

Predictors of Excessive Reassurance Seeking in Social Anxiety

by

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Author's Declaration

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

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Abstract

Excessive reassurance seeking has been conceptualized as a maladaptive coping strategy to lessen psychological distress among people struggling with anxiety and depression. Surprisingly, little research has been conducted on the nature and consequences of excessive reassurance seeking in individuals with social anxiety, who tend to worry about the impression they make in evaluative social contexts. We theorized that heightened feelings of social self-doubt may contribute to reassurance seeking behaviours in social anxiety, and that this association may be amplified by increased engagement in post-event processing, a form of ruminative mental replay in which negative self-evaluation is prominent. To address these questions in an initial study, we recruited 461 undergraduate participants for a pre-registered correlational study. Hierarchical regression analyses supported hypotheses, revealing that for participants with more impairing symptoms of social anxiety, greater self-doubt was associated with greater levels of reassurance seeking, but only when post-event processing was high. These findings, which are consistent with cognitive models of social anxiety, require replication and extension in naturalistic and experimental studies with diverse samples. The use of excessive reassurance seeking represents a potential barrier in interpersonal communication that may push others away and lead to suboptimal social support. Insights gleaned from this study as well as subsequent replication and extension studies could be beneficial for helping to develop therapeutic interventions that reduce self-doubt and rumination and improve social support seeking strategies and outcomes for those struggling with social anxiety.

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Predictors of Excessive Reassurance Seeking in Social Anxiety

Reassurance seeking is considered a natural component of social support seeking in interpersonal relationships to address negative feelings, doubts, fears, or discomfort. Receiving reassurance from supportive others has the power to make a distressed individual feel a sense of relief and gain a new perspective. However, for those who struggle with anxiety and depression, reassurance seeking can become excessive and maladaptive, pushing supportive others away and amplifying feelings of distress and isolation (Cogle et al., 2012; Rector et al., 2011).

Defining Excessive Reassurance Seeking

Excessive reassurance seeking is defined as the repetitive and persistent request of assurance from others for the purpose of lessening psychological distress (Joiner, Metalsky, Katz, & Beach, 1999; Parrish & Radomsky, 2010). The definition of the concept has varied in the research literature. Parrish and Radomsky (2010) defined excessive reassurance seeking within the context of OCD research as, “the repeated solicitation of safety-related information from others about a threatening object, situation or interpersonal characteristic despite having already received this information,” while Joiner et al. (1999) defined excessive reassurance seeking within the context of depression research as, “the relatively stable tendency to excessively and persistently seek assurance from others that one is lovable and worthy, regardless of whether such assurance has already been provided.” Additionally, the conceptualization of “excessive” also varies across studies (Evraire & Dozois, 2011; Evraire, 2014). Some researchers define “excessive” based on the frequency of the behaviour; in other words, when an individual continues to seek reassurance even after already receiving assurance the first-time for a distressing situation, while other researchers have focused on the consequences that result from excessive reassurance seeking, conceptualizing the concept based

on the distress and interpersonal difficulties that follow from it (e.g., peer and relationship conflicts). In my Master's research project, reassurance seeking will be primarily conceptualized as excessive based on the frequency of the *behaviour*, while future research projects I am conceptualizing for my PhD research will also focus on the distress component that often comes with the *urge* to seek reassurance.

Specific Targets of Reassurance Seeking Across the Emotional Disorders

Although the overarching goal or function of reassurance seeking for the seeker is to gain a sense of increased certainty, when excessive reassurance seeking has been analyzed within clinical contexts the specific target of certainty-seeking appears to differ across disorders depending on threat-related motivational factors (Clark, 2004; Rector et al., 2011). For individuals struggling with depression, reassurance seeking tends to target doubts related to interpersonal security, attachment, and the genuineness of others' care (e.g., potential loss of friends, abandonment from a romantic partner; Coyne, 1976; Joiner, 1994; Joiner et al., 1999). However, after reassurance is provided its authenticity is questioned by the seeker. As the seeker's feelings of insecurity and doubt resurface, reassurance-seeking is renewed, which results in a negative spiral that could lead to rejection from others and the worsening of depressive symptoms over time (Coyne, 1976). In generalized anxiety disorder (GAD), reassurance seeking tends to be geared toward reducing the seeker's intolerance of uncertainty about the future (Clark et al., 2020; Wells, 2010), while those with illness anxiety disorder (IAD) will use reassurance seeking to attempt to gain a sense of certainty related to their concerns about their physical health and symptoms of illness (Salkovskis & Warwick, 1986). In contrast, reassurance seeking in obsessive-compulsive disorder (OCD) is often focused on soliciting

safety-related information that a feared consequence has not occurred for the purpose of reducing anxiety, preventing harm, and decreasing responsibility for harm (Parish & Radomsky, 2010).

Collectively, the findings of these previous research studies have underscored the notion that seeking excessive reassurance is an ineffective coping strategy, regardless of the specific disorder. Even though receiving reassurance may reduce feelings of anxiety in the short-term (Carter, Hollon, Carson, & Shelton, 1995), it tends to maintain or exacerbate rather than reduce the threat of uncertainty over the long-term (Coyne, 1976; Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010, 2011). Specifically, Kobori and Salkovskis (2013) found that for those with OCD reassurance seeking can provide temporary relief from anxiety while simultaneously reinforcing the idea that uncertainty is intolerable or dangerous. Over time the need for reassurance seeking behaviours is perpetuated and can lead to a cycle of uncertainty and anxiety due to decreased confidence in one's ability to cope with stressful and anxiety-provoking situations. Given increased doubts and anxiety after engaging in repetitive reassurance seeking behaviours, a dependency on external validation can then diminish an individual's confidence in their own ability to manage uncertainty.

Vicious Cycle Model: Understanding the Nature and Consequences of Excessive Reassurance Seeking

Excessive reassurance seeking is considered maladaptive due to its negative intrapersonal and interpersonal consequences. According to the vicious cycle model (Williams, 2012) there is a short-term reduction in anxiety after receiving reassurance which is quickly followed by a return of anxiety and an urge to continue seeking reassurance over time. This suggests that the individual's underlying fears are left unresolved in the long-term and their perceived ability to cope with anxiety is lessened. In one study, Salkovskis and Kobori (2015) examined the urge to

seek reassurance and compared the effects of receiving reassurance on symptoms of anxiety between individuals with OCD, individuals with panic disorder, and non-clinical controls. All three groups reported a decrease in anxiety immediately after receiving reassurance. However, in comparison to the healthy controls, both anxious groups reported increased anxiety 20 minutes after receiving reassurance. This and similar studies suggest that reassurance provides only a temporary sense of relief for individuals with elevated symptoms of anxiety (Abramowitz, Schwartz, & Whiteside, 2002; Salkovskis & Warwick, 1986). Indeed, such individuals may be satisfied with reassurance they receive only for a matter of minutes before their anxiety and urge to seek reassurance increase again, disrupting their habituation to the anxiety-provoking stimulus and resulting in an underestimation of their capacity to independently manage anxiety (Lohr, Olatunji, & Sawchuk, 2007; Parrish & Radomsky, 2010).

In addition to the negative consequences on self-regulation, excessive reassurance seeking has the potential to cause negative interpersonal consequences for both the seeker and the provider. Individuals who seek reassurance may develop a reliance on close others for short-term relief from anxiety which may elicit feelings of shame and embarrassment. At the same time, those providing the reassurance may experience feelings of burden and frustration as a result of the seeker's persistent efforts and continual requests for reassurance. According to Coyne's (1976) interpersonal theory, individuals who excessively seek reassurance are vulnerable to losing social support and experiencing depressive symptoms. Indeed, research informed by Coyne's concept of reassurance seeking has revealed that excessive reassurance seeking is associated with peer irritation (Joiner & Metalsky, 2001), diminished social support (Joiner & Metalsky, 1995), and interpersonal rejection (Starr & Davila, 2008). Furthermore, engaging in excessive reassurance seeking is a predictor of elevated levels of stress in romantic

relationships over a 1-month follow-up period, characterized by frequent arguments (Eberhart & Hammen, 2009) and increased general relationship stressors (Shahar, Joiner, Zuroff, & Blatt, 2004).

Excessive Reassurance Seeking in Social Anxiety

Despite the well-established negative effects of excessive reassurance seeking in depression and other anxiety-related disorders, the existing literature offers limited insight into the link between reassurance seeking and social anxiety. Individuals with elevated symptoms of social anxiety or a clinical diagnosis of social anxiety disorder (SAD) tend to view themselves as being socially undesirable and to experience strong fears of social scrutiny (Hirsch & Mathews, 2000; Moscovitch, 2009; Stopa & Clark, 1993). It is possible, as a result, that they may therefore have an increased urge to check whether their social appearance and/or behaviour was appropriate in the eyes of others. Cognitive-behavioural models of social anxiety suggest that perceiving novel social situations as threatening for the self can lead to heightened anxiety, physiological arousal, greater self-focused attention, and impaired task performance. However, it is unknown whether individuals with higher symptoms of social anxiety tend to engage in excessive reassurance seeking to help reduce their anxiety. Moreover, there is limited empirical research on the factors that may predict engagement in reassurance seeking among individuals who struggle with social anxiety, or on whether and how engagement in such behaviours leads to maladaptive outcomes. To examine these questions in greater depth it is first necessary to review the prominent cognitive-behavioural models of social anxiety that outline the factors that are believed to contribute to the development and persistence of symptoms.

Cognitive Behavioural Models of Social Anxiety

According to Clark and Wells (1995), individuals with social anxiety possess negative self-beliefs and biased information processing. Specifically, the authors identified four interactive cognitive processes involved in the persistence of social anxiety symptoms: self-focused attention, safety behaviours, negative social cognitions, and pre- and post-event processing. First, self-focused attention is a tendency to focus one's attention inwardly towards oneself and to monitor one's own thoughts, feelings, and physical sensations (e.g., sweating, shaking, blushing), particularly in anxiety-provoking social encounters. For example, instead of actively listening to the conversation, socially anxious individuals who are busy monitoring their own performance may fail to notice positive reactions from conversational partners. This self-focus can lead those with social anxiety to interpret their performance in a negative and self-critical manner (rather than attending to objective information and feedback), enhancing their negative core beliefs.

Second, safety behaviours are used to cope with anticipatory anxiety (characterized by the fear of potential negative outcomes in the future) and high levels of arousal during the social event. These include overt and covert avoidance (e.g., dropping classes with presentations, preparing conversation topics) and impression management strategies (e.g., speaking softly, wearing makeup to conceal blushing); often, these safety behaviours are used to prevent their feared predictions from happening and to gain a sense of control over the threat of uncertainty. Although the intent is to protect themselves from negative evaluation, the use of these strategies tends to interfere with genuine conversations and meaningful relationships. When there is a reliance on safety behaviours, those with social anxiety are not able to learn that social situations are not as threatening as they anticipate them to be. Safety behaviours may provide momentary

relief from distress and anxiety; however, they also reinforce the belief that social situations are inherently dangerous and that one must rely on safety behaviours to cope and prevent negative judgement. Moreover, impaired social performance may result when an individual is preoccupied with self-focused attention and safety behaviours. For example, if an individual with social anxiety is avoiding eye contact, the conversation partner may perceive them as distracted or disingenuous, ultimately making a worse social impression. Third, negative social cognitions refer to beliefs and thoughts that are often negatively biased. Specifically, there is a bias towards perceiving oneself, one's social performance, and evaluating others negatively, leading to an increase in fear of negative evaluation and social rejection.

Last, Clark and Wells (1995) argued that maladaptive pre- and post-event processing tends to maintain social anxiety symptoms. Before a social interaction occurs, people with social anxiety experience anticipatory anxiety in which they tend to imagine negative worst-case scenarios and past social failures. After the social encounter, they engage in a form of ruminative mental replay that involves reviewing negative aspects of their performance, which is commonly referred to as “postmortem” review or “post-event processing”. During post-event processing, a person who is socially anxious may interpret an ambiguous social encounter as negative or view mild negative feedback as catastrophic. Together, the processes identified by Clark and Wells (1995) are all theorized to play important roles in the persistence of social anxiety.

Rapee and Heimberg (1997) also emphasize the role of cognitive processes in the maintenance of social anxiety. Specifically, the authors proposed that when these individuals encounter a social situation the anticipation of an evaluative social audience creates a mental representation of the self. The image of themselves is based on information from long-term memory, internal cues, and external cues. According to the model, the self-image is often

negative, distorted, and contains cognitive biases (e.g., attending to threat-related information relating to negative evaluation), leading to the overestimation of the probability of negative outcomes and influencing the overall interpretation of a social encounter. Additionally, continuous self-monitoring places a burden on working memory, hindering the individual's ability to attend to social cues and respond naturally to social tasks (e.g., potentially appearing more strange, rigid, uninterested). As a result, their poor social performance further reinforces their negative self-perceptions and core beliefs. Rapee and Heimberg's (1997) model also suggested that individuals with social anxiety hold the assumption that others have high expectations for their performance. The more they perceive their inability to meet these standards the greater the likelihood of experiencing negative evaluation and anxiety symptoms. Given these catastrophic predictions, these individuals may attempt to relieve their anxiety temporarily through avoidance, leading to potential interpersonal outcomes and the maintenance of their social anxiety.

Similar to Clark and Wells (1995) and Rapee and Heimberg's (1997) model, Hofmann's (2007) model also emphasizes the significance in the interplay between cognitive factors, physiological responses, and avoidance behaviours that contribute to the maintenance of social anxiety. In contrast to other models, Hofmann's (2007) model proposes that those with social anxiety struggle to define achievable goals and formulate a concrete plan to achieve them. According to the model, anxiety and the expectation of failure are a consequence of negative self-perceptions, perceived limited emotional control, perceived limited social skills, and the anticipation of catastrophic social consequences. Importantly, Hofmann (2007) emphasizes that perceived poor social skills are reinforced when socially anxious individuals engage in avoidance and safety behaviours and that their perceived limited emotional control is noticeable by others.

Last, Hofmann's (2007) model also acknowledges the important role of post-event processing after a social situation in maintaining and contributing to social anxiety.

Another prominent cognitive-behavioural model was proposed by Moscovitch (2009) to capture the core negative views of the self in social anxiety. Moscovitch (2009) argued that the perceived level of threat in a social situation depends on an individual's feared self-attributes and their perceived ability to conceal them. The model suggested four dimensions that characterizes the feared self-relevant stimuli: (1) perceived flaws in social skills and behaviours ("I will stutter"); (2) perceived flaws in concealing visible signs of anxiety ("I will sweat"); (3) perceived flaws in physical appearance ("I am ugly"); and (4) characterological flaws ("I am boring"). This model emphasizes the significance of addressing the self-attributes that socially anxious individuals fear may be exposed to critical others within social anxiety. In this regard, avoidance and safety behaviours act as self-protective strategies to avoid public scrutiny of these feared self-attributes. All in all, Moscovitch's (2009) overarching principle is that "the self-attributes themselves—rather than feared social situations—are the most direct and sensible targets for exposure" (Moscovitch, 2009, p. 131).

Theoretical Framework for Investigating Reassurance Seeking in Social Anxiety

Although the nature of the relationship between social anxiety and excessive reassurance seeking is currently unknown, I reasoned that it could take one of two forms. First, those with higher symptoms of social anxiety may engage in less reassurance seeking behaviours. As the literature on social anxiety indicates, these individuals tend to use self-concealment methods, avoid attention, and fear receiving compassion. The combination of these factors may decrease the likelihood those with high social anxiety would engage in excessive reassurance seeking, especially since they may fear that doing so would bring more attention to their perceived flaws

and increase their sense of interpersonal threat. In contrast, a second possibility is that socially anxious individuals may seek more reassurance, especially since anxiety can result in ruminative thoughts, interpersonal discomfort, and a sense of urgency to alleviate distress, ultimately increasing their motivation to seek reassurance. Additionally, those with high trait social anxiety may use more covert strategies (described below) to elicit a reassuring response to protect themselves from potential interpersonal consequences and ease anxiety around uncertainty.

Very little empirical work has directly examined reassurance seeking in social anxiety. A daily diary study by Wilson et al. (2018) found that participants with social anxiety disorder (as well as those with generalized anxiety disorder) engaged in greater “feedback seeking” than those in a healthy control group with no history of mental health challenges. Interestingly, Wilson et al. (2018) conceptualized positive feedback seeking as synonymous to excessive reassurance seeking (i.e., “wanting positive, reassuring self-relevant information from other individuals, oneself, or [external] targets such as books and websites”), while negative feedback seeking was defined as seeking negative self-relevant information. The authors theorized that positive feedback seeking may function as a safety behaviour that temporarily decreases anxiety in the short-term, while the role of negative feedback seeking may be to confirm negative self-views.

In another study by Heerey and Kring (2007), researchers coded behaviours from a dyadic conversation between high socially anxious participants and low-anxious unknown conversation partners. Results showed that those with high trait social anxiety engaged in more reassurance seeking than low anxious partners, using various strategies to elicit a reassuring response; moreover, the quality of interactions with participants who had high trait social anxiety was rated as being lower by those providing the reassurance (Heerey & Kring, 2007). These

findings indicate that people who struggle with social anxiety may engage in excessive reassurance seeking which contributes to negative interpersonal outcomes. Additionally, the coded behaviours from the interaction demonstrated that socially anxious participants used a mix of overt and covert means of eliciting reassurance, including complaints (e.g., “These research studies make me kind of nervous”), apologies (e.g., “I’m sorry for interrupting”; “I didn’t really mean that”), direct requests for advice (e.g., “What would you do?”), support (e.g., “Isn’t that awful?”), and agreement (e.g., “Don’t you think so too?”). Therefore, based on Heerey and Kring’s (2007) findings, it appears that excessive reassurance seeking in social anxiety can take on at least two distinct forms: (1) overt, repetitive, and direct questions (e.g., “Do you think I was too awkward? Are you sure?”) and (2) covert and subtle statements that could carry the inferred function of eliciting a reassuring response but in an indirect way that makes the request for support less overt (e.g., “Sorry, you probably think I’m so awkward”). Importantly, despite using covert means to seek reassurance, individuals with high levels of trait social anxiety may intend to elicit a consoling or comforting response, even from complete strangers who pose a greater potential interpersonal threat. These are the only two studies, to my knowledge, that have examined the nature and consequences of excessive reassurance seeking in social anxiety, suggesting the need for additional research.

Roles of Self-Doubt and Rumination in Social Anxiety-Related Reassurance Seeking

What factors might drive excessive reassurance seeking urges and behaviours in social anxiety? To my knowledge, no prior research has examined this question. Drawing upon well-established cognitive models of social anxiety (reviewed above), I propose that both self-uncertainty (or self-doubt) and rumination (described below) may play important roles. Self-certainty refers to one’s subjective confidence in one’s own personal characteristics. Similarly,

self-concept clarity is defined as the extent to which one has a clear understanding of and subjective confidence in one's own values, beliefs, and abilities (Campbell et al., 1996). According to Baumgardner (1990), individuals with high self-concept clarity tend to have a more stable and positive view of themselves. This is due to their increased sense of control over their future outcomes, which in turn promotes a secure view of oneself. In contrast, individuals with low self-concept clarity are more susceptible to external influences, have distorted views of past and present behaviours, and possess fewer positive self-attributes (Baumgardner, 1990; Campbell, 1990).

Research by Wilson and Rapee (2006) has shown that individuals with social anxiety report less confidence in their ratings of positive and negative personality traits and require more time to make decisions about matters pertaining to themselves compared to general decisions about trait adjectives. Similarly, Moscovitch, Orr, Rowa, Reimer, and Antony (2009) found that participants with social anxiety disorder (SAD) reported more negative self-perceptions compared to healthy controls, who had more positive self-views and placed greater certainty and importance on their positive self-ratings. These findings suggest that individuals with high trait social anxiety may rely on the opinions of others to bolster self-certainty and/or alleviate feelings of self-doubt.

To this end, it is noteworthy that intolerance of uncertainty has been linked to both rumination (Ward, Lyubomirsky, Sousa, & Nolen-Hoeksema, 2003) and excessive reassurance-seeking (Jacobson & Weary, 1999). Einstein (2014) employed a transdiagnostic framework and theorized that individuals with psychological disorders resort to using maladaptive coping strategies, such as rumination and seeking reassurance when confronted with uncertainty, in an effort to regulate the physiological arousal triggered by uncertainty. Moreover, Gillett and Mazza

(2018) emphasized the significance of cognitive schemas and core beliefs in provoking doubts and uncertainty when seeking reassurance. Specifically, individuals whose schemas tend to narrowly attend to threatening and/or negative information may disregard reassurance offered to them due to an inconsistency between their schema and the reassurance provided (see Moscovitch, Moscovitch, & Sheldon, 2023). As a result, persistent reassurance seeking tends to be ineffective at reducing the underlying threat.

Post-event processing has been conceptualized as a form of rumination or repetitive thought, which occurs following anxiety-provoking social situations. Socially anxious individuals are more likely than non-anxious individuals to engage in post-event processing following social interactions (Gavric, Moscovitch, Rowa, & McCabe, 2017; Rachman, Grüter-Andrew, & Shafran, 2000; Stopa & Clark, 2000). Clark and Wells (1995) described post-event processing as a cognitive review of one's performance after a social event, with a focus on negative aspects of the event and perceived failures. This review process is self-focused and attentionally biased towards negative information, contributing to the maintenance of social anxiety symptoms. By focusing on negative aspects of social performance, individuals with social anxiety may become more self-critical and anxious, which in turn may lead to anticipating a negative social performance, avoiding social situations, and further reinforcing negative self-beliefs. Building on Clark and Wells' (1995) cognitive model of post-event processing, subsequent research has demonstrated that these heightened recollections of perceived flaws and mistakes are often recurrent and intrusive, leading to increased anxiety surrounding an upcoming social event and lessening the desire to socially engage with others over time (Blackie & Kocovski, 2018; Brozovich & Heinberg, 2013). Importantly, Kocovski and Rector (2007) suggested that the content of post-event processing is biased towards negative self-images and

ambiguous social cues (i.e., voice tone, facial expressions). I propose that in the aftermath of anxiety-provoking social situations, post-event processing interacts with heightened self-doubt in people with higher levels of social anxiety to fuel reassurance seeking urges and behaviours.

Post-event processing has also been linked to information processing biases that negatively influence the encoding and retrieval of memories. According to Clark and Wells (1995), post-event processing can enhance the accessibility of memories relating to past social failures and negative self-related information. The repeated engagement in post-event processing in the aftermath of a social encounter becomes problematic, as past autobiographical memories may be reconstructed and distorted over time to fit a pre-existing negative self-image (Clark & Wells, 1995; Rapee & Heimberg, 1997; see also Romano, Ma, Moscovitch & Moscovitch, 2020). In a study conducted by Glazier and Alden (2019), socially anxious participants recalled positive feedback less positively over time in comparison to non-anxious controls. Additionally, the negative memory bias in post-event processing has been shown to persist after a week following feedback for an impromptu speech (Abbott & Rapee, 2004; Perini, Abbott, Rapee 2006), with more negative self-related details recalled depending on the frequency of post-event processing (Mellings & Alden, 2000). As a result, socially anxious individuals may develop a bias towards negative interpretations, relying more heavily on negative memories and perceiving social situations as threatening, while also discounting or undervaluing positive or neutral details from a social event. In order to gain a greater sense of certainty and lessen the anxiety experienced from the repeated negative recollections that occur during post-event processing, high-trait socially anxious individuals may resort to excessively seeking reassurance from others. Although excessive reassurance seeking has the power to provide temporary relief from anxiety,

it may ultimately reinforce the negative self-image and lead to greater dependence on external sources of validation.

The Current Study

The purpose of this research project is to investigate the potential predictors of excessive reassurance seeking in the context of social anxiety and test the hypothesis that both self-doubt and post-event processing may play important roles.

I predicted that: (1) higher social anxiety, lower self-certainty, and higher post-event processing would each predict unique variance in excessive reassurance seeking; (2) higher social anxiety would amplify the effects of increased post-event processing as well as the effects of reduced self-certainty on excessive reassurance seeking; and (3) social anxiety, self-doubt, and post-event processing would interact to produce the highest levels of excessive reassurance seeking.

Method

Participants

A total of 461 undergraduate participants were recruited from the Psychology Undergraduate Participant Pool at the University of Waterloo to complete an online self-report questionnaire in exchange for course credit. There were no inclusion or exclusion criteria for participation eligibility in the current study. An a priori power analysis was conducted in G*Power to calculate the number of participants required to detect significant effects in our most “power hungry” analysis: a hierarchical regression analysis with seven predictors (i.e., social anxiety, self-certainty, post-event processing, three two-way interactions, and one three-way interaction). Results of the power analysis revealed that 103 participants were required to detect medium effects ($f^2 = .15$) and 725 participants were required to detect small effects ($f^2 = .02$) with power of 0.8. With feasibility considerations in mind, we aimed to achieve a compromise sample size of 450 participants, with the goal of being able to detect small to medium effects.

There were 62 participants excluded from data analyses for failing more than 50% of the attention checks ($n = 7$), completing the questionnaire in an excessively short time frame ($n = 18$), and/or skipping a predictor scale in their entirety (social anxiety measure, $n = 12$; self-certainty measure, $n = 6$; post-event processing, $n = 45$). The final sample consisted of 399 participants with a mean age of 20.13 ($SD = 2.83$) and with 75.4% identifying as a woman, 22.3% as a man, and 1.5% as non-binary. Additionally, most participants identified as Caucasian/White (40.4%), with the remaining identifying as South Asian (22.8%), East Asian/South-East Asian/Pacific Islander (20.8%), Black/Afro-Caribbean/African (6.5%), Middle Eastern/North African/Central Asian (4.5%), Hispanic/Latino (1.5%), and First Nations/Métis/Inuit (0.8%).

Procedure

After receiving ethics clearance through the University of Waterloo Research Ethics Board, multiple timeslots were made available for participants on the SONA sign-up system. After viewing the study description and choosing a desired timeslot, participants received access to a link directing them to an online questionnaire via Qualtrics. Participants who did not consent to participate in the study were thanked for their time and instructed to close their browser at that time. Participants who provided consent for study participation were prompted to enter their 6-digit SONA ID, followed by the completion of multiple self-report scales.

The first section of the survey contained demographic information to inquire about age, sex, gender, and ethnicity. The next section contained a mix of predictor and outcome measures in randomized order including the Post-Event Processing Questionnaire – Revised (PEPQ-R; Mcevoy & Kingsep, 2006), Self-Concept Clarity Scale (SCCS; Campbell et al., 1996), Threat-Related Reassurance Seeking Scale (TRSS; Cogle et al., 2012), and an adapted version of Covert and Overt Reassurance Seeking Inventory (CORSI; Radomsky et al., 2021). Finally, the last section contained the Social Phobia Inventory (SPIN; Connor et al., 2000) and Sheehan Disability Scale (Sheehan, 1996), measures of social anxiety symptoms and associated life distress and impairment during the past week. Attention checks were imbedded across measures (e.g., “please select x”) to ensure participants remained focused on the questions at hand. The study was preregistered on the OSF website and can be accessed at the following link:

<https://osf.io/cdb4n>.

Measures

Social Phobia Inventory (SPIN; Connor et al., 2000). Participants completed the 17-item SPIN using a 5-point response scale (1 = *not at all*, 5 = *extremely*) to assess trait social anxiety

based on reported fear, avoidance, and discomfort in social situations and physiological symptoms within the past week. Items for the scale included “Being criticized scares me a lot” and “Sweating in front of people causes me distress”. The scale has demonstrated good internal consistency, convergent validity, discriminant validity, and test-retest stability (Antony et al., 2006; Connor et al., 2000). Cronbach’s alpha in the current study was $a = .94$.

Sheehan Disability Scale (SDS; Sheehan, 1996). The SDS assesses distress and impairment relating to social anxiety in different domains (i.e., work, social, and family life) using 5-items. For the first three items, respondents used a 11-point scale (0 = *not at all*, 10 = *extremely*) to rate the degree of interference experienced in each domain within the past week. The last two items inquire about the number of days in the last week that the distress has resulted in missing school/work and reduced productivity. A mean total score ranging between 14 to 18 has indicated significant impairment functioning for those with anxiety based on a review conducted by Sheehan and Sheehan (2008). In previous research, the SDS has been shown to have good internal reliability, construct validity, and criterion-related validity (Hambrick et al., 2004; Leon et al., 1997). In the current study, the internal consistency was $a = .90$.

Post-Event Processing Questionnaire – Revised (PEPQ-R; McEvoy & Kingsep, 2006). Participants completed an 8-item scale assessing the level of negative and repetitive rumination following an anxiety-provoking social encounter that occurred either within the past week or few months. Using a 100-point sliding scale (0 = *not at all*, 100 = *totally agree*), participants responded to items such as “After the event was over, did you find yourself thinking about it a lot?” and “Did you try to resist thinking about the event?”. The PEPQ-R has shown excellent internal reliability ($\alpha = .87$; McEvoy & Kingsep, 2006), which was replicated in the current study $a = .92$. Cronbach's alpha in the current study was $a = .91$.

Self-Concept Clarity Scale (SCCS; Campbell et al., 1996). The SCCS is a 12-item measure that assesses self-certainty using a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The scale consists of three subscores with four items for each and measures self-concept temporal stability (e.g., “On one day I might have one opinion of myself and on another day I might have a different opinion”), self-concept consistency (e.g., “My beliefs about myself often conflict with one another”), and self-concept clarity (e.g., “I spend a lot of time wondering about what kind of person I really am”). However, the results for the current study focused primarily on a total score, with higher numbers indicating more self-certainty. Previous studies using an undergraduate sample have shown excellent internal consistency (e.g., Stopa et al., 2010) and criterion validity (Campbell et al., 1996). In the current study, the reliability of the total score was $a = .87$

Threat-Related Reassurance Seeking Scale (TRSS; Cogle et al., 2012). Participants completed the 8-item TRSS using a 7-point response scale (1 = *no, not at all*, 7 = *yes, very much*) to assess two aspects of excessive reassurance seeking. First, general threat-related reassurance seeking behaviour (TRSS-G) assesses the degree of reassurance sought to cope with general negative outcomes (e.g., “Do you find yourself often asking others whether everything will be alright?”). Second, evaluative threat-related reassurance seeking behaviour (TRSS-E) focuses more on self-attributes and negative evaluations from others (e.g., “Do you frequently seek reassurance from others as to whether there is something wrong with you; for example, your appearance, behaviour, personality, or intelligence?”). The scale produces three scores: a TRSS-G score, a TRSS-E, and a TRSS total score (i.e., combining both TRSS-G and TRSS-E scores). The scale has shown excellent internal consistency, test–retest reliability, and convergent validity

(Cogle et al., 2012; Clark et al., 2020). In the current study, internal consistency was $a = .94$ for TRSS total score, $a = .87$ for TRSS-G, and $a = .89$ for TRSS-E.

The Covert and Overt Reassurance Seeking Inventory – Adapted (CORSI; Radomsky et al., 2021). The CORSI measures two types of excessive reassurance seeking using a 5-point response scale (1 = *not at all*, 5 = *very much*) to answer 29-items. Items were adapted to fit a social anxiety context (e.g., the original item stating, “if I am unable to check something I am anxious about, I will ask others to reassure me it is OK” was reworded to “If I am anxious about my performance after a social encounter, I will ask others to reassure me that it is OK”. All items were summed to produce three scores: an overt total score (e.g., “I annoy people with repeated requests for reassurance about their feelings for me and this causes problems in my relationships”), covert total score (e.g., “In social situations, I try to 'read' other people's body language to determine whether they like me”), as well as an overall score derived by summing the covert and overt totals together. The scale has demonstrated good convergent and divergent validity (Radomsky et al., 2021), and the internal consistency values were $a = .95$ for the CORSI overall total score, $a = .89$ for the CORSI overt total score, and $a = .93$ for the CORSI covert total score.

Data Analysis Plan

Prior to evaluating the potential interaction effects between the predictor variables (i.e., social anxiety, post-event processing, self-certainty) and outcome (i.e., excessive reassurance seeking behaviours), preliminary analyses were conducted. These included data screening (e.g., detecting non-normality, univariate, and multivariate outliers), running a missing values analysis, and imputing missing data using the expectation-maximization approach whenever less than

10% of data altogether were missing, assuming they were missing completely at random (MCAR) based on the results of Little's MCAR test.

Bivariate correlations were first computed between variables. Then, primary analyses were conducted via hierarchical multiple regression analyses with excessive reassurance seeking entered as the outcome variable (with separate sets of analyses examining TRSS total, TRSS general, TRSS evaluative, CORSI overall total, CORSI overt total, and CORSI covert total scores separately). All hierarchical regression models consisted of four-steps: social anxiety (SPIN) or social anxiety-related impairment (SDS) was entered as the main effect predictor at step one, self-certainty (SCCS total scores) was added to the model at step two, post-event processing (PEPQ-R) was added to the model at step three, two-way interactions were entered at step four, and the three-way interaction was entered at step five. Last, simple slopes were used to probe any significant interaction effects.

Results

Preliminary Analyses

Missing values analysis and expectation maximization were conducted to fill the missing data. The measure with the most missing data was the PEPQ scale, which ranged from 0.5% to 5.0% per item, however, Little's MCAR test was non-significant, $p = .142$, which indicated that expectation maximization was appropriate given that the data was missing completely at random. Based on Kline (1998), a standard normal distribution has an approximate bell-shape and is within $|\text{skew}| < 3$ and $|\text{kurtosis}| < 10$. After analyzing the descriptive statistics for these cutoffs, the dataset was found to be normally distributed. Additionally, after computing a z -score transformation, no univariate outliers were found (i.e., all values were within three standard deviations from the mean). Lastly, there were no multivariate outliers (at the $p < .001$ level) after calculating the Mahalanobis distance. Descriptive statistics and intercorrelations between all study measures are provided in Tables 1 and 2.

Table 1*Descriptive Statistics*

Variables	Mean	SD	Min	Max
1. SA trait (SPIN)	47.68	15.06	17	85
2. SA impairment/distress (SDS)	11.54	8.05	0	30
3. Self-certainty (SCCS)	33.33	8.63	13	59
4. Post-event processing (PEPQ)	368.82	201.98	0	800
5. ERS total (TRSS)	30.27	11.80	8	56
6. ERS evaluative (TRSS_E)	14.84	6.28	4	28
6. ERS general (TRSS_G)	15.42	6.17	4	28
7. Overt reassurance seeking (CORSI)	29.24	8.98	11	55
8. Covert reassurance seeking (CORSI)	51.29	14.40	18	90

Table 2*Bivariate Correlations*

	1	2	3	4	5	6	7	8	9
1. SA trait (SPIN)	1								
2. SA impairment/distress (SDS)	.60	1							
3. Self-certainty (SCCS)	-.44	-.45	1						
4. Post-event processing (PEPQ)	.38	.47	-.34	1					
5. ERS total (TRSS)	.39	.39	-.38	.29	1				
6. ERS evaluative (TRSS_E)	.38	.38	-.40	.28	.95	1			
7. ERS general (TRSS_G)	.36	.36	-.31	.28	.95	.80	1		
8. Overt reassurance seeking (CORSI)	.50	.51	-.46	.34	.76	.70	.74	1	
9. Covert reassurance seeking (CORSI)	.58	.51	-.51	.31	.68	.67	.61	.83	1

Note. All correlations were $p < .001$

Hierarchical Regression Analyses

Results of the hierarchical multiple regression analysis with TRSS total scores entered as the outcome variable and SPIN, SCCS, and PEPQ-R total scores entered as the predictor variables at step one of the model indicated that trait social anxiety (SPIN) contributed significantly to the regression model, $F(1, 397) = 70.53, p < .001$ and accounted for 15% of the variation in overall reassurance seeking scores on the TRSS. Adding the self-certainty total score as a predictor in step two of the model accounted for an additional 5% of the variance in reassurance seeking, $F(1, 396) = 26.73, p < .001$. Post-event processing as a predictor in step three of the model also significantly contributed to the model, $F(1, 395) = 6.35, p = .012$ and accounted for an additional 1% of the variation in reassurance seeking. Thus, the main effect predictors accounted for a combined total of 21% of the variability in TRSS scores. At step four, none of the three two-way interaction effects were significant, all $F_s < .94, p_s > 0.05$. Similarly, at step five, the three-way interaction effect was not significant, $F = .12, p = .906$. The pattern of results was similar when SDS instead of the SPIN was used as a measure of social anxiety. Table 3 summarizes the results for the hierarchical regression model with reassurance seeking total (TRSS total score) as the outcome and trait social anxiety, self-doubt, and post-event processing as the predictors.

Table 3*Hierarchical Regression with Trait Social Anxiety, Self-Certainty, and Post-Event Processing as Predictors and Reassurance Seeking Total as the Outcome*

Predictors	<i>B</i>	<i>SE B</i>	<i>p value</i>	ΔR^2	ΔF
Step 1: Trait SA				.151	70.529**
SA	.304	.036	<.001		
Step 2: Self-certainty				.054	26.732**
SA	.216	.039	<.001		
SC	-.352	.068	<.001		
Step 3: Post-event processing				.013	6.354*
SA	.189	.040	<.001		
SC	-.315	.069	<.001		
PEP	.007	.003	.012		
Step 4: Two-way interactions				.004	0.647
SA	.190	.040	<.001		
SC	-.313	.069	<.001		
PEP	.007	.003	.015		
SA_SC	-.005	.005	.251		
SA_PEP	.000	.000	.560		
SC_PEP	.000	.000	.349		
Step 5: Three-way interaction				.000	0.014
SA	.191	.042	<.001		
SC	-.316	.074	<.001		
PEP	.007	.003	0.017		
SA_SC	-.005	.005	.250		
SA_PEP	.000	.000	.567		
SC_PEP	.000	.000	.346		
SA_SC_PEP	2.520E-6	.000	.906		

Note: Predictor variables were centred at their means; ** $p < .001$, * $p < .05$

Models were repeated with TRSS general scores and evaluative reassurance seeking scores as outcome variables in separate analyses, and with CORSI total covert and overt reassuring seeking scores as outcome variables in separate analyses, and with either SPIN scores or SDS scores included as predictor variables in separate analyses. The results of these models substantively resembled the pattern of findings that are described above and summarized in Table 3, with two exceptions: First, in the analysis with trait social anxiety, self-certainty, and post-event processing as predictor variables and covert reassurance seeking (CORSI) as the outcome, post-event processing at step three was not significant. Second, when TRSS evaluative scores were entered as the outcome variable and SDS, SCCS, and PEPQ scores were entered as predictor variables, a significant three-way interaction emerged. As shown in Table 4, step one of the model indicated that social anxiety distress and impairment (SDS) significantly contributed to the model, $F(1, 397) = 65.73, p < .001$ and accounted for 14% of the variation in evaluative reassurance seeking behaviours. Adding self-clarity as a predictor in step two of the model explained an additional 7% of the variance in outcomes, $F(1, 396) = 34.39, p < .001$. Both step three (adding post-event processing as a predictor) and step four (two-way interactions) were not significant, $F_s < 0.13, p_s > .05$. However, the three-way SDS-SCCS-PEPQ interaction effect was significant at step five, $F(1, 391) = 4.16, p = .042$, explaining an additional 1% of the variance in the outcome. The combination of predictors in this model explained a total of 22% of the variability in evaluative threat-related reassurance seeking behaviour.

To probe the significant three-way interaction between social anxiety distress and impairment, self-certainty, and post-event processing on evaluative threat-related reassurance seeking behaviours, simple slopes analyses were conducted. Probing of simple slopes revealed that at higher levels of self-certainty (+1.5 SD), social anxiety-related distress and impairment

and post-event processing interacted significantly, $B = -.001$, $SE = .000$, $t(398) = -2.06$, $p = .040$ to produce lower levels of excessive reassurance seeking behaviour (see Figure 1). However, at lower levels of self-certainty (+1.5 SD), social anxiety-related distress and impairment and post-event processing did not interact significantly, $B = 0.000$, $SE = .000$, $t(398) = 1.20$, $p = .230$.

Table 4

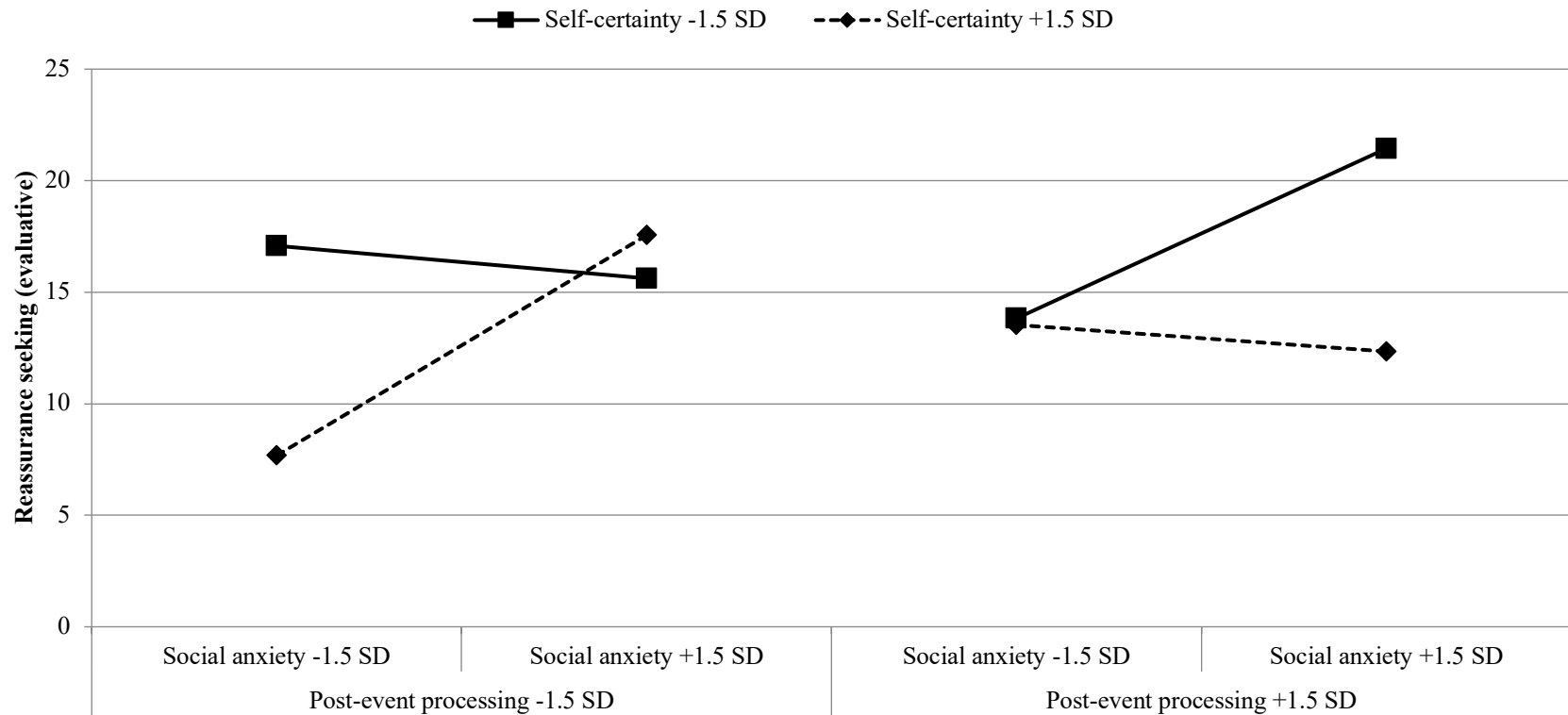
Hierarchical Regression with Social Anxiety Impairment, Self-Certainty, Evaluative-Threat Reassurance Seeking (TRSS-Evaluative) as the Outcome Variable

Predictors	<i>B</i>	<i>SE B</i>	<i>p value</i>	ΔR^2	ΔF
Step 1: SA impairment				0.142	65.730**
SA	0.294	0.036	<.001		
Step 2: Self-certainty				0.069	34.389**
SA	0.190	0.039	<.001		
SC	-0.214	0.036	<.001		
Step 3: Post-event processing				0.006	2.924
SA	0.164	0.042	<.001		
SC	-0.203	0.037	<.001		
PEP	0.003	0.002	.088		
Step 4: Two-way interactions				0.001	0.220
SA	0.169	0.043	<.001		
SC	-0.203	0.038	<.001		
PEP	0.003	0.002	.114		
SA_SC	0.000	0.005	.964		
SA_PEP	0.000	0.000	.491		
SC_PEP	2.462E-5	0.000	.898		
Step 5: Three-way interaction				0.008	4.161*
SA	0.155	0.43	<.001		
SC	-0.168	0.041	<.001		
PEP	0.002	0.002	.286		
SA_SC	0.001	0.005	.774		
SA_PEP	0.000	0.000	.437		
SC_PEP	-5.883E-5	0.000	.764		
SA_SC_PEP	-4.320E-5	0.000	.042		

Note. Predictor variables were mean centred; ** $p < .001$, * $p < .05$

Figure 1

Results of Simple Slopes Analysis Depicting the Interactive Effects of Social Anxiety Impairment, Self-Certainty, and Post-Event Processing on Evaluative-Threat Reassurance Seeking



Discussion

The present study aimed to examine the relationships between social anxiety, self-certainty, post-event processing, and excessive reassurance seeking behaviours. I proposed that: (1) higher social anxiety, lower self-certainty, and higher post-event processing will each predict unique variance in excessive reassurance seeking; (2) higher social anxiety will amplify the effects of post-event processing on excessive reassurance seeking as well as the effects of low self-certainty on excessive reassurance seeking; and (3) high social anxiety, low self-certainty, and high post-event processing will interact to produce the highest levels of excessive reassurance seeking. The study's hypotheses were partially supported, providing key insights into how impairing social anxiety interacts with elevated self-doubt and post-event processing to predict greater engagement in evaluative-related excessive reassurance seeking behaviour.

Summary and Implications of Findings

In support of our hypothesis regarding the main effects, greater severity and distress and impairment in social anxiety symptoms, reduced levels of self-certainty (greater self-doubt), and higher levels of post-event processing each predicted unique, incremental variance in greater reassurance seeking. This finding aligns with previous research indicating that individuals with higher levels of trait social anxiety tend to engage in more excessive reassurance seeking (Cogle et al., 2012; Heerey & Kring, 2007). Additionally, it shows that individuals who have lower levels of self-certainty are more likely to engage in excessive reassurance seeking behaviours, beyond the influence of social anxiety alone, and that those who engage in more post-event rumination may also be more vulnerable to engaging in excessive reassurance seeking.

Although previous research has linked intolerance of uncertainty with excessive reassurance seeking in other anxiety-related disorders (Clark et al., 2020; Ward, et al., 2003; Wells, 2010), the current study is the first to explore the roles of social anxiety-related uncertainty and rumination in excessive reassurance seeking. The inclusion of self-certainty as a significant predictor in the model highlights the importance of considering individual differences in self-beliefs and self-confidence in understanding reassurance seeking behaviour. Based on Moscovitch's (2009) conceptualization of social anxiety, it may be reasonable to postulate that the content of the reassurance would align with self-focused concerns, specifically targeting personal attributes about which individuals harbor doubts with regards to making a favourable social impression. For example, those with higher self-doubt may seek reassurance about their own physical appearance and behaviour, rather than the overall situation. This hypothesis requires verification in subsequent research.

The fact that post-event processing also emerged as a significant unique predictor of reassurance seeking behaviours, beyond the influence of social anxiety trait and self-doubt, is consistent with previous research in depression research linking rumination and excessive reassurance seeking (Oppenheimer et al., 2012; Weinstock & Whisman, 2007). Specifically, Weinstock and Whisman (2007) found that rumination was a significant mediator of the association between depressive symptoms and excessive reassurance-seeking. Given the comorbidity between depression and social anxiety, Grant et al. (2014) conducted a study to examine the relationship between rumination, excessive reassurance seeking, depression, and social anxiety. They administered online questionnaires at three time points to an undergraduate sample, and found that brooding-related rumination (i.e., a critical and ruminative style of responding to one's mood) was a significant mediator of the relationship between social anxiety

(Time 1) and depressive symptoms (Time 3). Excessive reassurance seeking was not a significant mediator of this relationship, but future studies should continue to investigate the connection between these variables and the potential for a transdiagnostic link. Given that brooding-related rumination may involve ongoing negative thinking about oneself in relation to one's past experiences in general, whereas post-event processing may be a more time-limited evaluation of one's social appearance or performance related to a particular social event, future research is needed to understand the similarities and differences between the two forms of rumination, and how each might relate to social anxiety, self-certainty, and reassurance seeking.

Contrary to study hypothesis, the two-way interactive effects of social anxiety, self-doubt, and post-event processing on excessive reassurance seeking behaviours were not significant. Specifically, higher levels of trait social anxiety or impairment did not amplify the effects of post-event processing or low self-certainty on excessive reassurance seeking. However, consistent with our hypothesis, the three-way interaction between these variables was significant, suggesting that when self-certainty was high, an interaction between social anxiety distress/impairment and post-event processing resulted in lower levels of engagement in reassurance seeking behaviours related to evaluative-threat concerns. It is important to note that this significant result occurred only once after conducting a number of similar analyses. Although the effect size of the 3-way interaction term was small ($B = -4.320E-5$), explaining an additional 1% of the variance in reassurance seeking over and above the 20% of variance accounted for by the main effects alone, these findings suggest that high self-certainty appears to function as a potential protective factor by minimizing reassurance seeking for those with low social anxiety-related distress and impairment.

These findings suggest that for people who struggle with social anxiety, self-doubt and post-event processing may promote reliance on excessive reassurance seeking and potentially serve as barriers to effective interpersonal communication and support seeking. Given the previous research on the role of rumination and the intolerance or uncertainty in excessive reassurance seeking in psychopathology, the current study provides potential support for Einstein's (2014) transdiagnostic framework, which states that individuals with psychological disorders may turn to maladaptive coping mechanisms, such as rumination and the pursuit of reassurance, as a means of regulating the physiological arousal provoked by uncertainty. While previous research has separately linked rumination (e.g., depression research; Oppenheimer et al., 2012) and intolerance of uncertainty (e.g., GAD research; Clark et al., 2020) with excessive reassurance seeking and negative interpersonal outcomes, the current findings suggest a potential interaction between these predictors that yields the highest levels of excessive reassurance seeking. According to Alden and Taylor (2004), the way individuals process social information within interpersonal contexts can lead to heightened anxiety and have a negative impact on their relationships with significant others. Consequently, when individuals with elevated social anxiety rely on external sources to provide relief from their anxiety (via reassurance seeking), it is plausible that their internal capacity to tolerate uncertainty may diminish or that they may lose confidence in their ability to cope independently without external assistance (Kobori & Salkovskis, 2013). A similar reciprocal feedback loop between excessive reassurance seeking and the intolerance of uncertainty is seen in those with OCD. This phenomenon has been likened to the patterns observed in compulsive checking and information gathering. Previous research has found that the intolerance of uncertainty in OCD can fuel compulsive urges/reassurance seeking. However, even after obtaining reassurance, the doubts and anxiety persist over the long-term, as reassurance merely serves to

temporarily re-evaluate threats and alleviate personal responsibility (Halldorsson & Salkovskis, 2017; Kobori et al. 2012; Salkovskis, 1985).

With respect to social anxiety, the distress felt due to the intolerance of uncertainty may be similar to the experience of self-certainty/self-doubt. Indeed, when individuals have a diminished sense of self-clarity regarding their personal strengths and weaknesses, it becomes more challenging to create a desired social impression (Baumgardner, 1990). For example, a socially anxious individual who doubts their characteristics or social skills may face challenges with when and how to demonstrate specific attributes to others in social situations, with the intention of crafting a desired social impression. To cope with the doubts, those with social anxiety often use self-concealment strategies and safety behaviours (Moscovitch et al., 2013; Taylor & Alden 2011). Despite the desire to prevent potential negative attributes from being obvious to others (Moscovitch, 2009), these strategies have been shown to be ineffective at protecting themselves from negative interpersonal consequences. Specifically, the social interaction may become less authentic and meaningful when limiting self-disclosure during conversations or rehearsing what to say before a social event (Taylor & Alden, 2011). Future research should investigate whether a similar self-fulfilling process in which negative self-views are confirmed by others' reactions to one's behaviours is also present when engaging in excessive reassurance seeking behaviours, and whether an improvement in self-certainty is possible when reassurance seeking behaviours are reduced or eliminated.

Limitations and Future Directions

Although these findings suggest that both self-doubt and post-event processing may play an important role in driving the use of reassurance seeking in individuals who struggle with social

anxiety, the correlational nature of the study prevented further understanding regarding directionality of effects or causal mechanisms. Future mechanism-oriented experimental research is needed to verify these tentative conclusions. New creatively designed studies could test causal models about how social anxiety, self-doubt, and post-event processing may interact sequentially to fuel reassurance seeking urges and behaviours within evaluative social contexts. To address this limitation, while also building on the promising results from the current study, future research could use daily diaries as well as experimental laboratory-based studies to investigate how reassurance seeking urges and behaviours unfold sequentially and relate to self-doubt and post-event processing within the context of naturalistic and standardized social stressors over time.

A second notable limitation in the current study is the utilization of an undergraduate sample. Although undergraduate students are considered a convenient and easily accessible population for research purposes, caution should be exercised when generalizing the findings to broader populations. The majority of the current sample consisted of participants who were young adults ($M = 20.13$, $SD = 2.83$) who identified as Caucasian/White, and as women. While the sample adequately represents the undergraduate population in the Faculty of Arts at the University of Waterloo, enhancing the generalizability of future research requires replication of the findings in different geographical locations and the inclusion of community or clinical samples. Additional studies in the future could also look at the potential causal link of excessive reassurance seeking and social anxiety for other subgroups or individuals. In particular, exploring potential cultural differences between various age, sexual, ethnic, or religious groups would be interesting to enhance our understanding of how the nature and consequences of excessive reassurance seeking in social anxiety may be related to culture-specific norms and expectations.

Finally, although the current study was correlational and used an online questionnaire, future in-person experimental studies require caution in their conceptualization and presentation of reassurance seeking within the context of social anxiety. Currently, limited research is available on the topic and multiple questions remain. One such question pertains to the nature of covert reassurance seeking, which was initially identified by Heerey and Kring (2007), who identified a variety of behaviours such as apologies (e.g., “I’m sorry for interrupting”) as covert forms of reassurance seeking. However, one could argue that the function of that apology extends beyond seeking reassurance and may include social politeness or acknowledgment of a mistake. Therefore, further investigation is warranted to improve our understanding of the multifaceted nature and underlying motivations behind these interpersonal behaviours. Additionally, future research is needed to differentiate between excessive reassurance seeking behaviours versus urges in social anxiety. While excessive reassurance seeking behaviours may lead to noticeable interpersonal impairments, choosing not to engage in such behaviour out of fear of burdening others or facing social rejection may contribute to greater internal distress and urges. Future research should examine how reassurance seeking urges change over time when reassurance is (or is not) received across multiple naturalistic and standardized social contexts.

Clinical Implications

The findings of the current research have potential implications for enhancing the treatment of social anxiety. Given the negative intrapersonal (e.g., worsening symptoms) and interpersonal (e.g., relationship strain) consequences of excessive reassurance seeking in other psychological disorders, clinicians would benefit from understanding common/transdiagnostic factors motivating the engagement in excessive reassurance seeking across disorders, and also the unique presentation of each. For example, a client with OCD may use more overt forms of reassurance seeking, while

one with social anxiety disorder may prefer covert means of eliciting reassurance to protect from interpersonal threats. With social anxiety specifically, given the attentional focus on the self, it could be essential for clinicians to target improving clients' perceptions of themselves, specifically with respect to their personal "flaws." Promoting a clearer and more positive view of oneself has been identified as a potential intervention strategy for reducing social anxiety symptoms and preventing a cycle of anxiety and avoidance (Campbell et al., 1996). Previous research has demonstrated that having a strong sense of self-certainty – especially about one's positive qualities – is associated with elevated levels of pro-social behaviour and increased self-esteem (Aiken et al., 2014; Baumgardner, 1990).

This notion also aligns with the emerging literature on positivity interventions in social anxiety and related disorders. These interventions aim to strengthen positive self-perceptions and weaken negative self-schemas, which are deeply ingrained cognitive structures that shape how individuals perceive and interpret themselves. Specifically, self-updating involves actively incorporating positive information into one's self-concept to update negative self-beliefs (see Moscovitch et al., 2023). Similarly, self-schema updating focuses on modifying the underlying cognitive structures that influence self-perception, emphasizing positive aspects and minimizing the influence of negative self-beliefs. These processes can help individuals become less reliant on excessive reassurance seeking behaviours (i.e., external validation) and more confident in their abilities to navigate social situations. Therefore, it is important for future research to continue investigating the mechanisms relating to reassurance seeking behaviours in social anxiety to better tailor effective treatment approaches.

Conclusion

An overarching objective of research on reassurance seeking in social anxiety is to enhance our understanding and awareness of specific interpersonal communication strategies that have the potential to adversely affect personal well-being and social relationships. This is particularly significant considering that individuals with high trait social anxiety often encounter difficulties in seeking and receiving desired social support, despite a desire to connect with others. Although much is still unknown about reassurance seeking in the context of social anxiety, the current study provided an opportunity to further understand potentially important factors underlying socially anxious individuals' ability to effectively seek social support. The results tentatively suggested that social anxiety-related distress and impairment, low self-certainty, and post-event processing might interact to predict heightened levels of evaluative-related reassurance seeking – processes that are likely to be activated under social threat. Despite our small and somewhat inconsistent effects, the current study is a promising first step in exploring the relationship between social anxiety and excessive reassurance seeking. Future research is required to continue improving the conceptualization of excessive reassurance seeking in social anxiety to better identify maladaptive coping strategies that can be reduced with targeted interventions, while also reducing barriers to receiving much-needed social support for those who struggle with loneliness and social isolation.

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