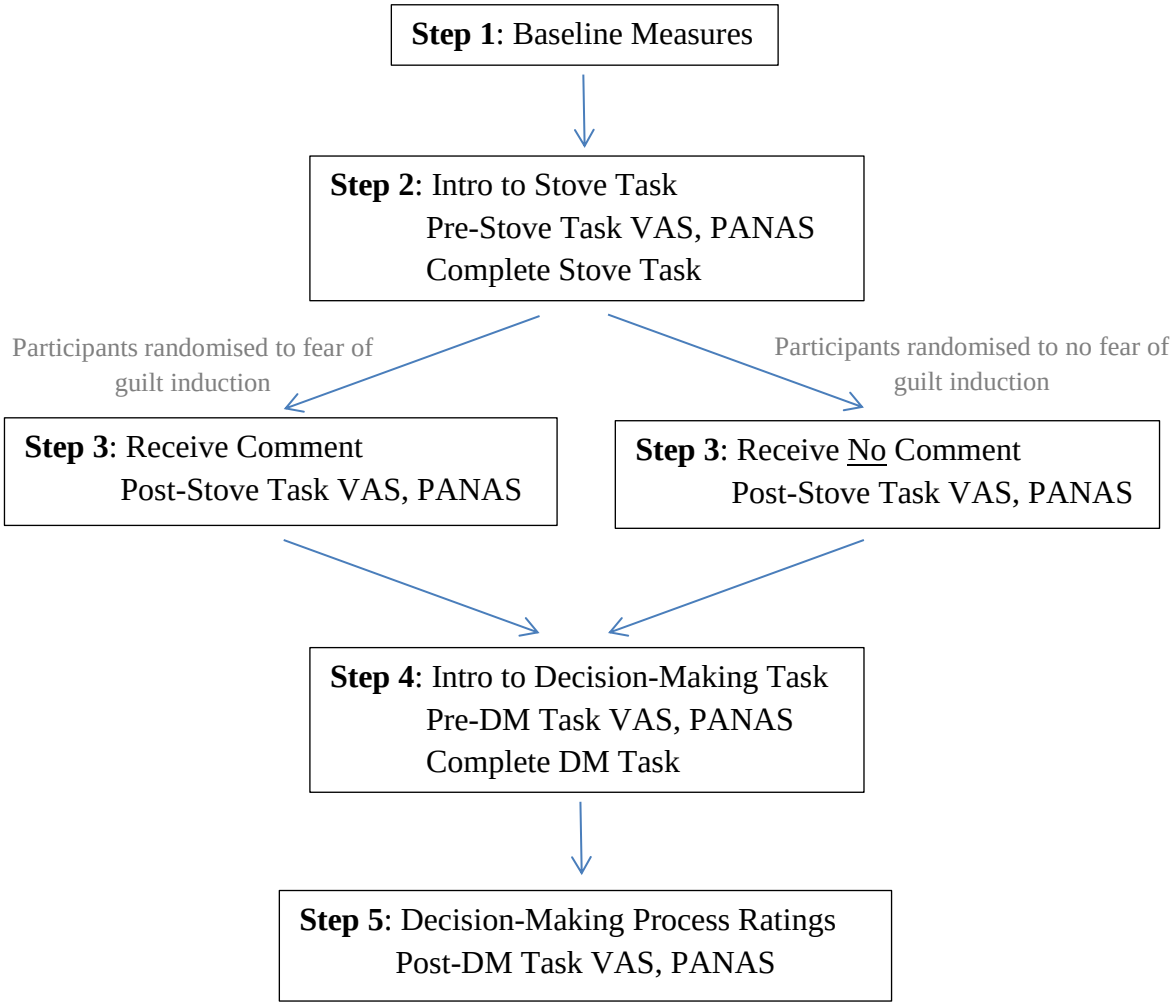

Table 6. Hierarchical multiple regression analysis predicting total amount of information requested in decision-making task.

	R^2	$R^2\Delta$	Sig. *F* Δ	β	Sig. β	Zero-order correlation	Semi-partial correlation
Step 1	**.04**	**.04**	**.28**				
FOGS Reactive Response				.26	.15	.20	.19
FOGS Proactive Response				-.05	.77	.10	-.04
Step 2	**.07**	**.03**	**.67**				
State Responsibility (VAS)				-.18	.25	-.11	-.15
State Fear of Guilt (VAS)				-.03	.86	.01	-.02
State Harm Likelihood (VAS)				.07	.65	.04	.06

Table 7. Hierarchical multiple regression analysis predicting total time taken to complete all scenarios in decision-making task.

	R^2	$R^2\Delta$	Sig. *F* Δ	β	Sig. β	Zero-order correlation	Semi-partial correlation
Step 1	**.01**	**.01**	**.69**				
FOGS Reactive Response				-.04	.84	.05	-.03
FOGS Proactive Response				.17	.33	.11	.13
Step 2	**.10**	**.09**	**.15**				
State Responsibility (VAS)				-.28	.07	-.17	-.24
State Fear of Guilt (VAS)				-.11	.46	-.07	-.10
State Harm Likelihood (VAS)				.29	.07	.12	.24

Table 8. Hierarchical multiple regression analysis predicting average difficulty of decision.

	R^2	$R^2\Delta$	Sig. *F* Δ	β	Sig. β	Zero-order correlation	Semi-partial correlation
Step 1	**.11**	**.11**	**.04**				
FOGS Reactive Response				.26	.11	.31	.19
FOGS Proactive Response				-.15	.36	.12	-.10
Step 2	**.25**	**.14**	**.02**				
State Responsibility (VAS)				-.07	.61	.18	-.06
State Fear of Guilt (VAS)				.28	.05	.40	.24
State Harm Likelihood (VAS)				.24	.09	.37	.20

Table 9. Hierarchical multiple regression analysis predicting average satisfaction with decision.

	R^2	$R^2\Delta$	Sig. *F* Δ	β	Sig. β	Zero-order correlation	Semi-partial correlation
Step 1	**.19**	**.19**	**.002**				
FOGS Reactive Response				-.47	.003	-.39	-.34
FOGS Proactive Response				.24	.11	-.11	.18
Step 2	**.31**	**.12**	**.03**				
State Responsibility (VAS)				.29	.03	.01	.25
State Fear of Guilt (VAS)				-.20	.14	-.31	-.17
State Harm Likelihood (VAS)				-.29	.04	-.32	-.24

Table 10. Hierarchical multiple regression analysis predicting average confidence in having made the right decision.

	R^2	$R^2\Delta$	Sig. *F* Δ	β	Sig. β	Zero-order correlation	Semi-partial correlation
Step 1	**.17**	**.17**	**.005**				
FOGS Reactive Response				-.43	.006	-.29	-.31
FOGS Proactive Response				.36	.02	.03	.27
Step 2	**.34**	**.17**	**.005**				
State Responsibility (VAS)				.32	.02	.02	.27
State Fear of Guilt (VAS)				-.18	.16	-.28	-.16
State Harm Likelihood (VAS)				-.39	.05	-.39	-.32

Table 11. Correlations between trait fear of guilt and indicators of preference for each type of information in the DM task.

	Small Fact Frequency	**Large Fact Frequency**	**Indiv. Opinion Frequency**	**Mass Opinion Frequency**
FOGS Total	.19	.17	.14	.20
	Average Small Fact Rank	**Average Large Fact Rank**	**Average Indiv. Opinion Rank**	**Average Mass Opinion Rank**
FOGS Total	.29*	.21	.06	.10
	Average Small Fact Weight	**Average Large Fact Weight**	**Average Indiv. Opinion Weight**	**Average Mass Opinion Weight**
FOGS Total	-.25	-.15	-.04	-.20

*Correlation significant at $p < .05$ level.

Discussion

The purpose of this study was to determine whether fear of guilt predicts caution in decision-making, evokes feelings of doubt when deliberating, and influences individuals' preferences for information when trying to make decisions. To explore this, half of the study participants were randomised to have fear of guilt induced by making a comment instilling doubt in their performance and alerting them to possible negative outcomes should they not have completed the task properly. The other half received no comment (no fear of guilt induction). Both groups then completed the computerised DM task and rated the DM process.

Contrary to expectations, results indicated that the fear of guilt manipulation was unsuccessful, since the two groups – one with fear of guilt induced and one without any induction – did not differ significantly in change in fear of guilt or guilt ratings following the manipulation. That is, the two groups were feeling effectively the same levels of fear of guilt and state guilt despite our attempted manipulation. There are several possibilities as to why the manipulation did not work. First, it is possible that the experimenter's comment was too subtle, and the suggestion that they may have forgotten to turn off the stove was not enough to activate guilty feelings or enhance their fear of guilt alone. Since participants were left alone to complete the stove task, they may also have simply checked the burners to their own satisfaction before receiving the comment, thus achieving certainty on their own that they had turned off all burners. Thus, in spite of any warnings of responsibility and possible harm, it may not have been possible for them to fear being guilty of not having turned off the stove properly.

Second, some participants also reported having ascribed responsibility for any potential negative outcome to the researcher (e.g., "It's your study; you won't let the building burn down"), so while they might feel some guilt, they wouldn't fear being blamed, because they felt

that it was someone else's responsibility. As well, it is possible that it is simply difficult to tap into the construct, because it involves too subtle a differentiation of feelings for individuals to consciously rate. For example, Harrison and colleagues (2012) found that, when confronted with moral dilemmas involving life and death situations, individuals with OCD and control participants rated scenarios as similarly emotionally provocative, but individuals with OCD exhibited significantly greater activation of brain areas typically associated with OCD behaviours. Thus, while individuals with OCD did not subjectively rate moral dilemmas as more emotionally provocative, there is a significant difference in neural activation, suggesting that there may be a considerable divide between one's perceived emotional experience and one's awareness of it. Finally, it may simply have been the case that the stove task itself activated state fear of guilt in everyone.

1) Does higher fear of guilt evoke caution in decision-making?

Study results indicated that greater fear of guilt did not, as hypothesised, evoke caution in decision-making. Trait and state fear of guilt did not predict the total amount of information requested by individuals, nor did they predict the total time taken to complete decisions for all twelve scenarios, both of which are objective indicators of a cautious decision-making style. While no existing studies closely resemble the methods used in this study, these results were not consistent with what was expected, based on findings from related studies. Mancini et al. (2004) found that participants who had fear of guilt and responsibility activated took longer to complete a visuospatial task and performed more checks. As well, given that fear of guilt is significantly related to OCD symptomatology (see Study 1), it may be possible to extrapolate from DM studies using OC participants. Findings are mixed, with Foa and colleagues (2003) reporting that the greater the OCD symptoms, the more information required and more time taken to make a

decisions, and Franklin et al. (2009) noting that OC and control participants did not differ in time taken to deliberate moral dilemmas.

The null finding with respect to the relationship between fear of guilt and total amount of information received may in part have been affected by ceiling effects. The average number of pieces of information requested for a scenario was 3 (SD = .9), and it is not clear whether the variance in total number of pieces of information would have changed, or if some participants would have continued to request more information had they been offered a maximum of ten pieces of information, for example. Additionally, all decisions involved hypothetical situations with no real repercussions. Perhaps the scenarios were not realistic enough for participants to fear the hypothetical negative outcomes or to feel that situations tapped into their idiosyncratic OC concerns. It is also worth mentioning that not all of the scenarios in the Foa study included a threat of possible harm; thus, this may have been a confounding variable that added variance into the significant relationship between OC phenomena and greater caution in decision-making.

Moreover, findings from Harkin and Mayes' (2008) study may clarify the null results between time taken to complete decisions and fear of guilt. In a sample of nonclinical participants, they found that response latencies for decisions about series of hypothetical statements were slower for high OC individuals than low OC individuals, but only when the statements were low in ambiguity. In medium and high ambiguity situations, high and low OC individuals were comparable in response times. They hypothesised that low OC individuals use quick, context-independent DM strategies in low ambiguity situations, whereas higher OC individuals persist with slower, more careful deliberation. At higher levels of ambiguity, all individuals alike deliberate more carefully (Harkin & Mayes, 2008). Given that all scenarios in

this study's DM task were high in ambiguity, it is perhaps not surprising that there was no relationship between fear of guilt and objective indicators of cautious decision-making.

2) Does higher fear of guilt evoke feelings of doubt about decisions made?

Our analyses suggested that greater fear of guilt does, as predicted, evoke feelings of doubt in decision-making. Fear of guilt significantly predicted subjective ratings of difficulty making decisions, satisfaction with decisions, and confidence in having made the right decision. While trait fear of guilt, as measured by both FOGS factors, accounted for a significant amount of variance for each of these DVs, some measure of fear of guilt was also always a significant individual predictor of each DV, whether as a state fear of guilt VAS or as a subscale for the FOGS. These findings support our second hypothesis and are, in turn, supported by several studies that note the significant relationship between doubting or difficulty trusting one's internal senses and perseveration (Cougle et al., 2011; Lazarov et al, 2010; Summerfeldt, 2004; Wahl et al., 2008).

Interestingly, it appears that not all aspects of fear of guilt are negatively associated with satisfaction with decisions. In a DM study by Gangemi et al. (2007), they found that high-trait guilt individuals who had undergone a guilt induction tended to report greater dissatisfaction with their efforts to prevent harm in hypothetical situations after feeling guilty – though this relationship was not statistically significant – than did high trait-guilt individuals in the anxiety or control conditions. This non-significant relationship matches well this study's finding that Proactive Response lacked unique predictive power in predicting one's satisfaction with one's decisions.

The state variables, which measured state fear of guilt and OC cognitions, such as responsibility for harm and likelihood of harm, also predicted greater feelings of doubt while

deliberating, over and above trait fear of guilt when they were entered into analyses as one group. Thus, not only does fear of guilt lead individuals to mistrust their internal sense that they have made a good decision, but levels of OC-typical cognitions at the time of decision-making contribute to undermining participants' certainty in having made the right choice.

Patterns of correlations also suggested statistically complex relationships between variables of interest. Further exploration indicated that state ratings for responsibility for harm and Proactive Response scores were each positively related with satisfaction and confidence ratings, but not difficulty ratings, in the DM task when controlling for other predictor variables. Thus, perhaps these two variables serve as protective factors in the DM process, allowing individuals to feel more secure in their decisions. More specifically, feeling more responsible for harm may lead individuals to persist until they feel more certain about their decisions. Proactive responses to fear of guilt may, as found in Study 1, be somewhat successful in helping individuals feel that they have prevented or minimised harm for which they might feel guilty, allowing them to better trust their internal sense that they made an appropriate decision. However, neither variable actually helps individuals find decisions less difficult.

3) Does higher fear of guilt lead individuals to prefer certain types of information over others?

Third, it was hypothesised that individuals who are higher in fear of guilt would prefer to have information in the form of others' opinions, as it would allow them to transfer responsibility in case of a negative outcome, circumventing any possible fears of being guilty. However, we found that participants' level of fear of guilt was not associated with greater preference for opinions than facts (or vice versa), as indicated by greater correlations between fear of guilt and frequency, ranked importance, or contributing weight in the DM process. This null finding was not expected, but may perhaps be attributed to the fact that the sample was comprised of

undergraduate participants. Due to the academic setting and students' familiarity with studies, the participants may have lent more credence to facts than would be expected in a community sample or sample of clinical individuals. This would have diminished any differences in preferences for specific information types. Alternatively, it is possible that individuals who fear guilt find all types of information helpful in informing their decisions, because facts serve as external cues which they can use to help satisfy elevated evidence requirements (Lazarov et al., 2010; Wahl et al,. 2008), and opinions help them share responsibility, thus allaying fears of guilt.

In conclusion, findings from our study suggest that fear of guilt, which brings about feelings of doubt when deliberating (e.g., when to stop a behaviour), is a possible explanatory mechanism by which individuals with OCD perseverate. It is the case that interpretation of study results is limited by the use of nonclinical participants, especially from an undergraduate population, rather than individuals with OCD. As well, participants were asked to retrospectively report on how they had felt during the DM process after having completed all 12 scenarios, and ratings for each scenario may have been inaccurate or even biased by decisions that would have taken place between each scenario and the individual's rating of that scenario. However, when designing the study, it was determined that asking participants to complete ratings after the completion of each scenario was not ideal, since it would explicitly call attention to their decision-making process, thus influencing and changing their decisions. Furthermore, as previously noted, all scenarios involved hypothetical dilemmas and repercussions. Although scenarios were written to model common, relatable issues, it is possible that individuals might behave differently in the case of real-life problems or threat of real harm, thus creating differences in time taken or amount of information required to make a decision.

General Discussion

Altogether, results from both studies suggest that fear of guilt significantly predicts the level of OCD symptoms in a nonclinical sample of undergraduate students. Also, fear of guilt may be an explanatory mechanism for perseveration, because individuals do not want to feel guilty for harm caused and cannot know which course of action will lead to more harm. Because fear of guilt undermines individuals' trust in internal cues (e.g., that they may have made a decision properly or well), they lack a sense of knowing and feel doubt in their own decision-making ability. Since they cannot decide whether they are yet safe from culpability, individuals have difficulty knowing when to stop, whether in the process of deliberating or while performing some OC-type behaviour. Therefore, individuals perseverate and may need to rely more on external cues or adopt subjective rules as stopping criteria. Yet, our findings suggest that it is possible that proactive responses to feared guilt are somewhat successful in preventing guilty feelings and help individuals feel more certain in their decisions, though they may not make the actual decision feel easier.

Although fear of guilt may therefore play a significant role in the development and persistence of OCD, it is not clear from where this elevated fear of guilt would originate. Additionally, there is no research exploring why some individuals would have higher fear of guilt than others. We propose that high parental psychological control in childhood causes individuals to develop elevated trait levels of fear of guilt, leaving them more vulnerable to developing OCD.

Parental psychological control is a well-researched construct from the parenting literature, and it has been defined as manipulative parenting behaviours that impede a child's psychological and emotional development as an autonomous, independent being (e.g., Barber,

1996). Frequently used parental psychological control strategies include (1) making parental love, attention, and care contingent on children's compliance with parental rules and withdrawing love should standards not be met; (2) inducing anxiety in children to make them adhere to parental rules; (3) invalidating expressions of children's internal states (e.g., thoughts, feelings, etc.); and (4) inducing guilt to coerce children into behaving in specific ways (Soenens & Vansteenkiste, 2010).

Psychological control is distinct from behavioural control, which encompasses parental behaviours that are used to control and manage a child's behaviour along two dimensions – discipline used to enforce rules and monitoring or awareness of the child's activities. Whereas behavioural control has consistently been linked to child externalizing problems, psychological control has more frequently been associated with internalising outcomes, such as anxiety and mood difficulties (Barber, 1996; Ballash, Leyfer, Buckley, & Woodruff-Borden, 2006). These internalising difficulties have frequently been attributed to the child's failure to develop a stable sense of self, independent from the parent (Barber, 1996).

Several child studies support a specific link between parental psychological control and anxiety. In a study by Messer and Beidel (1994), child anxiety was correlated with self-reported perception of parental control, and anxious children reported less promotion of independence by their parents. Observer ratings of child-parent interactions, when completing challenging study tasks, also suggest that parents of anxious children are more intrusive, negative, and controlling than parents of non-anxious children (Greco & Morris, 2002; Hudson & Rapee, 2001). Additionally, compared to mothers of competent or aggressive children, mothers of anxious children are rated by observers as showing the highest levels of psychological control, including criticism, punishment, and intrusiveness (Dumas, LaFreniere, & Serketich, 1995).

Use of parental psychological control in childhood may more specifically result in high trait fear of guilt and vulnerability to OCD. Individuals with more severe OCD symptoms retrospectively rated family members as more critical and hostile than those with less severe OCD symptoms (Van Noppen & Steketee, 2009). Research also suggests that mothers with clinical depression frequently use guilt induction to control their children's behaviours. These children frequently have difficulty distinguishing problems they caused from those over which they have no control – especially with the burden of their parent's depression, whose symptoms children cannot alleviate – and feel responsible for things that they cannot actually control. Indeed, children of depressed mothers who use guilt induction as a control strategy feel more culpable for minor transgressions and develop more internalising problems (Rakow et al., 2009). As previously described, this inflated sense of responsibility is a core feature of OCD and of fear of guilt.

Furthermore, children of parents who frequently use guilt induction as a psychological control strategy may grow to fear feeling guilty, because it appears unpredictably (i.e., parental pressure to feel guilt may arise in situations for which children are culpable and in situations for which children bear no responsibility) and may signal impending punishment or withdrawal of love. As well, since these children grow up in an invalidating environment – that is, their internal experiences are not responded to in an appropriate and consistent way – they may grow to mistrust their internal states (e.g., feelings of guilt, thoughts about having done tasks correctly). Thus, they may look to the external environment to inform them about valid responses to events, consistent with literature reported above.

Arguably, psychological control may affect children as early as 5-years-old, as soon as they are able to experience guilt, shame, or other internal pressures, and respond behaviourally

based on these emotions. Findings from one study suggested that higher observer ratings of psychological control in parent-child interactions parent reports of internalizing problems in nine-year-old children. Negative consequences of psychological control are assumed to be most pronounced in adolescence, consistently across early, middle and late adolescence, because it is developmentally normative for youth to be seeking greater independence, autonomy, and self-control at this age (Soenens & Vansteenkiste, 2010). This may have implications for understanding specific times of vulnerability for the development of OCD.

In sum, this research has implications for our understanding of contributing factors in the development and persistence of OCD. Our findings support existing models of OCD that highlight the importance of one's internal sense of knowing when to stop, and propose an underlying mechanism, involving doubt in one's decisions, by which researchers can understand perseveration. Furthermore, better understanding of the fear of guilt construct will be important in informing current treatment strategies. Individuals who do not respond to treatment, drop out early from therapy, or refuse treatment may perhaps have had the significance of their fear of guilt overlooked, thus preventing them from challenging the core concern of their OCD – namely, their fear of being held guilty for harm – or may not have been able to benefit from exposures to their feared feelings of guilt. Additional research will need to be conducted to more clearly elucidate the link between and effects of fear of guilt and cautious or uncertain decision-making in individuals with OCD.

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Appendix A

Fear of Guilt Scale (FOGS)

Construct 1: Overvalued meaning of guilt

24	I pay a lot more attention to feelings of guilt than I do to my other emotions
23	If I feel guilty, it means I have done something bad
39	When I do something for which I feel guilty, it means I am a callous, selfish, careless, and/or dishonest kind of person
18	When I have done something for which I feel guilty it means I have not been true to the person I would most like to be
20	When I have done something for which I feel guilty I will rightfully be viewed as a callous, selfish, careless, and/or dishonest kind of person
33	If I feel guilty it means that I have failed as a person
41	If I have done something for which I feel guilty, I worry that those I cherish will be punished
5	I feel that all of my decisions actions are being closely watched and judged
16	I often find myself justifying my actions to myself, hoping to prove I am blame-free
47	I often fear that I am about to be in big trouble for having done something wrong
35	If I don't please "the powers that be", it means I am bad
42	I was raised to believe that guilt has value and/or meaning
17	It is arrogant and/or immoral to ignore feelings of guilt
31	Guilt is the most important emotion you can feel
48	Feeling guilty means I care

Construct 2: Reactive response to guilt

12	It is not right to relax and/or enjoy myself if I have not completely atoned for something for which I feel guilty
7	When I have done something for which I feel guilty, I feel very angry at myself for not having known better
15	When my actions or inactions *might* have (but didn't) harm or offend a living creature, I feel just as guilty as if I had actually caused harm/offence
30	I do not have the right to relax or enjoy myself if I have done something for which I feel guilty
9	When I feel guilty, I deprive myself of things I enjoy
28	When I have done something for which I feel guilty, it is only right that I punish myself
40	If I am feeling guilty, I force myself to review what I did wrong in painstaking detail both to identify my error and to punish myself
25	When I have done something for which I feel guilty, I loathe myself

3	When I start to feel guilty, I must stop everything to figure out what I did wrong
43	When I start to feel guilty I must start atoning right away
32	I do not stop atoning for something I have done until I no longer feel guilty
21	If I have done something for which I feel guilty I must fix it, atone for it and/or confess it before others confront me with it
37	If I feel guilty, I must keep what I did a secret so that others don't find out what a horrible person I am
48	If I feel guilty, I must seek reassurance from others that I am not as horrible as I think I am
34	If I cause even the slightest harm or offence to any living creature I cannot forgive myself, even if others can
11	When I feel guilty, I am even more careful not to cause harm or offence than I was before
44	My guilt quickly turns to panic and dread
27	When I feel guilty, I find it hard to focus on anything else
22	If I think someone is upset with me, I cannot rest until I have appeased her/him
2	I feel guilty most of the time

Construct 3: Proactive response to guilt

46	I would rather die myself than cause harm of any kind to a living creature
13	I don't like to take an action if there is a possibility of a negative outcome, no matter how small
8	I wish I could predict the future so I could avoid doing anything about which I would end up feeling guilty
29	I do not allow myself to relax and/or enjoy myself unless I am certain that I have nothing to feel guilty about
1	I frequently scan my memories to see if I have done anything for which I should feel guilty
4	I do everything in my power to prevent harm or offence to any living creature
6	I must never cause a living creature or person harm or offence, no matter how accidental, unavoidable or minimal – unless it is in the service of preventing greater harm
38	I will take actions that people do not like if it means protecting them from worse harm
26	I should have no negative impact whatsoever on the lives of any living creature
45	If I cause even the slightest harm or offence to any living creature, they are right to reject me
14	I, of all people, should not be the cause of any harm of any kind to any living creature
36	I would do anything to avoid being guilty for something
19	Even the thought of feeling guilty in the future is enough to change my actions so that I do my best to prevent it
10	Anything I can do to avoid feeling guilty is worth doing