An Examination of Reassurance-Seeking in Relation to Scrupulosity and Contamination Concerns

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Reassurance-seeking is a safety-seeking behavior that has been observed across symptom dimensions of obsessive-compulsive disorder (OCD), including in individuals with scrupulosity, or moral/religious-based OCD. The current study sought to build upon existing literature by providing an examination of reassurance-seeking in the context of scrupulosity as compared with contamination concerns, which represent a different symptom dimension of OCD. Participants (N = 63) completed a battery of questionnaires prior to and following an administration of the Sentence Task—a laboratory-based task intended to elicit distress relevant to an obsessive belief known as thought-action fusion. The study utilized the TRSS-PM, a newly adapted measure of present-moment urges to seek reassurance. Regression analyses indicated that scrupulosity symptoms were a stronger predictor of TRSS-PM scores following the Sentence Task than were contamination concerns when controlling for anxiety. This represented a different pattern of results than emerged in a linear regression analysis measuring checking symptoms, of which both scrupulosity symptoms and contamination concerns were significant predictors. Scores on the TRSS-PM were positively correlated with scores on other measures of reassurance-seeking. The results of this study provide preliminary evidence that reassurance-seeking may be more specifically associated with scrupulosity than
with other symptom dimensions of OCD. However, the current study was limited by a num-
ber of factors, including the use of a nonclinical college sample and the use of a new measure
of reassurance-seeking without established psychometric properties. Future research should
explore the mechanisms underlying the pattern of associations observed in the current study
and should determine whether these findings may be meaningful for clinical decision making
and treatment planning.
AN EXAMINATION OF REASSURANCE-SEEKING IN RELATION TO SCRUPULOSITY AND CONTAMINATION CONCERNS

BY

KATIE H. MANGEN
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Kevin D. Wu
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CHAPTER 1
INTRODUCTION

Obsessive-compulsive disorder (OCD) is a condition characterized by the presence of obsessions (unwanted and recurring thoughts and urges) and compulsions (repetitive behaviors performed with the goal of reducing anxiety; American Psychiatric Association [APA], 2013). OCD is associated with a number of symptoms, including the tendency to engage in excessive reassurance-seeking behavior, whereby the individual repeatedly asks others for anxiety-reducing information that s/he already possesses (Salkovskis, 1985). Within the context of OCD, reassurance-seeking is regarded as a safety behavior and has been conceptualized as being similar to—or an explicit form of—compulsive checking, with the goal of avoiding negative outcomes (Rachman, 2002; Salkovskis, 1999). Similar to compulsive checking, in individuals with OCD, obtaining reassurance from others is related to a short-term decrease but a long-term return in distress and urges to seek further reassurance (Salkovskis & Kobori, 2015). However, reassurance-seeking differs somewhat in function and form from other types of compulsive checking due to its social nature (i.e., direct, intentional involvement of other people) and goal of dispersing responsibility for potential harm to others (Salkovskis, 1999).

Individuals with OCD perceive that their reassurance-seeking is beneficial to them and that, although the benefits lessen with time, is still preferable to the alternative of not obtaining any reassurance (Salkovskis & Kobori, 2015). However, seeking reassurance contributes to the maintenance of OCD symptoms and may lead to the worsening of future intrusive thoughts, as it reinforces the misconception that an individual’s intrusive thoughts are significant (Salkovskis, 1999). Moreover, caregivers of individuals with OCD experience frustration
when they repeatedly are asked for reassurance; however, they also have concerns about withholding it, such as the fear that the individual with OCD will respond poorly (Halldorsson, Salkovskis, Kobori, & Pagdin, 2017). These concerns contribute to interpersonal problems for both members of the relationship (Halldorsson et al., 2017). Reassurance-seeking is a complex behavior with implications for the personal and social well-being of individuals with OCD and their family.

However, reassurance-seeking may not have the same appearance or function in precisely the same way for all individuals with OCD. The disorder increasingly has come to be recognized as a heterogeneous condition, meaning that it is characterized by various presentations consisting of different symptom dimensions (Abramowitz, Taylor, & McKay, 2009). Among the major symptom dimensions that have been identified are contamination concerns and associated washing compulsions, concerns regarding symmetry and order, and inappropriate intrusions such as unacceptable thoughts about sex and religion (Abramowitz et al., 2009). Related to the latter of these symptom dimensions is scrupulosity, defined as obsessions and compulsions with religious or moral themes (Abramowitz & Jacoby, 2014). Scrupulous individuals engage in reassurance-seeking from religious leaders (and other individuals) regarding religious issues, such as salvation, blasphemy, and failure to properly execute rituals (Abramowitz & Jacoby, 2014). However, although this reassurance-seeking behavior often is described as a component of scrupulosity, research linking reassurance-seeking with scrupulosity symptoms is limited.

In order to build on recent laboratory tests of reassurance-seeking behavior as it relates to other symptom dimensions of OCD, the current study provided a behavioral test of whether scrupulosity symptoms are related to desires/urges to seek reassurance when exposed to an anxiety-inducing task. We predicted that reassurance-seeking urges following an anxiety induction would be more related to scrupulosity symptoms than to symptoms of a different dimension of OCD. The results obtained from this study contribute toward a better under-
standing of the behavior of clinically scrupulous individuals and inform future efforts to treat the symptoms and improve the interpersonal relationships of individuals with scrupulosity.

**Safety-Seeking Behaviors**

Safety-seeking behaviors are behaviors that individuals perceive as protecting them from the threat caused by anxiety-provoking stimuli and situations (Salkovskis, 1991). For example, individuals with social phobia may tense their muscles in an attempt to prevent their bodies from shaking in a social situation (Wells et al., 1995). Due to the perception that safety-seeking behaviors serve a protective function, individuals come to believe that the behavior has prevented them from being harmed by such stimuli (Salkovskis, 1991). Cognitive accounts of the maintenance and behavior exhibited in anxiety disorders have highlighted that safety-seeking behaviors result from logical reactions to perceptions that one is facing a serious threat, although the preventative nature of these behaviors makes it unlikely that such cognitions of threat may be falsified (Salkovskis, 1991). For example, if individuals with social phobia tense their muscles every time they encounter a social situation, they may come to believe that they cannot cope with these situations without tensing their muscles, since they have no proof that they can do so. Because the very nature of these behaviors prevents the individual from disconfirming cognitions of threat, they lead to the maintenance of anxiety disorders (Salkovskis, 1991). This is because when a safety-seeking behavior is paired with the avoidance of a threat, it acts as confirmation that the safety-seeking behavior is preventing the threat from harming the individual, thus leading to continued avoidance (Salkovskis, 1991).

Because it functions as a safety behavior, reassurance-seeking has been hypothesized to result from a combination of overestimation of threat and underestimation of the individual’s
perceived ability to manage the threat (Rector, Kamkar, Cassin, Ayestar, & Laposa, 2011). This results from the individual’s perception that s/he is personally more liable to harm from an OCD-related threat than others (Moritz & Jelinek, 2009). For example, a person whose OCD symptoms are characterized by contamination concerns and who lives close to a hospital may feel that s/he is more at risk of becoming ill than others due to this proximity (Moritz & Jelinek, 2009). Within this conceptualization of erroneous estimations, individuals with anxiety disorders may be particularly likely to engage in reassurance-seeking in situations that evoke feelings of indecisiveness, uncertainty about their relationships, and worry about general threats (Rector et al., 2011).

Reassurance-Seeking in OCD

Research focused on reassurance-seeking in OCD appeared as early as the mid-1970s, with a case study that noted that individuals with obsessive symptoms often seek reassurance and documented the extinction of reassurance-seeking behavior during treatment of childhood OCD (Hallam, 1974). A process of extinction again was used in a follow-up study to eliminate reassurance-seeking behavior in a young child with OCD (Francis, 1988). During this period, reassurance-seeking began to appear as a component of cognitive-behavioral models of OCD. One analysis suggested that in individuals who experience obsessions, reassurance-seeking functions as a form of neutralization, with the goal of dispersing to other people the eventual responsibility for unwanted outcomes (Salkovskis, 1985). However, this same analysis also noted that it is not always clear whether reassurance-seeking serves the function of neutralization, since it also arises in situations in which other forms of neutralization are used, such as in individuals with contamination concerns who neutralize by washing their hands (Salkovskis, 1985). Whether reassurance-seeking functions specifically as a neutral-
ization technique or simply as a means of spreading responsibility, therapists must be careful not to provide reassurance so as not to provide clients with a means of avoiding feared stimuli (Salkovskis, 1985). Moreover, it was noted that the provision of reassurance to individuals with obsessions had been shown to be ineffective in relieving symptoms, most likely because of its function as a form of neutralization (Salkovskis, 1989). Salkovskis and Westbrook (1989) noted that it is important for clients to be able to disrupt covert compulsions such as reassurance-seeking and avoidance. Because exposure and response prevention (ERP)—the first-line treatment for OCD—involves interaction with the feared stimulus without performing an associated compulsion, an inability to disrupt these covert compulsions may lead to failed treatment efforts (Patel & Simpson, 2010).

Research based on these models has helped to elucidate the relationships among reassurance-seeking and obsessive-compulsive phenomena. Individuals with OCD who report seeking reassurance from others tend to have more severe obsessions than those who do not report reassurance-seeking \( t = 2.69, p = .008 \); Starcevic et al., 2012). Reassurance-seeking has been compared with (and in some cases equated to) checking compulsions (Starcevic et al., 2012). However, different factors predicted these two neutralization strategies: obsession severity and the absence of hoarding symptoms predicted reassurance-seeking; obsessions regarding unintentional harm and the lack of a steady romantic relationship predicted checking compulsions (Starcevic et al., 2012). This suggests that, although reassurance-seeking and checking may be related, they are not equivalent behaviors—a finding that may be supported by moderate correlations between the Checking subscale of the Obsessive Compulsive Inventory (OCI) and the Source \( r = .24 \) and Carefulness \( r = .33 \) subscales of the Reassurance-Seeking Questionnaire (ReSQ; Kobori & Salkovskis, 2012). However, the results of this study may be limited by the fact that the researchers did not make a priori hypotheses regarding the relationship between reassurance-seeking and compulsive checking, but rather set out to explore the assumption that these two behaviors are closely related.
(Starcevic et al., 2012). Moreover, although the lack of a romantic relationship was a unique predictor of checking, this may simply be because individuals without such relationships may be less likely to have someone from whom they can seek reassurance, thus leading to increased reliance on checking or other viable options (Starcevic et al., 2012). Interestingly, the results of this study did not find an association between reassurance-seeking and the “unacceptable thoughts” category of OCD symptoms, including religious obsessions. The authors suggested that this may have been due to issues such as the grouping and number of such obsessions rather than an actual lack of association (Starcevic et al., 2012).

An examination of reassurance-seeking across anxiety disorders found that reassurance-seeking predicted the symptoms of social anxiety, generalized anxiety disorder, and OCD in a regression analysis ($\beta = 0.20, t = 2.57, p < .02$), after controlling for and with comparable strength to intolerance of uncertainty, an important construct in anxiety disorders (Cougle et al., 2012). Among the symptoms of OCD, reassurance-seeking was shown to be most strongly related to thoughts of harm ($\beta = 0.24, t = 2.36, p < .03$; Cougle et al., 2012). This was interpreted by the authors to be consistent with past findings, which have indicated that items on the Yale-Brown Obsessive-Compulsive Scale – Symptom Checklist (Y-BOCS-SC) measuring reassurance-seeking load onto the same factor with obsessions of sexual, aggressive, and religious themes (Williams et al., 2011).

Individuals with OCD perceive their reassurance-seeking as a reaction to intrusive thoughts, such as doubts and unpleasant images, and to emotions and sensations that they interpret as being negative experiences (Halldorsson & Salkovskis, 2017). As noted, it also is motivated by a need to spread responsibility to others and a desire to reduce threats, with the goal of obtaining a greater feeling of certainty that there is no danger to be resolved (Halldorsson & Salkovskis, 2017). This supports findings demonstrating a relationship between measures of reassurance-seeking and intolerance of uncertainty ($r = .61$), which has been conceptualized
as an important piece of the pathology of anxiety disorders and has been suggested to be the cause of reassurance-seeking (Cougle et al., 2012).

Reassurance-seeking may persist in many individuals with OCD and contribute to the maintenance of symptoms in part because it is a relatively easy and available solution (Salkovskis & Kobori, 2015). Obtaining reassurance has been shown to be related to a short-term reduction in distress and urges to seek further reassurance, but these symptoms return in the long term in individuals with OCD (Salkovskis & Kobori, 2015). Research also has indicated that individuals with OCD perceive receiving reassurance as anxiety reducing, despite its diminished impact over time (Kobori, Sawamiya, Iyo, & Shimizu, 2015). Individuals with OCD also report experiencing more powerful urges to seek reassurance after failing to obtain it than did healthy controls, which may help to explain why caregivers continue to provide reassurance despite knowing that it does not reduce anxiety in the long term (Kobori et al., 2015).

Caregivers of individuals with OCD often report knowing that providing reassurance relieves distress only in the short term and actually increases OCD severity in the long term, but they also report having few alternatives to providing reassurance, feeling unable to cope without providing it, and frustration due to this conflict (Halldorsson et al., 2017). Individuals with OCD seem to understand this situation, acknowledging that their reassurance-seeking is frustrating to others in the short term (Halldorsson & Salkovskis, 2017). Conversely, level of insight is less clear when it comes to the long-term negative impact of reassurance-seeking on their relationships; some individuals even have reported that they believe their long-term relationships were strengthened by reassurance-seeking (Halldorsson & Salkovskis, 2017).
Reassurance-seeking related to social threats, general threats, and depression all have been demonstrated to be related to anxiety and depressive symptoms; the tendency to seek reassurance is a common factor across these different types of disorders (Cougle et al., 2012). However, it is possible that reassurance-seeking may differ across disorders. For example, reassurance-seeking in individuals with OCD appears to occur in different contexts than it does in individuals with depression. For example, whereas depressed individuals tend to seek reassurance about social threats (e.g., abandonment), reassurance-seeking in OCD is focused on more general threats, such as the possibility of experiencing a house fire (Parrish & Radomsky, 2010). Reassurance-seeking and checking behavior also have been found to be related to higher levels of anxiety \( F(2, 42) = 4.11 - 4.33, p < .05 \) and greater estimations of threat \( F(2, 42) = 6.26 - 7.16, p < .05 \) in both clinical and nonclinical populations, consistent with models of compulsions in OCD (Parrish & Radomsky, 2010). Levels of anxiety and perceived threat were similar in individuals with depression and OCD, which suggests that findings related to reassurance-seeking may not be specific to anxiety disorders (Parrish & Radomsky, 2010). However, comparisons of the patterns and outcomes of reassurance-seeking among individuals with OCD versus depression found significant group differences in the frequency of reassurance-seeking \( F(8, 116) = 5.51, p < .001, \text{partial } \eta^2 = .275 \); the OCD group tended to seek reassurance and use methods of self-reassurance more frequently than did those with depression (Kobori et al., 2015).

Further research on the unique role of reassurance-seeking in anxiety disorders has shown that greater reassurance-seeking is related to greater symptoms of OCD and other anxiety disorders after controlling for trait anxiety and depression (partial \( r = .30, p < .01 \)), which suggests that reassurance-seeking in these disorders cannot be attributed to comorbid
depression or negative affect (Cougle et al., 2012). Even among different disorders highlighted by anxiety, reassurance-seeking was found to have differential relationships, as it predicted changes in the symptoms of generalized anxiety disorder (GAD) and social anxiety, but not OCD (Cougle et al., 2012). Moreover, in a comparison of individuals with OCD, panic disorder, and healthy controls, individuals with OCD engaged in reassurance-seeking with greater intensity and more carefully (such as by listening more attentively and judging whether the other person was taking the reassurance seriously) and were more likely to use self-reassurance than the other groups (Kobori et al., 2015). The differences in methods of reassurance-seeking between OCD and panic disorder may reflect underlying differences in motivation for seeking it. Because reassurance-seeking varies across disorders, it is important to examine its functions within the context of more specific symptom presentations.

**Reassurance-Seeking in the Treatment of OCD**

Reassurance-seeking plays a role in ERP, which requires that the individual confront anxiety-provoking stimuli without performing compulsions intended to reduce anxiety or the threat of harm, such as reassurance-seeking (Abramowitz et al., 2009). However, reassurance-seeking must be noted and addressed in other, less standardized therapist-client interactions as well. Because reassurance-seeking has been conceptualized as a neutralizing behavior, with the goal of offsetting personal responsibility for unwanted events or sharing responsibility with others, it is important that therapists refrain from providing it (Salkovskis, 1999). Simply ignoring requests for reassurance should, in theory, lead to the extinction of reassurance-seeking behavior (Rachman, 2002). However, this instead may lead to the development of person-specific and situation-specific reassurance-seeking, meaning that individuals may learn that they can obtain reassurance from certain people under certain
circumstances (Rachman, 2002). Moreover, attempts to avoid giving reassurance can be complicated by the fact that reassurance-seeking can take covert forms, such as when a client mentions something s/he has done and watches for the therapist’s reaction (Salkovskis, 1999). Therefore, therapists also should demonstrate to the client that reassurance-seeking is ineffective, highlighting that the need for ever more reassurance reveals the futility of the behavior (Salkovskis, 1999).

Because of the difficulty in asking the caregivers of individuals with OCD to not provide reassurance without offering alternatives, recent research has investigated the role of support-seeking, or behavior that has the goal of obtaining encouragement or assistance in order to manage emotions associated with distress rather than perceived threats, as an alternative to reassurance-seeking (Halldorsson & Salkovskis, 2017). Findings suggest that, possibly because individuals with OCD understand that their fears and beliefs are likely unfounded, support-seeking may be a natural alternative behavior (Halldorsson & Salkovskis, 2017). Support-seeking may serve this function by allowing individuals with OCD to acknowledge their distress and need for support without contributing to the maintenance of pathological beliefs (Halldorsson & Salkovskis, 2017).

**Scrupulosity**

Scrupulosity consists of guilt and obsessions related to moral or religious issues, compulsions related to following moral and religious rules, and high levels of distress and interference with functioning (Miller & Hedges, 2008). It most often is characterized as a subtype or symptom dimension of OCD due to shared features (Miller & Hedges, 2008). Scrupulous obsessions may take the form of doubts about whether one has sinned, concerns over the proper execution of prayers and rituals, and fears of punishment from a moral authority.
such as God; compulsions often include the excessive execution of religious rituals such as prayers (Abramowitz & Jacoby, 2014). Reports based on the religious obsessions scale of the Y-BOCS have estimated that the percentage of people with OCD who have scrupulosity symptoms ranges from 5-33%, with even higher rates being suggested in countries where religion is an especially pervasive aspect of society (Miller & Hedges, 2008).

Although scrupulosity typically is considered to be a presentation of OCD, there is some evidence to support the notion that it may justify a separate diagnosis, or at least an understanding of and sensitivity to its particular dynamics among other symptom dimensions of OCD (Miller & Hedges, 2008). For example, individuals with obsessions centered on religious content have been found to have different experiences of symptoms—including poorer insight and more magical ideation and perceptual distortions—than those with other types of OCD (Tolin, Abramowitz, Kozak, & Foa, 2001). Additionally, scrupulous obsessions have a different appearance than the obsessions in other types of OCD in that religious and moral scruples often relate directly to real-life problems of ethics facing the individual and are not necessarily intrusive in nature (Miller & Hedges, 2008). In such cases, although these scruples may be distressing to the individual, they may not constitute OCD per se. Finally, individuals with religious obsessions seem to respond somewhat differently than those with other presentations to the most commonly accepted treatment methods for OCD (Miller & Hedges, 2008). For example, in one study, sexual and religious obsessions were uniquely associated with poorer outcomes following treatment with SSRIs and behavior therapy (Alonso et al., 2001). This suggests that factors may be at play in scrupulosity which operate differently or are not present in other forms of OCD (Miller & Hedges, 2008). Based on these differences, it may be important to understand which characteristics of scrupulosity are (dis)similar from those of other presentations of OCD, as they may function differently in terms of development and maintenance.
Reassurance-Seeking in Scrupulosity

Reassurance-seeking is one behavioral characteristic that appears to be important to scrupulosity. In their description of the development of the Penn Inventory of Scrupulosity (PIOS), a self-report measure of religiously themed obsessive-compulsive symptoms, Abramowitz et al. (2002) report discussions in which clergy members provided anecdotal evidence of reassurance-seeking from members of their religious communities about inconsequential moral issues. Subsequent models of scrupulosity have included reassurance-seeking as a key diagnostic and maintenance factor.

A cognitive-behavioral analysis of scrupulosity has noted based on clinical observations that a key component of scrupulosity involves seeking a degree of reassurance that most members of the community would agree is excessive from members of the clergy or from loved ones regarding religious issues (e.g., matters of salvation, excessive or otherwise inappropriate confession) which have the goal of reducing feelings of anxiety and guilt (Abramowitz & Jacoby, 2014). Individuals from whom reassurance is sought may at first be faced with simple requests relating to matters such as the scrupulous individual’s moral status, but these requests become more intense and more frequent over time, which may lead to conflicts when reassurers begin to realize that providing reassurance is not effective but seekers continue to seek it (Himle, Chatters, Taylor, & Nguyen, 2011). Reassurance in the context of scrupulosity also may be given inadvertently when members of the religious community express admiration for a scrupulous individual’s commitment to proper observation of religious rituals (Huppert & Siev, 2010). This process of reassurance-seeking generally is thought to be so important to the experience of scrupulosity that a set of guidelines for diagnosing the disorder include as a criterion that the symptoms with which an individual presents should
not respond to guidance and reassurance provided by others, such as parents or authority figures (Miller & Hedges, 2008).

Due to the unique role of certain authoritative figures in matters of religion and morality, there may be special considerations for addressing reassurance-seeking targeted at these individuals. For example, there often is a great deal of initial difficulty in determining whether an individual is engaging in “ordinary” spiritual consultation versus compulsive reassurance-seeking during interactions with clergy and religious counselors (Himle et al., 2011). However, when requests for reassurance are repeated without being satisfied, clergy may begin to realize that providing feedback is counterproductive, at which point further spiritual consultations are usually unsuccessful in soothing the scrupulous individual’s concerns—or, if the initial concerns do dissipate, usually result in the emergence of a replacement concern (Himle et al., 2011). When this point is reached, the best course of action is for the clergy member to encourage the individual with scrupulosity to accept the need to live with some level of uncertainty regarding issues of religion and morality (Himle et al., 2011). In fact, it has been suggested that living with this uncertainty while still believing in one’s spiritual values is the very definition of having faith (Himle et al., 2011).

A particular example of reassurance-seeking is sometimes observed in Catholics with scrupulosity. These individuals may engage inappropriately in the sacrament of Reconciliation, or Confession, which consists of confessing sins to a priest and seeking/obtaining forgiveness from God (Himle et al., 2011). A study of Catholic priests’ views of scrupulosity suggested that priests believe that the origins of scrupulosity lay in beliefs stemming from childhood experiences and current relationships (Hepworth, Simonds, & Marsh, 2010). Further, the priests believed that a deep exploration of these issues was necessary—but impossible to carry out within the confines of Confession—possibly due to excessive reassurance-seeking (Hepworth et al., 2010). Moreover, reassurance-seeking also leads priests to believe that individuals with scrupulosity do not listen to their guidance, a belief which leads to
difficulties in maintaining a supportive relationship with these individuals (Hepworth et al., 2010).

A description of treatment methods for Ultra-Orthodox Jews with scrupulosity noted that these individuals often seek excessive guidance from rabbis, beyond the standards of their communities, in such a way that this guidance functions as reassurance-seeking (Huppert, Siev, & Kushner, 2007). In Ultra-Orthodox Judaism, this reassurance often takes the form of repetitively asking halachic questions, or questions related to Jewish law (Huppert et al., 2007). However, when a rabbi understands the reasons that he should not enable reassurance-seeking, his refusal to respond to this behavior can serve as an indicator of the difference between a “legitimate” religious issue and scrupulosity-motivated reassurance-seeking (Huppert et al., 2007). As an example of how to differentiate the two, the authors suggest referencing the udder test, which refers to the question of what sort of pot cow udders should be cooked in: Kosher laws require that meat and dairy products be cooked in separate pots, but cow udders may contain both types of products (Huppert et al., 2007). Questions of similar ambiguity should be considered legitimate religious inquiries, but those less ambiguous should not (Huppert et al., 2007).

In a study of clergy reactions to a hypothetical individual with scrupulosity, members of a relatively conservative branch (Missouri Synod [LCMS]) and comparatively liberal branch (Evangelical Lutheran Church of America [ELCA]) of Lutheranism were given a vignette to read about a parishioner experiencing extreme religious intrusions and engagement in rituals intended to avoid punishment from God (Deacon, Vincent, & Zhang, 2013). They then were asked to rate their probability of engaging in certain actions in order to help this person. Whereas clergy from both branches were equally likely to provide reassurance to the scrupulous parishioner, LCMS clergy were more likely to support courses of action that would not be recommended according to an exposure-based treatment, such as regularly confessing sinful thoughts, which might lead to the maintenance of scrupulous obsessions.
and reassurance-seeking (Deacon et al., 2013). The results of these studies indicate that reassurance-seeking is an important piece of the current conceptualization of scrupulosity and should, therefore, be the subject of further study.

**Reassurance-Seeking in the Treatment of Scrupulosity**

Because of the importance of reassurance-seeking to conceptualizations of scrupulosity, recommendations for treating scrupulosity with the use of exposure therapy outline methods of helping clients learn to tolerate their doubts and anxiety without engaging in maintenance behaviors such as reassurance-seeking (Abramowitz & Jacoby, 2014). During treatment, therapists should explain that, although neutralization methods such as reassurance-seeking decrease obsessions/anxiety in the short term, engaging in these methods leads to a worsening in symptoms over time (Himle et al., 2011). Moreover, it is noted that individuals such as friends, family members, and religious authorities, who may be likely targets for reassurance-seeking within the context of scrupulosity, should be involved in the treatment process in order to prevent their complicity in maintaining symptoms (Abramowitz & Jacoby, 2014). Therapists can make use of the normative behavior of other members of the religious community as a reference point for what constitutes acceptable risk of sin and what behavior is motivated by scrupulosity symptoms, although it is important to ensure that the client does not use information about what others do as a form of reassurance, but rather learns that everyone must accept the risk of sin (Huppert et al., 2007).

As clergy members may be particularly important targets of reassurance-seeking, it is recommended that clients do not meet with them to discuss the morality of the plan for treatment since this could function as a form of reassurance, although sometimes a goal of treatment must be to teach proper consultation with clergy that does not involve reassurance-
seeking (Abramowitz & Jacoby, 2014). Because clergy members often are not aware of the impact their provisions of reassurance might have on individuals with scrupulosity, the therapist may need to meet with them to provide psychoeducation on this topic (Huppert et al., 2007). When clergy are engaged in the treatment process, they often are open to information regarding the harmful effects of reassurance-seeking in symptom maintenance, and having the client ask the clergy member directly not to provide them with reassurance often is helpful to both parties in avoiding this cycle of maintenance (Huppert & Siev, 2010). When clients are not comfortable with their therapists having contact with their clergy members, it is recommended that the therapist and client work together to make a plan for appropriate client-clergy interaction such that reassurance-seeking can be avoided (Huppert & Siev, 2010).

**Behavioral Tasks in Reassurance-Seeking**

Reassurance-seeking has garnered more attention in recent research, but most of this research has been conducted with the use of self-report and qualitative data. Behavioral tasks and experimental studies measuring reassurance-seeking have yielded valuable information about the nature of reassurance-seeking in OCD and other disorders but have been limited in number and scope; however, a few such studies have been conducted, with interesting implications for future research.

The first studies utilizing behavioral tasks to study reassurance-seeking were conducted in the context of depression. Joiner and Metalsky (2001) video-recorded interactions between unselected psychology students and their roommates. The participant-roommate pair first completed questionnaires that they believed would be used to help clinical psychology students practice their test interpretation skills, then were given false feedback that included
ratings on various personality characteristics, such as “edgy.” The participant-roommate pair then were given five minutes to discuss the feedback they had received, after which six judges watched each video to determine whether each question the participants asked qualified as reassurance-seeking. The judges then made a subjective rating based on their general impressions of the participant’s reassurance-seeking. These ratings were found to be moderately correlated \( r = .39 \) for behavioral ratings and \( r = .43 \) for subjective ratings, \( p < .05 \) with ratings on the Reassurance-Seeking Scale (RSS), a self-report measure of reassurance-seeking.

Another study of reassurance-seeking in individuals with depression used a modified version of the task developed by Joiner and Metalsky (Stewart & Harkness, 2017). This task, named the Behavioral Reassurance Seeking Task (BRST), consisted of undergraduate women with depressive symptoms and their romantic partners who completed a questionnaire, which they were told would be used in validating a new measure of the personality characteristics important to romantic relationships. The participants were provided with false scores on various personality descriptors, such as “active,” and were left alone with their partners for five minutes, during which interactions were recorded. Two judges then determined whether each statement made by the participants constituted reassurance-seeking by determining whether the statement asked for personal information and positive feedback and limited the potential responses partners might give. The results of this study indicated that women with greater symptoms of depression and negative relationship cognitions demonstrated an association between greater reassurance-seeking and lower relationship quality as judged by partner-report \( (\beta = -.84, t(111) = 2.26, p = .026) \). However, the correlation between BRST ratings and scores on the Depressive Interpersonal Relationships Inventory – Reassurance-Seeking subscale (DIRI-RS) was not significant \( (r = -.14, p > .05) \), suggesting the BRST may have questionable concurrent validity.
A limited number of studies have used behavioral tasks to examine reassurance-seeking in the specific context of factors related to OCD. In one study, unselected undergraduate students were asked to read a series of vignettes that instructed them to imagine themselves in a hypothetical, threatening situation and provided them with feedback in the form of reassurance regarding the scenario (Parrish & Radomsky, 2011). In each vignette, levels of threat, responsibility for harm, and ambiguity of the feedback were manipulated. Participants were asked to rate their urges to seek reassurance in response to the situation. The results of this study indicated a significant main effect of threat condition (high vs. low threat) on reported urges to seek reassurance, such that a high perceived level of threat resulted in greater urges to seek reassurance \((F(1, 168) = 26.65, p < .001, r = .37)\), but level of responsibility for harm did not.

Two studies have made use of a paradigm dealing with contamination-related issues. In the first, unselected undergraduates were asked to bring a friend to the study and were told its purpose was to measure their ability to follow instructions to complete a structured task (Neal & Radomsky, 2015). Participants were randomly assigned to either complete the task with the person they brought or a study confederate posing as another participant. The experimenter immersed kitchen dishes in a garbage can filled with items that had been made to look dirty, and participants were instructed to engage in a dishwashing task, following along with pictorial instructions while their partner watched and the research team videotaped the task. The researcher then left the room under the pretense of reviewing the video, came back to inform the pair that there had been an issue with the recording such that the researcher could not see the dishwashing properly, which was a problem since the partner would need to eat off of one of the dishes in the next part of the task. The researcher asked the participant to make an audio recording discussing aloud with themselves or with the observing partner any issues that had come up during the dishwashing and whether they believed the dishes were clean enough to proceed with the study. Later, the number of times that participants
made statements or asked questions that constituted reassurance-seeking were counted. The results of this study indicated that participants engaged in greater reassurance-seeking when paired with the person they brought to the study, a familiar individual, than with a stranger \( (F(3, 86) = 9.20, p < .001, \text{partial } \eta^2 = .24) \). However, this relationship only emerged based on participant self-report of reassurance-seeking; there was no significant relationship between partner familiarity and objectively coded counts of reassurance-seeking.

In a study based on this method, unselected students were told that they were participating in a study meant to demonstrate the effectiveness of a new procedure for dishwashing (Leonhart & Radomsky, 2017). However, in this study, participants were told either that they (a) were “in charge” of the dishwashing and asked to sign a contract acknowledging that they would take the washing seriously since people had become sick in the past due to careless washing, or (b) would “just assist” with the dishwashing and would not be responsible if any issues resulted from a lack of thorough cleaning. The rest of the task followed the same procedures used by Neal and Radomsky (2015); the audio recording was coded for the number of occurrences of reassurance-seeking and time spent reassurance-seeking (versus engaging in talking that did not constitute reassurance-seeking). The results of the study indicated that individuals who were told that they were in charge, suggesting that they had high responsibility for the outcome of the task, reported greater urges to seek reassurance \( (t(76) = -2.891, p = .005, d = 1.23) \). Additionally, they engaged in more covert, but not overt, methods of reassurance-seeking, such as by making subtle statements rather than asking outright for reassurance, than did those in the low-responsibility group \( (F(1, 76) = 18.079, p < .001, \text{partial } \eta^2 = .192) \).

These studies have provided useful results with potential implications for a better understanding of reassurance-seeking in individuals with OCD. However, there are certain limitations to consider. For example, the BRST has questionable validity as a measure of reassurance-seeking, as scores on this task were not significantly related to scores on an exist-
ing self-report measure of reassurance-seeking. Further, the BRST requires that participants bring a partner to the study. This presents a practical issue as the requirement of bringing a partner may be a barrier to participation. Moreover, the behavioral tasks administered in the laboratory tend to require the use of coding procedures that are time consuming and require both equipment and extensive training. Finally, none of these studies has been conducted specifically with individuals who have elevated obsessive-compulsive symptoms. As these individuals may respond differently when faced with such a task than those without elevated symptoms, individuals with elevated OCD symptoms should be included in future study. Such a sample also would enable comparisons to be made among individuals who present with different symptom dimensions of OCD in order to expand upon findings that seem to suggest a particularly strong relationship between reassurance-seeking and certain types of OCD symptoms.

The Current Study

The current study attempted to address some of the limitations of previous work involving the use of laboratory tasks to measure reassurance-seeking. One specific aim was to build on the current understanding of reassurance-seeking as it occurs within the context of scrupulosity as compared with another symptom dimension of OCD—namely, contamination-related concerns. The study measured urges to seek reassurance in response to a laboratory-based behavioral task. These urges were examined in an unselected sample of undergraduate students whose levels of contamination concerns and scrupulosity symptoms were measured prior to their engaging in the behavioral task. The use of a nonclinical sample for this study is supported by results demonstrating similarities between clinically scrupulous and nonclinical samples in symptoms and relationships to various environmental factors; scrupu-
losity appears to be a continuous rather than dichotomous condition, as is the case with other symptom dimensions of OCD (Abramowitz, Huppert, Cohen, Tolin, & Cahill, 2002). Therefore, the use of a nonclinical sample was expected to produce information applicable to clinical samples while avoiding undue burden to individuals diagnosed with OCD.

Participants engaged in a task designed to induce anxiety and then were given time to perform neutralization behaviors. Participants reported whether they had experienced urges to seek reassurance and whether they had actually sought reassurance (e.g., from someone by phone). Additionally, participants reported whether they experienced urges to or actually engaged in any other forms of neutralization. They also completed other measures of reassurance-seeking in order to corroborate behavioral data obtained from this task.

**Hypotheses**

**Hypothesis 1**

Scrupulosity symptoms were expected to be more positively associated than contamination concerns with urges to seek reassurance in response to anxiety induced by the Sentence Task. This hypothesis expanded upon the findings of questionnaire-only research that has demonstrated an association between reassurance-seeking and religious and moral concerns. Such a finding would provide further evidence that reassurance-seeking is an important behavioral aspect of scrupulosity symptoms and may be more relevant to scrupulosity than to other symptom dimensions of OCD.
Hypothesis 2

Reassurance-seeking urges experienced in response to the behavioral task, as measured by responses to an adapted questionnaire, were expected to be positively correlated with scores on baseline questionnaire measures of reassurance-seeking. The availability of a laboratory task for studying reassurance-seeking in the context of scrupulosity will be important for future research into the factors associated with this behavior. It is essential that this task have demonstrated adequate reliability and validity for inducing reassurance-seeking. However, as the Sentence Task used in the current study was not developed for this purpose, it was necessary to determine whether its use for this purpose was valid. The comparison of scores derived from the laboratory task to scores on a self-report measure of reassurance-seeking provides an examination of the Sentence Task’s convergent validity.

Exploratory Hypothesis 3

Most participants who report reassurance-seeking following the anxiety induction were expected to seek reassurance from the individual named in the Sentence Task. However, as current conceptualizations of scrupulosity stress the importance of religious authorities such as clergy members on the maintenance of symptoms and on potential treatment success, it is likely that the knowledge and authority these people possess by virtue of their position make them additional targets for reassurance-seeking. The current study explored the question of whether participants would report the urge to seek reassurance from individuals other than the person named in the Sentence Task (e.g., from religious authorities).
Exploratory Hypothesis 4

The current study explored whether the pattern of associations among scrupulosity symptoms, contamination concerns, and self-reported urges to seek reassurance differed from those among scrupulosity symptoms, contamination concerns, and self-reported checking behavior. Reassurance-seeking has been compared with and equated to checking compulsions, although research demonstrating differing predictors of these behaviors suggests that they are not equivalent (Starcevic et al., 2012). The current study attempted to lay the groundwork for a deeper understanding of the differences between reassurance-seeking and checking. Namely, it examined the degree to which scrupulosity symptoms and contamination concerns are related to self-report checking symptoms—importantly, as measured by questions aimed at capturing checking content not confounded with reassurance-seeking content.
Participants included 79 undergraduate students recruited from an introductory psychology course at Northern Illinois University. Of these, 13 participants did not have valid data for Time 2 data points. Therefore, the final sample consisted of 63 participants. Of these, 32 (50.79%) identified as female and 31 (49.20%) identified as male. The mean age of the sample was 19.71 years old ($SD = 2.82$). Participants identified their race as follows: 26 (41.27%) White/Caucasian American, 19 (30.16%) Black/African American, 7 (11.11%) Asian, 8 (12.70%) Other, and 2 (3.17%) Multiracial. One participant declined to identify their race. Additionally, 14 (22.22%) participants identified as Hispanic/Latino, while 47 (74.60%) identified as not Hispanic/Latino and 2 participants declined to respond. Participants identified their religion as follows: 20 (31.75%) Protestant Christian (including participants who identified only as “Christian”), 21 (33.33%) Catholic, 5 (7.94%) Muslim, 1 (1.59%) Jewish, 1 (1.59%) Hindu, 9 (14.29%) Atheist/Agnostic, and 3 (4.76%) Other or unclear based on the participant’s response. Three participants declined to identify their religion.

A total sample size of 102 was calculated on G*Power using an a priori power analysis for an independent samples $t$ test comparing reassurance-seeking in individuals with elevated scrupulosity symptoms to those with elevated contamination concerns. This sample size was calculated based on a medium effect size of $d = .5$, an alpha level of .05, and a power level of 0.8. This power analysis produced the largest sample size of any of the proposed statistical
tests. The targeted sample size was 115 participants; the increase was intended to account for potential issues encountered during data collection that might have led to missing or invalid data. However, due to the 2020 COVID-19 pandemic, data collection was concluded before the target sample size was met. In order to examine the adequacy of the obtained sample size, confidence intervals were examined for the findings of analyses carried out to examine Hypothesis 1, the hypothesis for which the original power analysis was conducted. The implications of these confidence intervals are discussed below.

So as to minimize risk of harm to potentially vulnerable individuals, any student who self-reported a current or past diagnosis of OCD was excluded from further participation after the first set of questionnaires and before the Sentence Task was administered. However, no participants responded affirmatively when asked by research assistants whether they met this criterion. One participant indicated via questionnaire that they had received an OCD diagnosis but did not corroborate this response verbally and, therefore, was included in the final sample.

**Measures**

**Penn Inventory of Scrupulosity–Revised (PIOS-R; Olatunji et al., 2007)**

The PIOS-R is a 15-item self-report measure of scrupulosity symptom severity. It contains two subscales: Fear of God (5 items) and Fear of Sin (10 items). It offers a revision of the original 19-item PIOS; the goal was to remove redundant items and improve the fit of the two-factor structure. Each question is rated on a 5-point scale ranging from 0 (*never*) to 4 (*constantly*). The PIOS-R total score and its subscales have demonstrated good reliability (Cronbach’s coefficient alphas = .91-.94) and has shown moderate correlations with measures
of relevant constructs, such as the Obsessive Compulsive Inventory–Revised (OCI-R; $r = .43$); State-Trait Anxiety Index (STAI) State and Trait subscales ($r = .24$ and $r = .38$, respectively); Positive and Negative Affect Schedule (PANAS) Negative Affect subscale ($r = .30$); Disgust Emotion Scale (DES; $r = .27$), Spider Phobia Questionnaire (SPQ; $r = .15$), and Multidimensional Blood/Injury Phobia Inventory (MBPI; $r = .20$; Olatunji et al., 2007).

Scores on the PIOS-R are highly correlated with scores on the original PIOS ($r = .99$), which also has been shown to demonstrate high internal consistency (Cronbach’s alpha = .93) and good convergent and discriminant validity, with PIOS scores being correlated significantly with scores on measures of obsessive-compulsive symptoms ($r = .36$) and religiosity ($r = .36$), but not with scores on a measure of anger ($r = .12$; Abramowitz et al., 2002; Olatunji et al., 2007).

**Vancouver Obsessional-Compulsive Inventory (VOCI; Thordarson et al., 2004)**

The VOCI is a 55-item measure of obsessive-compulsive symptoms consisting of six subscales, including a 12-item Contamination scale. Questions are rated on a 5-point scale, ranging from a value of 0 (*not at all*) to 4 (*very much*). The Contamination subscale has demonstrated good convergent and discriminant validity with corresponding subscales on the Padua Inventory Contamination subscale ($rs = .85 – .90$), as well as the Maudsley Obsessional-Compulsive Inventory (MOCI) Washing subscale ($rs = .59 – .83$), with lower correlations emerging between the Contamination subscale and noncorresponding subscales on these measures, as well as other measures of psychopathology ($rs = -.14 – .48$; Thordarson et al., 2004). The Contamination subscale has also demonstrated good internal consistency (Cronbach’s alphas = .79-.92; Thordarson et al., 2004).
Threat-Related Reassurance Seeking Scale (TRSS; Cougle et al., 2012)

The TRSS is an eight-item self-report measure of reassurance-seeking consisting of two subscales, one with four items measuring reassurance-seeking in response to evaluative threats and one with four items measuring reassurance-seeking in response to general threats. Questions are rated on a 7-point scale, ranging from a value of 1 (No, not at all) to 7 (Yes, very much). The TRSS and its subscales have been shown to have good internal consistency (Cronbach’s alphas = .85-.93), good retest reliability over one month ($r_s = .79 - .84$), and good convergent validity with the DIRI-RS ($r = .83$; Cougle et al., 2012).

Threat-Related Reassurance Seeking Scale – Present Moment (TRSS-PM).

This measure, adapted from the original TRSS for the present study, consisted of items assessing participants’ urges to seek reassurance in the present moment, following their engagement in the Sentence Task. Participants were asked to rate the extent to which they wished to seek reassurance from others as to whether everything would be alright, the extent to which they wanted to seek reassurance from others as to whether something bad would happen, the extent to which they wanted to seek reassurance from others because they suspected that something bad would happen, and the extent to which they needed reassurance from others that everything would be alright. Questions were rated on the 7-point scale, ranging from a value of 1 (No, not at all) to 7 (Yes, very much), used by the authors of the original measure (Cougle et al., 2012).
Reassurance Seeking Questionnaire (ReSQ; Kobori & Salkovskis, 2013)

The ReSQ is a 68-item self-report measure of reassurance-seeking, consisting of four scales, each of which comprises several subscales, and an additional section. The Source scale is made up of 21 items rated on a 6-point scale from 0 (never) to 5 (always) with subscales including Involving other people in reassurance, Professionals, Direct seeking from people, Self-reassurance, and External references (Kobori et al., 2015). The Trust scale has 16 items rated on a 6-point scale from 0 (not at all) to 5 (completely), with four subscales (Trust in People, Trust in Health Professionals, Trust in Self-reassurance, and Trust in External References). The Intensity scale has 16 items rated on a 5-point scale from 0 (never) to 4 (many times) with four subscales (Direct seeking from people, Self-reassurance, Professionals, and External references). The Carefulness scale has 11 items rated on a 6-point scale ranging from 0 (never) to 5 (always), with three subscales (Becoming critical, Careful listening, and Caring for the person). The Emotional Changes section is made up of four items and assesses individuals’ feelings of reassurance, anxiety, guilt, and urges to seek reassurance after not receiving, shortly after receiving, and 20 minutes or more after receiving reassurance from others on a scale from -5 (much less) to +5 (much more). The subscales of the ReSQ have demonstrated good internal consistency (Cronbach’s alphas = .82-.86) and short-term retest reliability over 24 hours (rs = .75 – .87; Kobori & Salkovskis, 2013). Although the ReSQ does not have as well-established psychometric properties as does the TRSS, it assesses different information about reassurance-seeking, and therefore was used in combination with the TRSS.
State-Trait Anxiety Inventory (STAI-Y; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983)

The STAI, Form Y, is a 40-item self-report measure of current anxiety symptoms as well as trait anxiety. Current anxiety is measured with the 20-item State subscale. The STAI has demonstrated good internal consistency (Cronbach’s alphas = .86-.95) and variable retest reliability depending on whether state or trait anxiety is being measured ($r_s = .31 - .86$; Spielberger et al., 1983). The STAI has demonstrated good convergent validity with the Taylor Manifest Anxiety Scale ($r = .73$) and Cattell and Scheier’s Anxiety Scale Questionnaire ($r = .83$), although its discriminant validity is not as strong, as it does not always discriminate adequately between anxiety and depression (Julian, 2011; Spielberger et al., 1983).

Obsessive Compulsive Inventory – Revised, Checking Subscale (OCI-R Checking; Foa et al., 2002)

The OCI-R is an 18-item self-report measure of obsessive-compulsive symptoms consisting of six subscales, including Checking. The OCI-R has demonstrated adequate internal consistency (Cronbach’s alphas = .81 - .90 for the Total scale; Cronbach’s alphas = .65 - .88 for the three-item Checking subscale; Foa et al., 2002). The OCI-R also has demonstrated a correlation of Spearman’s $r = .98$ with the original OCI subscale (Foa et al., 2002). The Checking subscale has been shown to have good convergent validity with the Checking subscale of the MOCI (Spearman’s $r = .72$). In another study, the Checking subscale demonstrated good convergent validity with the Checking subscales of other OCD symptom measures, including the Schedule of Compulsions, Obsessions, and Pathological
Impulses (SCOPI; \( r = .72 \)) and the Padua Inventory–Washington State University Revision (PI-WSUR; \( r = .79 \); Wu & Carter, 2008). This study also demonstrated the OCI-R Checking subscale’s good discriminant validity, as it displayed much lower correlations with subscales of the MASQ (\( rs = .14 – .40 \)). Importantly, the narrow focus of the OCI-R Checking scale made it an attractive option for the current study’s aims because it does not contain obvious overlap with reassurance-seeking content. Other population measures of OCD symptoms include items that equate content related to checking and reassurance-seeking; for example, one item on the Dimensional Obsessive-Compulsive Scale (DOCS) reads, “How difficult is it for you to disregard thoughts about possible harm or disasters and refrain from checking or reassurance-seeking behaviors when you try to do so?” (Abramowitz et al., 2010).

**Anxiety Induction**

Participants completed a version of the manipulation described by Rachman et al. (1996). Participants had these instructions read aloud to them by a research assistant: “Keeping in mind a friend or relative who is close to you, I would like you to write out the following sentence on this piece of paper, inserting the name of the person in the blank.” They were then given a sheet of paper with the sentence, “I hope _____ is in a car accident.” The research assistant instructed participants to copy the sentence with the name of their imagined friend or relative in the blank. The research assistant then informed the participant that they would return in a moment and left the room for three minutes.
Open-Ended Questions

Participants were asked from whom they sought or experienced the urge to seek reassurance. Additionally, participants were asked whether they performed any other actions with the goal of making themselves feel better following the Sentence Task (and, if so, were asked to describe these actions).

Procedure

Recruitment

Students enrolled in an introductory psychology course were given the opportunity to sign up online for an appointment to complete the study in the laboratory.

Consent

Participants were provided with a printed informed consent form to read and then given an opportunity to ask questions. This document outlined the method, risks, and benefits of participation in the study. Those who consented to participate in the current study were asked to sign this form in the presence of the session proctor before proceeding.
Pre-Induction Questionnaires

Participants completed a battery of questionnaires on a computer: the PIOS-R, VOCI Contamination subscale, TRSS, ReSQ, STAI-Y State subscale, and OCI-R Checking subscale.

Anxiety Induction

Participants were instructed by a research assistant in the procedures of the anxiety induction and engaged in the task.

Post-Induction Questionnaires

Participants completed the State Anxiety subscale of the STAI-Y again to measure any change in affect resulting from the task. They then completed the TRSS-PM.

Neutralization Period

Participants were told that the research assistant would need to step out of the room for a few minutes and that they could do whatever they wished to reduce the effects of writing the sentence. The research assistant waited outside the room for three minutes.
Open-Ended Questions

Participants completed a questionnaire consisting of open-ended questions related to reassurance-seeking and neutralization following the Sentence Task.

Debriefing

Participants had the study procedure fully explained to them and were provided with a list of counseling resources in the community in the event that they experienced distress as a result of their participation in the study.
CHAPTER 3

RESULTS

Data Cleaning

Little’s MCAR test was used to assess the data for patterns of missingness. The results suggest that the data were missing completely at random, \( \chi^2(2554) = .000, p > .999 \). Due to an error in the order of administration of study procedures, 11 participants were missing valid data for all Time 2 measures (i.e., the TRSS-PM, STAI-Y, and open-ended questions). An additional five participants had invalid Time 2 data; three refused to complete the Sentence Task, and two did not write out the full sentence as required by the task. Therefore, 63 participants provided valid data for both Time 1 and Time 2.

Of the \( N = 63 \), PIOS-R data were missing from two participants and Time 2 STAI-Y data were missing from two participants, one of whom was the same participant who was missing PIOS-R data. No imputations were made for these participants as they either (1) were missing more than 5% of the data used in calculating the total scores on these measures or (2) had an invalid total score on another measure required for the same analysis. On the ReSQ, seven participants were missing data for the Source subscale, six for the Trust subscale, two for the Intensity subscale, and one for the Carefulness subscale. Imputations were made only for the Source subscale, as this was the only subscale for which any participants were missing less than 5% of the data. Multiple imputation was used to replace the missing values for two participants on the Source subscale of the ReSQ, as these were the only two participants for whom less than 5% of the data from this subscale was missing. Ten imputations were used.
Box plots were used to examine the data for outliers. Absolute standardized values greater than 3.29 were identified as outliers (Field, 2005). This was the case for one participant’s VOCI Contamination subscale score and for one participant’s OCI-R Checking subscale score. The data points for these cases were winsorized to 3.0 SD from the mean.

All further analyses were carried out using only participants for whom Time 2 data were valid (N = 63). The Kolmogorov-Smirnov and Shapiro-Wilk tests of normality were used to examine the normality of the data. These tests revealed significant non-normality of the distributions of scores for the PIOS-R, VOCI Contamination subscale, TRSS and TRSS General subscale, OCI-R Checking subscale, STAI-Y Change (only Kolmogorov-Smirnov), and the TRSS-PM. The data were also examined for skew and kurtosis and were considered to be significantly skewed or kurtotic if standardized scores for these characteristics exceeded 2.58 (Field, 2005). Based on this cutoff, the distributions of scores for the PIOS-R, VOCI Contamination subscale, and OCI-R Checking subscale were significantly positively skewed. None of the data were significantly kurtotic. See Table 1 for skew and kurtosis values.

Despite the identified non-normality, transformations were not utilized before the main analyses were conducted. This decision was made for a number of reasons. First, there is evidence that transforming data may result in further complications, even if it solves the problem of non-normality (Field, 2009). For example, the use of transformations may result in difficulty interpreting the results of data analyses, as these results may no longer directly address the hypothesis in the same way that analyses using the original data would (Feng et al., 2014). Further, the use of transformations often does not resolve problems of non-normality of data and may instead increase problems of skewness (Feng et al., 2014).

Second, according to the central limit theorem, the sampling distribution approaches normality as sample sizes increase, and past research has shown that sampling distributions are normal with samples of 40 (Field, 2009). Although further research has indicated that heavy-tailed distributions may require larger sample sizes for this to be the case, the size
Table 1

Descriptive Statistics and Skew and Kurtosis Standardized Scores

<table>
<thead>
<tr>
<th>Variable (items)</th>
<th>Valid N</th>
<th>Mean</th>
<th>SD</th>
<th>Skew</th>
<th>Kurtosis</th>
<th>Cronbach's Alpha</th>
<th>Average Inter-item Correlation</th>
<th>Possible Range</th>
<th>Observed Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAI-Y Change</td>
<td>61</td>
<td>12.79</td>
<td>12.50</td>
<td>1.45</td>
<td>-0.32</td>
<td>.</td>
<td>12.50</td>
<td>-60 – 60</td>
<td>-14 – 44</td>
</tr>
<tr>
<td>TRSS-PM (4)</td>
<td>63</td>
<td>14.78</td>
<td>6.93</td>
<td>-0.04</td>
<td>-2.05</td>
<td>.93</td>
<td>.77</td>
<td>4 – 28</td>
<td>4 – 28</td>
</tr>
<tr>
<td>ReSQ Source (21)</td>
<td>56</td>
<td>1.16</td>
<td>0.64</td>
<td>0.84</td>
<td>-1.06</td>
<td>.88</td>
<td>.25</td>
<td>0 – 5</td>
<td>0.05 – 2.67</td>
</tr>
<tr>
<td>ReSQ Trust (16)</td>
<td>57</td>
<td>2.77</td>
<td>0.91</td>
<td>-0.62</td>
<td>-1.01</td>
<td>.90</td>
<td>.34</td>
<td>0 – 5</td>
<td>0.94 – 4.56</td>
</tr>
<tr>
<td>ReSQ Intensity (16)</td>
<td>61</td>
<td>1.34</td>
<td>0.69</td>
<td>2.25</td>
<td>1.73</td>
<td>.90</td>
<td>.37</td>
<td>0 – 5</td>
<td>0.94 – 4.56</td>
</tr>
<tr>
<td>ReSQ Carefulness (11)</td>
<td>62</td>
<td>2.32</td>
<td>0.88</td>
<td>0.12</td>
<td>1.33</td>
<td>.86</td>
<td>.36</td>
<td>0 – 5</td>
<td>0 – 5</td>
</tr>
<tr>
<td>OCI-R Checking (3)</td>
<td>63</td>
<td>3.11</td>
<td>2.48</td>
<td>3.56</td>
<td>1.71</td>
<td>.66</td>
<td>.41</td>
<td>0 – 12</td>
<td>0 – 10.84</td>
</tr>
<tr>
<td>TRSS Total (8)</td>
<td>63</td>
<td>26.71</td>
<td>12.21</td>
<td>0.37</td>
<td>-1.87</td>
<td>.93</td>
<td>.62</td>
<td>8 – 56</td>
<td>8 – 55</td>
</tr>
<tr>
<td>TRSS General (4)</td>
<td>63</td>
<td>14.27</td>
<td>6.43</td>
<td>-0.07</td>
<td>-1.91</td>
<td>.87</td>
<td>.62</td>
<td>4 – 32</td>
<td>4 – 28</td>
</tr>
<tr>
<td>PIOS-R (15)</td>
<td>61</td>
<td>16.08</td>
<td>11.90</td>
<td>3.25</td>
<td>0.63</td>
<td>.95</td>
<td>.54</td>
<td>0 – 60</td>
<td>1 – 50</td>
</tr>
<tr>
<td>VOCI-CTM (12)</td>
<td>63</td>
<td>10.66</td>
<td>6.27</td>
<td>3.18</td>
<td>1.58</td>
<td>.89</td>
<td>.41</td>
<td>0 – 48</td>
<td>0 – 36.27</td>
</tr>
</tbody>
</table>

Note: STAI-Y = State-Trait Anxiety Inventory, Form Y.
TRSS = Threat-related Reassurance Seeking Scale (PM = Present Moment).
ReSQ = Reassurance Seeking Questionnaire.
OCI-R = Obsessive Compulsive Inventory – Revised.
PIOS-R = Penn Inventory of Scrupulosity – Revised.
VOCI-CTM = Vancouver Obsessional-Compulsive Inventory Contamination Subscale.
Includes data for participants with valid scores for Time 2.
Does not include the two participants for whom missing data were imputed for ReSQ Source.
of the sample in the current study ($N = 63$) provides some assurance that the central limit theorem may be applied (Field, 2009). Finally, at a sample of this size, some researchers have suggested the use of a standard value of 3.29 as the cutoff rather than 2.58 (Kim, 2013). Using this cutoff score, only the data for the OCI-R would be considered to be significantly skewed.

Nonetheless, exploratory attempts at transforming the variables in this dataset demonstrated that these transformations did not correct the non-normality for a majority of the variables. Square root, logarithmic, and reciprocal transformations were performed on the original data, and normality was tested again at each step. There was no decrease in the significance of most of the normality tests as a result of these transformations, although square root transformations resulted in normally distributed data for the PIOS-R, ReSQ Intensity subscale, and ReSQ Source subscale. Further, there was normality of residuals for the variables involved in both regression analyses conducted, which satisfies the assumptions of such analyses (Field, 2009). After a consideration of the literature and the results of exploratory transformations, it was determined that the primary analyses should be performed using the original data without transformations.

**Preliminary Analyses**

Descriptive statistics (presented in Table 1) were analyzed in order to describe the characteristics of the sample. In general, means and standard deviations of all measures appeared to be consistent with past findings. Of note, the internal consistency of the OCI-R Checking subscale was somewhat lower than expected; in this study, Cronbach’s alpha was .66, as compared with a value of .76 demonstrated in a previous study examining this measure with a college sample (Hajcak et al., 2004). This finding raises some question as to the
interpretability of results of analyses using this measure. Conversely, the average inter-item correlation of the TRSS-PM items was rather high at .77; this value may suggest that the items that compose this adaptation of the measure are not distinct from one another.

A one-sample t test was conducted to determine whether STAI-Y Change scores (calculated by subtracting STAI-Y Time 1 from STAI-Y Time 2) differed significantly from zero. Changes in STAI-Y scores were significantly different from zero, \( t(60) = 7.992, p < .001, \) Cohen’s \( d = 1.02 \). This finding was consistent with researcher expectations, as Time 1 STAI-Y scores were measured prior to completion of the Sentence Task and Time 2 STAI-Y scores were measured following completion of this task. Therefore, it was anticipated that there would be a significant positive change in state anxiety ratings.

**Primary Analyses**

**Hypothesis 1: Scrupulosity Symptoms and Reassurance-Seeking**

Linear regression was used to examine whether scrupulosity and contamination symptoms differentially predict urges to seek reassurance in response to the Sentence Task. Model 1 of this regression analysis used degree of self-reported urges to seek reassurance as measured by the TRSS-PM for the criterion variable and STAI-Y change scores as the predictor variable. Model 2 consisted of the same variables, with the addition of PIOS-R and VOCI Contamination scores as predictors. Model 1 was significant at \( p = .002, \) with STAI-Y change as a significant predictor of TRSS-PM (\( b = .21 \)). Model 2 also was significant, with STAI-Y change (\( b = .21 \)) and PIOS-R (\( b = .28 \)) as significant predictors of TRSS-PM at the \( p < .001 \) level. VOCI-CTM was not a significant predictor of TRSS-PM (Table 2).
Table 2

Results of the Regression Analyses for STAI-Y Change, PIOS-R, and VOCI-CTM Predicting TRSS PM

<table>
<thead>
<tr>
<th>Variables</th>
<th>t</th>
<th>p</th>
<th>b</th>
<th>F</th>
<th>p</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
<td>10.38</td>
<td>.002</td>
<td>.15</td>
</tr>
<tr>
<td>STAI-Y Change</td>
<td>3.22</td>
<td>.002</td>
<td>.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
<td>15.54</td>
<td>.001</td>
<td>.45</td>
</tr>
<tr>
<td>STAI-Y Change</td>
<td>4.00</td>
<td>&lt; .001</td>
<td>.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIOS-R</td>
<td>4.60</td>
<td>&lt; .001</td>
<td>.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOCI-CTM</td>
<td>.95</td>
<td>.348</td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 60
STAI-Y = State-Trait Anxiety Inventory Form Y.
PIOS-R = Penn Inventory of Scrupulosity – Revised
VOCI-CTM = Vancouver Obsessional-Compulsive Inventory Contamination Subscale.
As previously described, confidence intervals were obtained relevant to the findings of this analysis in order to evaluate the adequacy of the obtained sample size relative to the target sample size. The 95% confidence interval for the unstandardized regression coefficients obtained for Model 2 demonstrated some overlap, with 95% CI: 0.11 – 0.32 for STAI-Y Change, 0.16 – 0.32 for PIOS-R, and -0.09 – 0.26 for VOCI Contamination.

**Hypothesis 2: Threat-Related Reassurance Seeking Scale – Present Moment**

**(TRSS-PM)**

Bivariate correlations were conducted to test the hypothesis that there would be significant positive associations among TRSS-PM, total TRSS, TRSS General subscale scores, and RESQ subscale scores (Table 3).

TRSS-PM scores were significantly correlated at the $p < .01$ level with scores on every measure of reassurance-seeking except the RESQ Trust subscale. TRSS-PM was correlated .65 with the TRSS General subscale, from which the TRSS-PM was adapted, and .63 with the total original TRSS score. Further, TRSS-PM was correlated .66 with RESQ Source, .48 with RESQ Intensity, and .43 with RESQ Carefulness. No comparisons were made to the section of the ReSQ Emotional Changes section, which measures emotional changes after obtaining or not obtaining reassurance over differing periods of time, as this section does not capture the construct of interest (i.e., degree of reassurance-seeking).

**Hypothesis 3: Characteristics of Targets of Reassurance-Seeking**

Responses to the open-ended questions regarding the targets of participants’ urges to seek reassurance following the Sentence Task were examined. Participants were coded as
Table 3

*Bivariate Correlations Among Measures of Reassurance Seeking*

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. TRSS-PM</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. TRSS</td>
<td>.63**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. TRSS General</td>
<td>.65**</td>
<td>.95**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. ReSQ Source</td>
<td>.66**</td>
<td>.76**</td>
<td>.71**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ReSQ Trust</td>
<td>.15</td>
<td>.07</td>
<td>.05</td>
<td>.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. ReSQ Intensity</td>
<td>.48**</td>
<td>.55**</td>
<td>.53**</td>
<td>.71**</td>
<td>.40**</td>
<td></td>
</tr>
<tr>
<td>7. ReSQ Carefulness</td>
<td>.43**</td>
<td>.45*</td>
<td>.39**</td>
<td>.60**</td>
<td>.24</td>
<td>.54**</td>
</tr>
</tbody>
</table>

*Note. Ns range from 56-63. **p < .01
TRSS = Threat-related Reassurance Seeking Scale. (PM = Present Moment).
ReSQ = Reassurance Seeking Questionnaire*
falling into one of three mutually exclusive categories: (1) indicating that they wished to seek
reassurance from the target of their Sentence Task, (2) not indicating that they wished to seek
reassurance from the target of their Sentence Task, or (3) not providing a sufficient response
to determine whether they wished to seek reassurance from the target of their Sentence Task.
Additionally, participants were coded as (1) indicating that they wished to seek reassurance
from someone other than the target of their Sentence Task, (2) not indicating that they
wished to seek reassurance from someone other than the target of their Sentence Task, or
(3) not providing a sufficient response to determine whether they wished to seek reassurance
from someone other than the target of their Sentence Task. Finally, participants were coded
as (1) naming a specifically spiritual relationship to the individuals from whom they wished
to seek reassurance, (2) not naming a specifically spiritual relationship to the individuals
from whom they wished to seek reassurance, or (3) not providing a response regarding their
relationship to the targets of their reassurance-seeking.

Results were that 47 (74.6%) participants indicated wishing to seek reassurance from the
target of the Sentence Task; 10 (15.8%) did not indicate wishing to seek reassurance from
the target of the Sentence Task; and 6 (9.5%) provided no response. Further, 31 (49.2%)
participants indicated wishing to seek reassurance from someone other than the target of the
Sentence Task; 25 (39.7%) did not indicate wishing to seek reassurance from someone other
than the target of the Sentence Task; and 7 (11.1%) provided no response. No participants
reported a specific spiritual relationship to the targets of their urges to seek reassurance; 58
(92.1%) described relationships with no specific spiritual connotation; and 5 (7.9%) provided
no response.
Hypothesis 4: Scrupulosity, Contamination Concerns, and Checking

Bivariate correlations were conducted to explore the relationships among TRSS-PM scores, OCI-R Checking subscale scores, PIOS-R scores, and VOCI Contamination subscale scores. The goal of this analysis and the regression analysis described below was to determine whether OCI-R Checking was differentially associated with these other variables than was TRSS-PM. Scores on the OCI-R Checking subscale were significantly positively correlated with scores on all three other measures (Table 4). The correlation between the PIOS-R and the OCI-R Checking subscale \( (r = .50) \) was similar to that between the PIOS-R and the TRSS-PM \( (r = .55) \). However, the correlation between the VOCI Contamination subscale and OCI-R Checking \( (r = .66) \) was larger than the correlation between VOCI Contamination and the TRSS-PM \( (r = .30) \).

To further explore potential differences between measures of checking and reassurance-seeking, a linear regression analysis analogous to that performed to test Hypothesis 1 was conducted to test Hypothesis 4; the only difference was use of OCI-R Checking scores as the criterion variable instead of TRSS-PM scores. A different pattern of results emerged from that observed in the test of Hypothesis 1. Model 1 was not significant, and STAI-Y change score alone did not predict OCI-R Checking. Model 2 was significant; STAI-Y change score was not a significant predictor of OCI-R Checking, but PIOS-R and VOCI-CTM were significant predictors of OCI-R Checking (Table 5).
Table 4

*Bivariate Correlations Among OCI-R Checking and Other Measures*

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OCI-R Checking</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. TRSS-PM</td>
<td>.38**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3. PIOS-R</td>
<td>.50**</td>
<td>.55**</td>
<td>-</td>
</tr>
<tr>
<td>4. VOCI-CTM</td>
<td>.66**</td>
<td>.30*</td>
<td>.40**</td>
</tr>
</tbody>
</table>

*Note. Ns range from 61-63. **p < .01*

OCI-R = Obsessive Compulsive Inventory – Revised.
TRSS = Threat-related Reassurance Seeking Scale (PM = Present Moment).
PIOS-R = Penn Inventory of Scrupulosity – Revised
VOCI-CTM = Vancouver Obsessional-Compulsive Inventory Contamination Subscale.
Table 5

*Regression Analyses for STAI-Y Change, PIOS-R, and VOCI-CTM Predicting OCI-R Checking*

<table>
<thead>
<tr>
<th>Variables</th>
<th>$t$</th>
<th>$p$</th>
<th>$b$</th>
<th>$F$</th>
<th>$p$</th>
<th>$R^2$</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAI-Y Change</td>
<td>-.18</td>
<td>.003</td>
<td>.675</td>
<td>.18</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAI-Y Change</td>
<td>-19.78</td>
<td>&lt; .001</td>
<td>.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIOS-R</td>
<td>-.12</td>
<td>.908</td>
<td>-.002</td>
<td>2.68</td>
<td>.010</td>
<td>.05</td>
</tr>
<tr>
<td>VOCI-CTM</td>
<td>5.42</td>
<td>&lt; .001</td>
<td>.15</td>
<td></td>
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</tbody>
</table>

*Note.* $N = 60$. **$p < .01$*

STAI-Y = State-Trait Anxiety Inventory Form Y.
PIOS-R = Penn Inventory of Scrupulosity – Revised
VOCI-CTM = Vancouver Obsessional-Compulsive Inventory Contamination Subscale.
OCI-R = Obsessive Compulsive Inventory – Revised
CHAPTER 4
DISCUSSION

Major Findings

The linear regression analysis conducted in order to examine Hypothesis 1 revealed that scrupulosity symptoms significantly predicted present-moment urges to seek reassurance following the Sentence Task, controlling for changes in anxiety as a result of completing the task. Contamination concerns, on the other hand, did not significantly predict present-moment urges to seek reassurance in this analysis. This finding supports Hypothesis 1 in that it provides some evidence that scrupulosity symptoms are more relevant than contamination concerns in predicting reassurance-seeking following engagement in a stressful situation. This is consistent with past research, which has demonstrated a particularly strong relationship between reassurance-seeking and the “unacceptable thoughts” symptom dimension of OCD, which may be considered to encompass scrupulosity (e.g., Williams et al., 2011). It also is consistent with clinical descriptions of scrupulosity that have identified reassurance-seeking from religious authorities as a common compulsion (Abramowitz & Jacoby, 2014).

It is notable that contamination concerns did not predict present-moment urges to seek reassurance in response to the Sentence Task in this study. It was expected that scrupulosity would be a stronger predictor than contamination concerns of urges to seek reassurance; this prediction was supported, with $b = .28$ for the PIOS-R as compared with $b = .08$ for the VOCI Contamination subscale as predictors of STAI-Y Change following completion of the Sentence Task. However, it was not expected that contamination concerns would fail to predict reassurance-seeking urges at all. In multiple past studies, reassurance-seeking has
been studied experimentally in the context of a washing paradigm (Leonhart & Radomsky, 2017; Neal & Radomsky, 2015). One result of these studies demonstrated that individuals who were made to feel increased responsibility for the washing were more likely to seek reassurance; further, this increased reassurance-seeking was mostly covert in nature. It is possible that contamination concerns do not relate directly enough to the anxious feelings induced by the Sentence Task in order to elicit the heightened sense of responsibility that relates to reassurance-seeking in individuals with concerns. Conceptually, this possibility seems logical, as an individual with elevated scrupulosity symptoms may be expected to feel that intentionally thinking of harm coming to a loved one is morally wrong, whereas individuals whose concerns are primarily related to contamination and washing are unlikely to have an equivalent reaction. Further, it is possible that reassurance-seeking was not defined broadly enough for participants of the current study to capture the more covert, nuanced behaviors that might constitute this form of safety-seeking behavior.

In a test of Hypothesis 2, bivariate correlations revealed significant positive associations between the TRSS-PM (a newly adapted measure of urges to seek reassurance in the present moment following completion of the Sentence Task) and most other measures of reassurance-seeking administered prior to the task. This pattern of correlations provides preliminary support for the validity of the TRSS-PM as a measure of reassurance-seeking, as scores on the TRSS-PM appear to converge with scores on measures of a conceptually similar construct (i.e., trait-level reassurance-seeking).

The exception to this pattern of results was the ReSQ Trust subscale, which evaluates the extent to which individuals trust the sources from which they seek reassurance. The only other measure of reassurance-seeking with which ReSQ Trust was significantly correlated was ReSQ Intensity, which measures the frequency at which reassurance is sought. Notably, this finding represents a deviation from findings reported by the development study for the ReSQ; that study found significant positive correlations between ReSQ Trust and all three
other ReSQ subscales (Kobori & Salkovskis, 2012). In considering potential reasons for this lack of association, it is important to note that higher scores on the ReSQ Trust subscale reflect greater self-reported trust in the sources from which individuals seek reassurance. It would follow logically that scores on this subscale should be negatively associated with scores on the other measures of reassurance-seeking in this study, as self-reporting greater trust in reassurers might be associated with decreased endorsement of items measuring the frequency of reassurance-seeking, number of reassurers, and the carefulness with which reassurance is sought. The absence of significant correlations in this direction may imply that the degree to which individuals trust their reassurers does not play a role in their experience of urges to seek reassurance. Because the ReSQ Trust subscale did not demonstrate the expected correlations with any other measures, including the other subscales of the ReSQ, it is unlikely that a lack of association between this subscale and the TRSS-PM is reflective of a problem with the validity of the TRSS-PM.

It should be noted that the correlation between total scores on the original TRSS and TRSS General subscale scores was very high ($r = .95$), as might be expected given the part-whole nature of this correlation. However, the correlation between original TRSS total scores and scores on the TRSS-PM, which was adapted directly from the TRSS General subscale, was much more moderate at .63. Moreover, the correlation between TRSS-PM and TRSS General subscale scores was similarly moderate at .65. This provides further evidence that the TRSS-PM measures a construct (i.e., present-moment urges to seek reassurance) that clearly is related to and yet distinct from the construct measured by the TRSS and its General subscale (i.e., general, trait-level urges to seek reassurance).

The goal of Hypothesis 3 was to explore whether participants would report seeking reassurance from individuals with whom they have a spiritually based relationship, such as a clergy member, as this form of reassurance-seeking has been described as a component of scrupulosity (Abramowitz & Jacoby, 2014). No participant in the current study named such a
person as the target of their urges to seek reassurance in response to completing the Sentence Task. The explanation for this may lie with the use of a nonclinical, undergraduate sample. Although OCD is considered to be a continuous condition (Abramowitz et al., 2002), it is possible that some behaviors may not be observed when only lower levels of symptoms are present. In the case of the current study, perhaps students with typical levels of scrupulosity symptoms might become upset enough in response to the Sentence Task to seek reassurance from a friend, but not upset enough to warrant contacting a clergy member, arguably a more severe behavioral reaction to the stimulus. Further, the wording of the questions in the current study may have been too vague. Namely, participants were asked to describe their relationship to the people from whom they wished to seek reassurance. Appropriately then, participants described these relationships with labels such as “friend” or “mother.” However, Abramowitz and Jacoby (2014) noted that, in the context of scrupulosity, reassurance may be sought from loved ones about religious issues. It certainly is possible that an individual’s friends or parents serve as religious authorities in some situations, and the current study did not clearly evaluate that possibility.

The goal of Hypothesis 4 was to explore potential differences between checking and reassurance-seeking. Although reassurance-seeking in the context of OCD generally has been conceptualized as a form of checking, some have suggested that these two processes may not be exactly the same (Salkovskis, 1999; Starcevic et al., 2012). In the current study, bivariate correlations revealed that scores on the OCI-R Checking subscale were significantly positively correlated with scores on the TRSS-PM. However, the results of linear regression analyses demonstrated that different factors predicted scores on the OCI-R Checking subscale than the TRSS-PM. STAI-Y Change was not a significant predictor of OCI-R Checking but VOCI Contamination was, while STAI-Y Change was a significant predictor of TRSS-PM but VOCI Contamination was not. This finding may reflect differences in presentations across symptom dimensions of OCD, such that checking is a more logical reaction than reassurance-seeking to
the fears associated with contamination concerns. However, it provides further support for a consideration of checking and reassurance-seeking as at least somewhat separable constructs.

**Limitations**

The current study is limited by a number of factors. Most notably, several issues arose during the data collection process which led to changes being made to the planned study design. Although pilot analyses had suggested that a sufficient number of students in the Introduction to Psychology research pool would be eligible for the study based on more stringent inclusion criteria than ultimately were established, actual eligibility at the time that data collection commenced was lower than expected. Further, few eligible students chose to participate in the study. For this reason, inclusion criteria relating to participants’ levels of obsessive-compulsive symptoms and religious identification were removed. Consequently, participants in the current study were not required to have elevated scrupulosity symptoms or contamination concerns, nor was there any guarantee that participants would not experience elevations in levels of both types of symptoms. Ideally, because OCD is a continuous condition, with low levels of symptoms reflecting a quantitatively different but qualitatively similar experience to high levels of symptoms, it is expected that observations of reassurance-seeking in participants with low levels of scrupulosity or contamination concerns should be generalizable to individuals with clinical levels of these symptoms (Abramowitz et al., 2002). However, this design change does not allow for a direct comparison across the two symptom dimensions. Additionally, it is unclear whether experiencing multiple types of obsessive-compulsive symptoms simultaneously (as opposed to only one distinct symptom dimension) may have affected participants’ behavior in response to the Sentence Task.
The removal of inclusion criteria related to religious identification changed the planned religious composition of the sample, which was intended to include only participants who identified their religion as Protestant or Catholic Christian. As a result, a large minority of the sample identified as non-Christian or did not identify a religion. As Abramowitz and Jacoby (2014) noted, the content of scrupulosity symptoms may depend heavily on the factors that are most important to an individual based on their particular belief system. One consequence of this is that measures of scrupulosity, including the PIOS and PIOS-R, perform differently across religious affiliations (Abramowitz, et al., 2002). For example, among individuals who score high on a measure of religiosity, Jewish participants have been shown to score lower than Protestant and Catholic Christians on items measuring fear of sin on the original PIOS (Abramowitz, 2002). Therefore, it is possible that the observed PIOS-R scores may not reflect levels of scrupulosity symptoms consistently across all of the participants included in the current study. Unfortunately, the number of participants identifying their religion as something other than Protestant or Catholic Christianity was insufficient for testing group-based comparisons. Consequently, analyses using this measure should be interpreted with some level of caution.

Data collection for the current study was interrupted by the 2020 COVID-19 pandemic, which necessitated the halting of in-person data collection. For this reason, the actual sample size fell below the targeted sample size. Based on a priori calculations made using G*Power, the study should have been underpowered with a sample size of $N = 63$. Indeed, as previously described, the width of the confidence intervals obtained for regression coefficients relevant to Hypothesis 1 indicates a possibility that the true values of these regression coefficients do not differ significantly from one another, which suggests potential issues with the power of the study. However, statistically significant results were obtained for many of the analyses conducted. In such a case, there is a possibility of effect inflation, such that the size of the observed effects may reflect an exaggeration of the actual effect sizes (Button et al., 2013).
An example of this potential effect lies in the correlation between scores on the PIOS-R and OCI-R Checking subscale, which was much higher in the current study at \( r = .50 \) than in a previous study \( (r = .25; \text{Olatunji et al., 2007}) \). This discrepancy raises the possibility that some of the significant effects observed in the current study may be artificially inflated in size. For this reason, it is important that future studies, particularly those that may seek to replicate the results of the current study, are sufficiently powered to detect smaller effect sizes than those demonstrated by the findings reported here.

Another limitation of the current study, specific to Hypothesis 4, is the lack of a present-moment measure of checking compulsions. Although the hypotheses used to examine Hypothesis 4 correspond structurally to those used to examine Hypothesis 1, the OCI-R was administered prior to participants’ completion of the Sentence Task and measured checking as a baseline, trait-level construct. The TRSS-PM, on the other hand, was administered following completion of the Sentence Task and specifically was designed to assess participants’ immediate reaction to that task. For this reason, a direct comparison cannot be made across the two regression analyses. Another consideration is that Cronbach’s alpha for the OCI-R Checking subscale was low at \( \alpha = .66 \). Generally, cutoffs for what is considered to be an acceptable Cronbach’s alpha value range from .70 to .95 (Tavakol & Dennick, 2011). This value sheds some doubt on the reliability of findings involving this subscale of the OCI-R. Therefore, any conclusions regarding Hypothesis 4 should be interpreted with caution, as it is possible that the pattern of differences in results related to checking versus reassurance-seeking may not hold true in other samples.

Finally, the use of the TRSS-PM, a newly adapted measure of present-moment urges to seek reassurance, serves as both an advantage and a limitation to the current study. As noted above, significant correlations between the TRSS-PM and other measures of reassurance-seeking provided some evidence of the convergent validity of this new measure. However, the average inter-item correlation for the TRSS-PM was high at .77. Guidelines for the
use of this index have suggested that average inter-item correlations for a scale should fall between .15 and .50 depending on whether the construct being measured is broad or narrow in scope (Clark & Watson, 1995). The very high average inter-item correlation for the TRSS-PM suggests that the adapted items may have been worded in such a way that they did not represent meaningfully different content from one another. As suggested by Clark and Watson (1995), a valid measure should include items that are different from each other in order to collect more varied information related to the construct of interest. It is possible, therefore, that the TRSS-PM may not be the best tool for measuring present-moment urges to seek reassurance.

Future Directions

Although the findings of the current study provide information that builds upon the field’s understanding of reassurance-seeking as it relates to OCD and, in particular, scrupulosity, these results should be considered preliminary in nature. Future research should attempt to replicate the findings of the current study. Additionally, whereas the current study provides a description of the behavior associated with certain symptoms and events, future studies should examine the mechanisms by which differences in safety behaviors across symptom dimensions of OCD arise and the reasons for these differences. Such studies may seek out motivating factors that lead individuals with scrupulosity to engage in reassurance-seeking as opposed to checking. For example, do individuals with scrupulosity ask others for reassurance because the intangible nature of many religious and moral concerns makes it difficult to obtain objective disconfirmation of their fears? Are individuals with scrupulosity perhaps less trusting in themselves than individuals with other types of obsessive-compulsive symptoms? Alternatively, might individuals with contamination concerns be more likely to experience
social concerns that discourage them from reassurance-seeking? Such research may be useful in directing efforts to reduce these safety behaviors.

Future research should explore the potential clinical significance of the current findings. For example, studies should explore whether differences in reassurance-seeking and other safety behaviors across OCD symptom dimensions justify the implementation of different intervention methods for these differing presentations. If reassurance-seeking is indeed particularly relevant to clients experiencing scrupulosity symptoms, specific attention should be given to intervention targeted at this presentation. Suggested by findings in the current study, it may not be as important to involve clergy in the treatment of scrupulosity as it is to include close family members with religious connections to the client. An examination of the most effective interventions for decreasing reassurance-seeking may prove invaluable to the development of improved treatment methods for scrupulosity.

Future studies should weigh the risks and benefits of conducting research related to scrupulosity and religious issues with college samples. On one hand, college students in early adulthood are an interesting population in which to conduct such research. Nearly 70% of individuals in early adulthood experience a decline in their participation in religious services, but personal religiosity remains the same for 82% of college students (Uecker, Regnerus, & Vaaler, 2007). The cognitive dissonance that might be expected to result from retention of personal religiosity in contrast with movement away from active participation in religious life may contribute to the emergence of scrupulosity symptoms in young adults. On the other hand, research has shown that there are marked generational differences in religiosity, such that Millennials report decreased involvement in and importance of religion from previous generations, with this difference being attributed to differences among generations rather than the age at which participants were surveyed (Twenge, Exline, Grubbs, Sastry, & Campbell, 2015). It follows that that the religious experiences of today’s college students may not necessarily be generalizable to the religious experiences of other cohorts. Therefore,
the study of behaviors associated with scrupulosity, which often are deeply entwined with religion, should include participants spanning multiple generational cohorts and a range of ages.

Further, future research may benefit from taking additional steps to ensure that participants are able to answer questions regarding their own reassurance-seeking as accurately as possible. Although the current study’s use of a self-report, questionnaire-based measure to study reassurance-seeking provided a reasonable basis from which to draw preliminary conclusions regarding associations among reassurance-seeking and OCD symptoms, it is unclear whether participants in this study possessed good insight into their own urges to engage in this behavior. It may be important for future studies to obtain an other-report with which to corroborate participants’ self-reports of their reassurance-seeking. Additionally, reassurance-seeking was not explicitly defined in the current study. Because reassurance-seeking may include a broad range of behaviors, and because some forms of reassurance-seeking may be more covert than others, future studies may benefit from the inclusion of definitions and examples of this construct before asking participants to report on it.

A follow-up to the current study is underway, which will follow the same procedures as the current study but will be conducted remotely and will include an online version of the Sentence Task. If the results of the follow-up study are consistent with the preliminary findings reported here, this may increase confidence in the conclusions of the current study. Additionally, the follow-up study will allow for an examination of the utility of a remotely administered Sentence Task for studying reassurance-seeking and obsessive-compulsive symptoms. As the use of online studies for conducting psychological research has become increasingly common, many research tools that have traditionally been administered in person in the laboratory setting have been translated for online use (Gosling & Mason, 2015). However, the use of online studies presents unique issues that may not have been as relevant to in-person research (Gosling & Mason, 2015). For example, online studies do not allow researchers to be
aware of factors such as the participants’ environment and behavior (Buchanan & Williams, 2010, as cited by Gosling & Mason, 2015). This may be of particular concern for the use of the Sentence Task and other potentially distressing methodologies. In an online research setting, participants may be less likely to complete an upsetting task or not attend to the task fully; anecdotally, this is a situation our lab is seeing in the context of a similar study being performed online with NIU undergraduates. Therefore, a comparison between the results of in-person and remote administrations of the Sentence Task will be important if future studies continue to examine reassurance-seeking using this paradigm.

**Conclusion**

The current study provided an examination of the association between reassurance-seeking and scrupulosity as compared with contamination concerns, using a newly adapted measure of present-moment urges to seek reassurance induced by a task commonly used in OCD research to induce distress. Although the results of this study are preliminary and limited by several factors, they provide some evidence for specificity of reassurance-seeking as a particularly important symptom of scrupulosity relative to other symptom dimensions of OCD. Further, the results of this study provide some support for the use of the Sentence Task as a means of eliciting urges to seek reassurance among individuals with contamination concerns, as well as for the present-moment adaptation of the Threat-Related Reassurance-Seeking Scale for measuring these urges. Future research should continue to explore the degree to which symptoms such as reassurance-seeking, as well as the factors related to this safety-seeking behavior, are specific to scrupulosity or to other symptom dimensions of OCD and should consider the implications of such specificity for clinical practice.
REFERENCES


