What Are You Looking For? Psychometric and Experimental Investigations of Reassurance Seeking in Obsessive-Compulsive Disorder

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A Thesis
In the Department
of
Psychology

Presented in Partial Fulfillment of the Requirements
For the Degree of
Doctor of Philosophy (Psychology) at
Concordia University
Montréal, Québec, Canada

April 2019

CONCORDIA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

This is to certify that the thesis prepared

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Entitled: What Are You Looking For? Psychometric and Experimental Investigations of

Reassurance Seeking in Obsessive-Compulsive Disorder

and submitted in partial fulfillment of the requirements for the degree of

Doctor Of Philosophy   (Psychology)

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ABSTRACT

What Are You Looking For? Psychometric and Experimental Investigations of Reassurance Seeking in Obsessive-Compulsive Disorder

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Concordia University, 2019

In obsessive-compulsive disorder, reassurance seeking (RS) is associated with negative consequences for individuals who seek reassurance and their significant others. Reassurance seeking can be difficult to identify and treat, in part due to a lack of comprehensive assessment tools that can efficiently detect RS sought either overtly (i.e., obvious questions) or covertly (i.e., subtle attempts that are not direct questions), related to general threats (e.g., risks associated with stoves, locks) or social/relational threats (e.g., risks associated with relationship stability). Additionally, while the most commonly employed psychological treatment for RS entails strict refusal/withdrawal of accommodation to RS, this intervention may be associated with low acceptability. Conversely, a novel intervention wherein partners provide *support* to encourage tolerating distress may effectively reduce RS while being more acceptable to those who would receive it. This program of research was designed to address these gaps regarding assessment of and intervention for problematic RS. Study 1 entailed the validation and psychometric analysis of a novel measure of RS, the Covert and Overt Reassurance Seeking Inventory (CORSI), which assesses general and social/relational threat-motivated RS sought covertly or overtly. Results from undergraduate validation ($N = 1621$) and clinical (collapsed $N = 140$) samples suggested that the CORSI has a five-factor structure, sound psychometric properties, and can effectively discriminate RS of those with and without mental disorders. Study 2 entailed an experimental manipulation of partners' feedback to correspond with support provision or traditional accommodation reduction in response to undergraduate participants' ($N = 102$) RS following a threat-inducing task. Overall, support provision was associated with significantly greater ratings of helpfulness and a trend towards less overall RS. In Study 3, undergraduate participants and familiar partners ($N = 179$) provided ratings of perceived treatment acceptability/endorsement and selected which intervention they would prefer by reading vignette descriptions of RS interventions based on traditional accommodation reduction or support provision. Results

indicated that participants and their partners provided more favourable ratings of acceptability/endorsement for the support provision intervention and were significantly more likely to select it than strict accommodation reduction. The implications of these findings for research and clinical practices are discussed.

Acknowledgements

I would like to take this opportunity to give many sincere thanks to Adam, whose lab I have been fortunate enough to "live" in for the past six years. Your generosity in sharing your wisdom has been invaluable in shaping the researcher and clinician I have become so far, and sharpening the image of what I would like to see for my own path forward. Thank you for being a role model in your commitment to bettering the lives of patients by striving to make CBT more acceptable – your dedication is something I admire and will try to embody in my own work. Your sense of humour has made times that were stressful at least somewhat less so, though the puns have been truly terrible at times as well.

I would also like to take this opportunity to thank my committee members Drs. Roisin O'Connor and Andrew Ryder. Their insightful suggestions and comments helped to hone the procedures throughout this program of research.

To my past and present lab mates in the Anxiety and Obsessive-Compulsive Disorders Laboratory, thank you for all your tremendous support! You made the lab an environment that is fun and encouraging, and yes, also productive. I would particularly like to thank Drs. Gillian Alcolado, Jessica Senn, and Hannah Levy for their friendship and guidance earlier on in my program, as well as for their feedback while I was developing this program of research. I would also like to thank Stef, Mark, Jean-Philippe, Ken, Kelvin, and Martha for their support and feedback over more recent years. "I have a question for the room…" has always been met with helpful insights, and I look forward to seeing where life takes each of you.

My cohort at Concordia has been a constant source of friendship and encouragement throughout the past few years. Sarah Liu, Jackie Legacy, Halina Bruce, Stephanie Gallant, Oren Weiner, Kierla Ireland, and Guilaine Badawi, thank you for making Montréal feel more like home. I look forward to our cottage reunions!

Thanks to my family – dad, Bernice, mom, and Hilary – for encouraging me to go farther and to persevere. Finally, I owe a massive debt of gratitude to Paul for being my cornerstone, and for believing in me through it all. Thank you for everything.

CONTRIBUTIONS OF AUTHORS

The dissertation to follow is composed of a series of three manuscripts:

Study 1 (Chapter 2)

Radomsky, A. S., Neal, R. L., Parrish, C. L., Lavoie, S. L., & Schell, S. E. (under review). *The Covert and Overt Reassurance Seeking Inventory: Development, validation, and psychometric analyses.* Manuscript submitted for publication.

Study 2 (Chapter 4)

Neal, R. L., & Radomsky, A. S. (2019). An Experimental Comparison of the Effects of Two Cognitive-Behavioural Interventions for Reassurance Seeking Behaviour. *Cognitive Therapy and Research.* Advance online publication. https://doi.org/10.1007/s10608-019-10007-0

Study 3 (Chapter 6)

Neal, R. L., & Radomsky, A. S. (in press). What do you really need? Self- and partner-reported intervention preferences within cognitive-behavioural therapy for reassurance seeking behaviour. *Behavioural and Cognitive Psychotherapy.*

I was responsible for selecting the content of this body of work and for conceptualizing the program of research presented in this dissertation. I was responsible for selecting the statistical plans and conducting analyses for each of the studies, as well as for interpreting the results for each of the studies. Data collection for Study 1 was completed prior to my dissertation (please see below); I primarily recruited, scheduled, and tested participants for Studies 2 and 3 in conjunction with undergraduate students (see also below). I authored all aspects of this dissertation. I met and consulted regularly with my supervisor, Dr. Adam Radomsky, with regards to the development, implementation, and analyses, and for all components of the publications.

My committee members, Drs. Roisin O'Connor and Andrew Ryder, provided insightful comments to improve the methodology for Study 2 particularly. They approved my dissertation design and statistical analyses at an initial committee proposal meeting on December 16, 2015.

The items included in the measure assessed in Study 1 were developed prior to my entry to the Anxiety and Obsessive-Compulsive Disorders Laboratory by Dr. Radomsky and Dr. Chris Parrish, a lab alumnus, who consulted with Dr. Michel Dugas for his feedback in refining the initial items. Data collection (i.e., in-person by having participants seated in the laboratory at a computer to complete questionnaires, or online by sending an electronic link to complete the questionnaires) was overseen by Dr. Radomsky and conducted by Stefanie Lavoie, with assistance from Kevin Barber. Diagnostic interviews for the clinical groups were conducted by members of the Anxiety and Obsessive-Compulsive Disorders Laboratory including myself, Stefanie Lavoie, and Sarah Schell, as well as by lab alumni, Drs. Gillian Alcolado, Hannah Levy, and Jessica Senn. Sarah Schell and Stefanie Lavoie were responsible for data entry and management. I was responsible for data cleaning for the undergraduate and clinical samples and for all data analyses. I wrote all components of the manuscript and prepared the manuscript for publication in consultation and with feedback from Dr. Radomsky throughout. I was responsible for incorporating reviewers' feedback in consultation with Dr. Radomsky. Dr. Radomsky has been responsible for overseeing and guiding all aspects of the project from its inception.

 I conceptualized, designed, and was responsible for conducting Study 2, in close concert with Dr. Radomsky, who provided supervision and feedback at each stage. I was responsible for recruiting and scheduling participants. I tested approximately 65% of the participants, while the remaining 35% were split approximately equally between Kristina Bucci and Sereena Pigeon, whom I trained. I analyzed data and interpreted the results, in consultation with Dr. Radomsky as necessary. I authored the manuscript before its submission for publication by Dr. Radomsky and was responsible for incorporating reviewers' feedback. I reviewed and provided edits for the article proofs, which were then approved by Dr. Radomsky before submission.

I was responsible for the conceptualization, design, and implementation of Study 3, in consultation with Dr. Radomsky. An undergraduate volunteer, Julia Gerbasi, assisted with scheduling approximately 10% of the participants, while I was responsible for scheduling the remaining 90%. I conducted approximately 65% of the participants through this study. The other 35% of the participants were conducted through the study by Alex Varsaneux, an undergraduate volunteer, by Kristina Bucci, an undergraduate specialization student, and by Sereena Pigeon, an undergraduate Honours student, each of whom I trained. I collated, cleaned, and analyzed the

data. I was also responsible for interpreting the results and authoring the manuscript. I was responsible for incorporating reviewers' feedback in consultation with Dr. Radomsky.

I authored all remaining elements of this dissertation. Dr. Radomsky also reviewed all written elements of this dissertation. All studies underwent blind review and comments from the reviewers were incorporated into the versions of the manuscript for Study 1 that is currently under review.

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CHAPTER 1

General Introduction

What is obsessive-compulsive disorder?

For many individuals, mental health is not given significant consideration until someone they know is affected or they experience a mental disorder themselves. Some types of mental disorders have become increasingly recognized within the public sphere and media, such as anxiety and mood disorders, yet others have historically been more commonly misunderstood and perceived as difficult to treat, such as obsessive-compulsive disorder (OCD).

Obsessive-compulsive disorder is characterized by repetitive, intrusive and unwanted thoughts, images, or impulses ("obsessions") as well as repeated mental or physical behaviour aimed to decrease distress, termed "compulsions" (American Psychiatric Association [APA]; 2013). The disorder has a lifetime prevalence of approximately 2-3% and has been listed amongst the leading causes of disability worldwide due to its potential negative intra- and interpersonal consequences, including disruptions to role and relationship functioning (e.g., Markarian et al., 2010; Ruscio, Stein, Chiu, & Kessler, 2010; World Health Organization, 1999). The disorder can be difficult to identify due to the idiosyncratic and diverse presentations of obsessions and compulsions (e.g., Rachman & Hodgson, 1980; Rasmussen & Eisen, 1994). Consequently, OCD is commonly associated with long-term suffering and low quality of life, both for those with OCD and for their loved ones (e.g., Cicek, Cicek, Kayhan, Uguz, & Kaya, 2013; Diefenbach, Abramowitz, Norberg, & Tolin, 2007; Eisen et al., 2006; Hofmann, Wu, & Boettcher, 2014; Hou, Yen, Huang, Wang, & Yeh, 2010; Moritz et al., 2005; Norberg, Calamari, Cohen, & Riemann, 2008; Stengler-Wenzke, Kroll, Matschinger, & Angermeyer, 2006). However, by advancing the assessment of and treatments for OCD, it becomes feasible to target obsessions and compulsions that would otherwise maintain the disorder over time if untreated (see Abramowitz, Franklin, & Cahill, 2003; Moritz et al., 2005). One understudied behaviour that can become compulsive and problematic in OCD is **reassurance seeking** (RS; e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010; Rachman, 2002; Rachman & Hodgson, 1980; Salkovskis, 1985, 1999).

What leads reassurance seeking to become problematic?

Whereas most individuals can recall occasional instances of seeking reassurance during times of anxiety or uncertainty without it causing difficulties in their lives (e.g., asking a partner

whether you really did pack your passport before leaving for the airport), individuals with mental disorders may begin to seek reassurance repetitively or in ritualistic ways, despite having previously received the information about which they are asking (Parrish & Radomsky, 2010). In many ways, RS behaviour in OCD is akin to compulsive checking, and has been conceptualized as checking "by proxy" (Rachman, 2002). Both checking and RS are considered attempts to gain certainty about safety to reduce perceptions of threat and/or feelings of distress in the moment, which leads to increased long-term reliance on the behaviour as a means to manage distress (Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010; Rachman, 2002; Salkovskis, 1985, 1999; Starcevic et al., 2012). Though it can occur broadly, reassurance tends to be sought most frequently from familiar others (e.g., Kobori & Salkovskis, 2013; Kobori, Salkovskis, Pagdin, Read, & Halldorsson, 2017; Neal & Radomsky, 2015; Parrish & Radomsky, 2010).

Reassurance seeking can become problematic in part because individuals with OCD may be motivated to seek reassurance repetitively in response to various ambiguous or uncertain stimuli/situations (Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010, 2011; Rector, Kamkar, Cassin, Ayearst, & Laposa, 2011). Interviews with individuals with OCD who engage in problematic RS suggest that they most often seek it in response to perceived general threats that are commonly identified in obsessions, such as whether the stove is off or the door locked (Parrish & Radomsky, 2010; Rector et al., 2011). Additionally, individuals with OCD may seek reassurance in response to perceived threats to relationships or self-competence/worth, such as about the security of a relationship (Parrish & Radomsky, 2010; Rector et al., 2011). As such, when RS in OCD becomes pervasive, it can have significant effects on interpersonal relationships and may also increase fears of creating negative interpersonal consequences.

Individuals with OCD are often aware that excessive RS bothers others (e.g., Parrish & Radomsky, 2010). Fears of negative interpersonal consequences can lead to RS being difficult to identify, in part because individuals may be motivated to engage in covert, or more subtle forms of seeking reassurance to disguise the behaviour from the potential reassurance provider (e.g., Parrish & Radomsky, 2010). That is, an *overt* form of RS entails direct questions (e.g., "Did you really see me turn off the stove?") while *covert* RS involves statements rather than questions, with careful attention to whether other person contradicts the statement (e.g., "I'm sure I turned off the stove, so I'm sure it's okay to leave…").

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Recent research highlights the importance of identifying less noticeable compulsions such as covert RS. For instance, several recent studies with individuals experiencing predominantly unwanted/taboo repugnant obsessions (e.g., sexual obsessions such as thoughts of inappropriately touching a child, or blasphemous obsessions such as images of desecrating a church) without clearly observable compulsions (who may historically have been incorrectly categorized as experiencing a "pure obsessional" or "pure O" form of OCD) suggested that the unwanted/taboo thought domain of OCD is more strongly associated with RS behaviour than is doubt/checking (Williams et al., 2011; Williams et al., 2014). Thus, it may be that current difficulties in assessing RS behaviour have affected theories and models of the behaviour by neglecting to account for wider forms and functions of the behaviour. Given that previous research also suggested that individuals with unwanted/taboo obsessions may not benefit from typical behaviourally-based treatment in the same way as may individuals with primary checking or washing (Williams et al., 2014), this further underscores the need to refine means of assessing and ultimately treating subtle compulsions, such as RS. Indeed, it is likely that RS has been under-recognized at least in part due to the lack of existing questionnaires available to adequately assess different forms of RS. To identify individuals who engage in problematic RS, a comprehensive measure would optimally include assessment of overt and covert forms of the behaviour prompted by perceived general threats as well as social/relational threats, the latter of which has been recognized less frequently in the literature as an impetus for RS in OCD. Consequently, there has been a lack of clarity as to the extent that different forms of covert and overt RS motivated by general or social/relational threats may be unique to OCD versus being characteristic of mental disorders more broadly. By not necessarily being able to identify those who seek reassurance problematically, intervention efforts may be compromised. Fortunately though, by remedying the apparent obstacle of there not existing a comprehensive measure of RS that encompasses the primary domains noted above, it also opens a path for clinicians to better intervene to reduce the behaviour's frequency and negative impact.

Theory-informed interventions for obsessive-compulsive symptomatology over time

Psychological interventions for OCD have encompassed a range of approaches since the disorder began receiving specific attention during the mid-twentieth century. Several therapy orientations have been tried with limited demonstrated efficacy, including psychodynamic therapy (e.g., Maina, Rosso, Rigardetto, Piat, & Bogetto, 2010) and stress management

techniques (e.g., Fals-Stewart, Marks, & Schafer, 1993; Greist et al., 2002; Lindsay, Crino, & Andrews, 1997; Marks et al., 2000; see also Ponniah et al., 2013 for a review). On the other hand, treatments that have historically demonstrated efficacy were originally based on learning theories, specifically classical and operant conditioning theories of how obsessions become sensitized, and how (compulsive) behaviour comes to be conditioned or reinforced over time, respectively (e.g., Eysenck & Rachman, 1965; Pavlov, 1927; Rachman, 1971; Skinner, 1963; see also Thorndike, 1927 for a review of the law of effect describing how responses that produce satisfying or dissatisfying effects correspondingly increase or decrease the likelihood that the response will be repeated in a similar situation in the future). Initial treatment efforts for individuals with OCD involved attempts to desensitize a patient by repeatedly, systematically exposing them to fear-evoking stimuli to greater degrees until anxiety/distress were no longer evoked (e.g., Marks, 1969; Rachman, 1968, 1971; see also Wolpe, 1958). This approach came to be known as behaviour therapy (e.g., Eysenck & Rachman, 1965).

The learning theory-based behavioural accounts of OCD were tested clinically in early and revolutionary work by Meyer (1966). At the time, several patients with severe OCD who engaged in lengthy compulsive behaviour including washing and checking had been deemed treatment resistant/refractory by medical professionals. However, Meyer (1966) experimented with a dramatic intervention wherein he exposed the patients to typical distress-provoking stimuli and entirely prevented them from engaging in compulsive behaviour, including by shutting off the water supply to thwart attempts at washing. The patients reacted with increased distress, though that distress ultimately subsided and the patients experienced significant decreases in their OCD severity. At that time however, RS was not a compulsion that was noted within the literature. In fact, reassurance provision was included as a technique by Meyer (1966) to encourage patients to refrain from engaging in other compulsive behaviour.

Following the work of Meyer (1966), clinicians and researchers developed theories of how anxiety and mood disorders originated and were maintained based on the interactions between a person's thoughts, emotions/feelings, and behaviour, which is accordingly referred to as cognitive-behavioural theory (e.g., Beck, 1979; Beck, Epstein, & Harrison, 1983; Clark, 2004; Rachman, 1971). Intervention based on cognitive-behavioural theory – cognitive-behavioural therapy, or CBT – focuses on identifying and altering maladaptive connections between a person's thoughts, feelings/sensations, and behaviour in a given situation (e.g., Beck, 1979; Beck

et al., 1983). The APA Division 12 Society of Clinical Psychology task force on evidence-based treatments denoted that there was strong research support for CBT as an efficacious treatment for OCD (and essentially all other mental disorders; APA, 2006). Upon examination, the treatment for OCD advocated by the APA task force is a specific form of intervention called "Exposure and Response Prevention" (ERP).

Exposure and response (or ritual) prevention is a CBT intervention that uses operant learning and extinction training principles to explain how individuals with OCD have implicitly learned that compulsions, such as RS, are necessary to prevent a feared negative outcome and/or to manage distress. In particular, ERP aims to show clients/patients that compulsions are not necessary by exposing them to feared stimuli and preventing them from engaging in corrective behaviour while monitoring decreases in distress over time; this eventually extinguishes the behaviour because it is no longer being reinforced by the alleviation of distress/perceived threat (e.g., Abramowitz, 2009; Abramowitz, 2013; Abramowitz, Taylor, & McKay, 2007; Foa & Kozak, 1986). Exposure and response prevention has gained research backing as an empirically supported treatment for OCD in general, and leads to significant symptom reductions for many individuals with the disorder (e.g., Foa et al., 2005; McKay et al., 2015; Olatunji et al 2013; Öst, Havnen, Hansen, & Kvale, 2015; Ponniah, Magiati, & Hollon, 2013; Simpson et al., 2008, 2013). When applied to the context of problematic RS, an ERP intervention may entail exposing clients/patients to situations that would typically provoke distress/obsessions, and preventing them from seeking or receiving reassurance from their usual sources (Abramowitz et al., 2013; Halldorsson, Salkovskis, Kobori, & Pagdin, 2016; see also Rachman, 2002).

Despite its benefits, ERP does not produce uniformly positive results. While it is not entirely clear within the literature what leads some individuals to benefit whereas others do not, one factor appears to be that current interventions may not be sufficiently tailored to target all symptoms that can maintain OCD. For instance, as noted above, ERP does not appear to benefit individuals who experience unwanted/taboo obsessions and who engage in less recognized forms of compulsions including RS to the same extent as individuals with prominent behavioural compulsions such as checking or washing (Williams et al., 2014). In addition, there appears to be a problem regarding individuals with OCD accessing adequate CBT including ERP. For instance, less than 20% of 77 individuals with OCD followed naturalistically over a two-year period received at least 20 sessions of CBT, and the full remission rate over that two-year period

was only 12% (Eisen et al., 1999). Moreover, a significant proportion of individuals with OCD who are offered ERP are unwilling to undertake or complete the treatment: estimates from clinical trials suggest that more than 40% of those offered ERP refuse the intervention or drop out (e.g., Abramowitz, Foa, & Franklin, 2003; Foa & Kozak, 1986), while an observational, longitudinal study found that 26% of individuals did not initiate CBT after it was suggested and a further 31% of those who had initiated treatment dropped out prematurely (Mancebo, Eisen, Sibrava, Dyck, & Rasmussen, 2011). This hesitancy from clients/patients may be understandable when considering that compulsions such as RS are (mis)perceived to function to prevent feared, catastrophic outcomes from occurring as well as to transfer responsibility for preventing harm to the partner, and that interventions ask clients/patients to confront their fears by dropping these protective compulsions (Halldorsson & Salkovskis, 2017b). Certainly, even the best-designed intervention may only be efficacious insofar as those who would benefit are willing to undertake and complete it. Thus, it may become possible to increase treatment retention and ultimately improve outcomes by attending to clients'/patients' and their significant others' reactions to ERP and responding accordingly within the framework of using CBT for OCD, such as by examining what the current rates of refusal/drop-out convey regarding the *acceptability* of ERP.

Treatment acceptability is a construct that has the potential to either undermine or facilitate successful outcomes of CBT for OCD, and can be understood as the extent to which individuals feel that they can tolerate the intervention, would endorse it to others, or conversely, the likelihood that they would drop out of or refuse the intervention if offered it (e.g., Milosevic, Levy, Alcolado, & Radomsky, 2015). Individuals (and their significant others) often report that ERP for OCD is distressing and/or difficult, which implies that it is of low acceptability (e.g., Francis, 1988; Hallam, 1974; Marinchak, 2013; Whittal, Thordarson, & McLean, 2005). When considering RS, perceptions of treatment acceptability should likely be considered from both the reassurance seeker and provider, given that partners are directly implicated in RS and that lack of ability to tolerate the demands of an intervention from either party may undermine long-term successful outcomes (e.g., Amir, Freshman, & Foa, 2000; Garcia et al., 2010; Halldorsson & Salkovskis, 2017a, b; Halldorsson et al., 2016). Additionally, low treatment acceptability for exposure-based interventions does not appear to be unique to OCD. Rather, within the APA Division 12 Task Force report on the use of evidence-based therapies for panic disorder, which is typically treated with exposures to physical sensations that are related to panic (e.g., provoking

feelings of dizziness), 61% of therapists reported that patients' unwillingness to engage in exposure was an obstacle to the implementation of that form of empirically supported treatment, despite their having conveyed its efficacy in reducing panic disorder (APA, 2010). Lack of treatment acceptability is also related to nonadherence (e.g., not completing exercises that are recommended by the therapist for homework) and represents a significant obstacle to the implementation of evidence-based therapies across disorders (e.g., Abramowitz, Franklin, Zoellner, & Dibernardo, 2002; Antony, Ledley, & Heimberg, 2005; Milosevic et al., 2015; Levy & Radomsky, 2014). Overall however, even with suggestions that aspects of the treatment may be associated with low acceptability to clients/patients, ERP remains the most commonly-used approach for OCD.

Following the pioneering work of clinicians such as Meyer (1966) and early iterations of behaviour therapy, clinicians working with clients/patients with OCD began offering refinements to theories that have since informed alternative styles of intervention. Theorists suggest that obsessions develop because the occurrence of unwanted/unacceptable thoughts is *appraised/interpreted* as having significant meaning, especially with reference to indicating harm or responsibility, which then leads the individual to engage in compulsions to ameliorate the distress evoked by the thoughts (e.g., Rachman, 1997, 1998, 2002; Radomsky, Shafran, Coughtrey, & Rachman, 2010; Salkovskis, 1985, 1999). Interpretations of thoughts as indicating responsibility for preventing harm is likely to be uncomfortable and distressing, and may lead a person to engage in RS behaviour as a means of transferring feelings of responsibility onto the partner (Leonhart & Radomsky, in press; Rachman & Hodgson, 1980). The interpretation of the thoughts as having significant meaning as central to the development of obsessions is upheld by studies showing that over 95% of the individuals across the globe who do not have mental health concerns report experiencing the same types of intrusive thoughts, for instance related to harm, losing control, or immorality (Berry & Laskey, 2012; Clark et al., 2014; Clark & Radomsky, 2014; Moulding et al., 2014; Purdon & Clark, 1993; Rachman & de Silva, 1978; Radomsky et al., 2014). The key is that it is not the occurrence of the intrusive thoughts that is problematic, but the appraisal that they reveal something important at the core of the person, commonly that the OCD sufferer is "mad", "bad", or "dangerous" (Rachman, 1997, 1998). For instance, a person may experience an obsession that they are dangerous and at risk of hurting others, and

seek reassurance repeatedly from their partner as a way of "checking" that they are a good person to assuage their distress (e.g., Halldorsson & Salkovskis, 2017a, b; Rachman, 2002).

Based on these conceptualizations of the origins and maintenance of OCD lying within beliefs and interpretations, more recent cognitive-behavioural theories generally suggest that helping clients/patients to change their thoughts/beliefs leads to long-term change (e.g., Beck, 1979; Beck et al., 1983; Clark, 2004; Rachman, 1997, 1998; Radomsky et al., 2010; Salkovskis, 1985, 1999). For instance, intervention for compulsive checking may involve targeting catastrophic thinking; discussion of safety behaviour, which are physical aids, behaviour, or mental acts aimed to help a person reduce perceived threat likelihood or severity in a feared situation; reducing inappropriate guilt, and how to move towards improving confidence (Radomsky et al., 2010). Intervention for RS may similarly involve challenging biased thought patterns related to perceptions of threat and coping, as well as addressing how RS behaviour prevents individuals from being able to test/learn new information about their ability to manage difficult situations without compulsive behaviour (Halldorsson & Salkovskis, 2017a, b). Cognitively-driven CBT has demonstrated effectiveness at least comparable to ERP for OCD (van Oppen, Dehaan, van Balkom, Spinhoven, Hoogduin, & van Dyck, 1995; Ponniah, Magiati, & Hollon, 2013). Interestingly, though his approach was largely behavioural, Meyer (1966) also postulated that his extinction intervention affected change in the patients' expectations, which suggests that cognitive change may be critical to long-term positive benefits from CBT for OCD.

Within CBT intervention for OCD, there has been increased focus on the role of significant others` accommodation of symptoms because it is typically well-intended, but unfortunately is a maintaining factor within the disorder (e.g., Abramowitz et al., 2013; Boeding et al., 2013; Calvocoressi et al., 1999; Caporino, Morgan, Beckstead, Phares, Murphy, & Storch, 2012; Halldorsson et al., 2016; Kobori et al., 2017; Marinchak, 2013; Merlo, Lehmkuhl, Geffken, & Storch, 2009; Storch et al., 2007; Strauss, Hale, & Stobie, 2015; Thompson-Hollands, Abramovitch, Thompson, & Barlow, 2015; Wu, McGuire, Martino, Phares, Selles, & Storch, 2016). Family members (and/or close friends) may be pulled into accommodating symptoms of OCD in different ways, for instance by participating in rituals (e.g., checking a stove for the person with OCD), delaying activities for the person with OCD (e.g., waiting for the person to complete their compulsions before leaving the house), and/or providing reassurance (e.g., of safety, relationship stability; e.g., Abramowitz et al., 2013; Boeding et al., 2013;

Calvocoressi et al., 1999; Caporino et al., 2012; Halldorsson et al., 2016; Kobori et al., 2017; Storch et al., 2007; Strauss et al., 2015; Thompson-Hollands et al., 2015; Wu et al., 2016). Intervention to reduce family/partner accommodation can improve outcomes for OCD, though the extant controlled studies have focused on ERP approaches and include only minor mentions of RS behaviour as one of many behaviour patterns to be addressed (Abramowitz et al., 2013; Boeding et al., 2013; Merlo et al., 2009; Thompson-Hollands et al., 2015).

Traditional behavioural conceptualizations as well as modern, cognitively-driven conceptualizations of OCD and its maintenance over time place central importance on identifying subtle maintaining factors so that they can be targeted during intervention. In particular, RS warrants specific attention in research and clinical settings due to its potential for both intra- and inter-personal negative consequences.

CBT interventions to reduce problematic reassurance seeking

When RS is identified as a problematic behaviour for a client/patient, then it becomes a natural target for intervention to reduce the likelihood that it will maintain the OCD over time (e.g., Parrish & Radomsky, 2010). Often though, RS is considered difficult to intervene against successfully. While this may relate to clients/patients engaging in covert/subtle forms of RS to disguise them from the reassurance provider, the difficulties in obtaining successful outcomes with CBT for RS may also relate to a relative failure from clinicians' standpoint to tailor CBT interventions to the interpersonal nature of RS, which necessitates additional considerations relative to compulsions that are engaged in alone (such as checking or washing repeatedly).

Unlike the relatively large body of literature regarding the more prototypical compulsions such as checking and washing, RS has tended to be mentioned in intervention literature only as a form of checking, with few additional considerations given. While there are many reasons to believe that RS functions similarly to compulsive checking as previously noted (e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010; Rector et al., 2011), there is a paucity of research examining the effects of interventions aimed to reduce problematic RS. Indeed, Halldorsson and colleagues (2016) assert that because clinicians are relying on ERP principles that have been studied in the context of other compulsions that are individual rather than interpersonal, current intervention principles are not empirically based with regard to caregivers' responses to RS. This lack of evidence leads to concrete difficulties for clinicians when they have a client/patient in their office who is engaging in excessive RS, as clinicians may look to the literature and find that

there is little evidence available to guide their specific intervention decisions. Given that using evidence to guide interventions is a central tenet of CBT, this in and of itself is an issue that merits attention. Furthermore, assuming without evidence that RS responds to intervention in the same ways as compulsive checking may be problematic since RS does not occur in a vacuum, but rather, relies on the involvement of significant others to alter their own behaviour. Hence, successful intervention for RS likely would require the buy-in of any significant others who would be asked to become involved during the intervention, as they would naturally have feelings/reactions about the types of intervention in which they are asked to participate as well.

As with research regarding other aspects of RS in OCD, there is currently little evidence about how to use existing CBT intervention procedures particularly for problematic RS – instead, interventions are used that were developed in response to other forms of compulsive behaviour, namely checking and washing/cleaning, and applied to context of RS. The limited evidence available that has examined intervention to reduce partners' accommodation to requests for reassurance has been collected only through case study designs (Francis, 1988; Hallam, 1974; Marinchak, 2013). While reducing partners' accommodation appears to reduce RS based on Francis (1988), Hallam (1974), and Marinchak's (2013) observations, the authors also noted potential negative consequences of the intervention including notably increased distress and desire to end treatment, highlighting the need for further study before such an intervention is adopted as general practice.

Beyond the traditional accommodation reduction approach, novel conceptualizations have proposed that an alternative intervention approach may be possible within a CBT framework. Specifically, conceptualizations presented here and similarly by Halldorsson and Salkovskis (2017a, b) suggest that there may be a more acceptable method in comparison with a strict accommodation reduction approach. This conceptualization highlights how subtly changing the feedback provided by partners to become *supportive* while maintaining a non-reassuring stance may affect how the individual seeking reassurance feels and behaves thereafter. Altering behaviour from RS to support-seeking and support provision represents a "non-pathological interpersonal behaviour" (Halldorsson et al., 2016) in that it may allow the individual to tolerate distress more adaptively without directly addressing the fear that is driving the distress (see also Halldorsson & Salkovskis, 2017a, b). Moreover, engaging with support rather than RS may bolster a person's sense of self-efficacy by increasing their perceived control and sense that they

can tolerate or accept the distress, whereas reassurance conversely tends to entrench the notion that a person must rely on someone else to essentially rescue them from the distress evoked by obsessions (Halldorsson & Salkovskis, 2017a, b). An example of a partner providing support rather than reassurance would be the partner acknowledging the person's distress in the moment and providing encouragement for them to continue on (e.g., "I can see that this is anxiety-provoking for you, but you can work through this"), which stands in contrast to both the partner providing reassurance regarding the feared outcome that is leading to the person's distress in the first place (e.g., "I know you washed thoroughly enough to prevent germs from spreading"; see also Halldorsson & Salkovskis, 2017a, b; Halldorsson et al., 2016; Thompson-Hollands et al., 2015) and also to ERP-based approaches of withholding reassurance (e.g., "I can't answer that"; e.g., Abramowitz et al., 2013). Reassurance is withheld in the support provision and traditional ERP-based frameworks for intervention, but there may be significant differences in the acceptability of the response styles (Halldorsson & Salkovskis, 2017a, b). Nonetheless, there is presently only one case study related to using a support-based intervention style (Halldorsson & Salkovskis, 2017a), which suggests that this form of intervention and conceptualization of RS difficulties requires greater study of its acceptability and effects before drawing conclusions about its relevance within CBT interventions.

Moving forward: The need for evidence to inform assessment and intervention for reassurance seeking

Cognitive behavioural therapy and theory emphasizes the use of hypothesis-testing and evidence-gathering to build confidence that intervention techniques are effective. The acceptability of CBT is strengthened by its evidence-base, which allows clinicians to inform their clients/patients of likely best interventions based on their expected effects for particular problems (e.g., Persons, 2012). Overall, while past measures have been created to assess aspects of RS in OCD (Cougle et al., 2012; Kobori & Salkovskis, 2013; Rector et al., 2011), the present difficulties in identifying patients/clients who could benefit from intervention to address covert RS behaviour, in particular, are a hindrance to furthering research efforts and clinical practice. That is, without having a way to measure problematic RS that encapsulates subtle as well as more obviously-noticed RS efforts, in a comprehensive way that addresses primary motivations previously reported by individuals who have OCD (Parrish & Radomsky, 2010), it would be difficult to make clear conclusions about whether interventions are *optimally* targeting

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mechanisms that are important in maintaining RS behaviour in OCD, rather than mechanisms that maintain OCD more broadly but achieving less-than-optimal outcomes.

Given the lack of empirical studies concerning the effects of partners' providing feedback to RS based on an accommodation reduction intervention framework, it is unclear whether it is indeed the intervention technique of choice for RS in OCD, or whether there may be an alternative style of feedback that could be similarly efficacious but potentially more acceptable (Halldorsson et al., 2016; Halldorsson & Salkovskis, 2017a, b). Identifying research targets such as RS behaviour that have previously tended to be underexamined, but that may be pernicious maintaining factors otherwise, also has the potential to spur CBT forward by encouraging clinicians and researchers to critically consider to whom interventions are delivered, and how. By continuing to refine research targets, clinicians can help to ensure that the right type of targeted intervention can be delivered to the patients/clients who would most benefit from it.

The current program of research

To address the recognized gaps in the literature regarding who seeks reassurance problematically and what should be done once they have been identified, the current program of research was devised with three primary goals. Firstly, a psychometric study was undertaken to examine whether a novel measure may be validated with the potential to better assess/measure, and understand the nuanced ways that people seek reassurance. Secondly, an experimental study was designed to examine the effects of having partners provide two different forms of feedback that were based on either a strict reducing accommodation approach of a support-provision approach. Finally, a vignette study was designed to collect evidence from participants and their familiar partners regarding the perceived acceptability of and their preferences concerning two different forms of CBT intervention meant to reduce RS behaviour. After describing each of these studies below, some of the implications of each for future research, theories of RS behaviour, and clinical practice will be discussed.

CHAPTER 2

The Covert and Overt Reassurance Seeking Inventory (CORSI): Development, validation and psychometric analyses

Reassurance seeking (RS) is an interpersonal behaviour recognized for its role in maintaining various mental disorders. Despite its prevalence (e.g., Starcevic et al., 2012), facets of RS are underrepresented in existing measures. The aim of this paper is to present the development, validation, and psychometric analyses of a novel measure of RS behaviour.

Individuals with mental disorders including obsessive-compulsive disorder (OCD), depression, and anxiety disorders (e.g., generalized anxiety disorder [GAD]; social anxiety disorder [SAD]) may seek reassurance in ways that become repetitive and detrimental (e.g., American Psychiatric Association [APA] 2013; Beesdo-Baum et al., 2012; Coyne, 1976; Heerey & Kring, 2007; Joiner, Metalsky, Katz, & Beach, 1999; Parrish & Radomsky, 2010; Warwick & Salkovskis, 1985). Across disorders, functions of RS appear largely the same (e.g., Rector, Kamkar, Cassin, Ayearst, & Laposa, 2011). Specifically, RS reduces distress, perceived threat and/or responsibility – at least in the short-term; long-term, it prevents individuals from learning corrective information about perceived threats or their ability to cope (e.g., Coyne, 1976; Halldorsson & Salkovskis, 2017b; Joiner & Metalsky, 2001; Parrish & Radomsky, 2010). Further, when RS becomes pervasive, it is associated with consequences including relationship disruption, reduced workplace productivity, and distress (e.g., Coyne, 1976; Kobori, Salkovskis, Read, Lounes, & Wong, 2012). Given its similarities across disorders, and considering significant comorbidity rates, there is need for a measure that captures overlapping functions and consequences of RS behaviour (e.g., Kessler & Wang, 2008).

Conceptualizations of RS across disorders suggest that it is a repetitive safety-seeking behaviour following perceived general or social/relational threats, despite having received the information before (e.g., "Are you really sure the door is locked?", "Are you sure you still love me?"; e.g., Beesdo-Baum et al., 2012; Coyne 1976; Heerey & Kring, 2007; Joiner & Metalsky, 2001; Joiner et al., 1999; Parrish & Radomsky, 2010; Warwick & Salkovskis, 1985; see also Rachman, 2002). Notably, the examples above highlight *overt*, obviously-noticeable RS, wherein someone seeks responses from a partner who is conscious of the question. However, reassurance seekers are commonly aware of possibilities for negative interpersonal consequences, and may instead engage in subtle, or *covert* RS (e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky,

2010). An example of covert RS would be a person making a statement and waiting to see if another person disagrees, thereafter taking the *absence* of an objection as reassurance (e.g., "I washed, so there are no germs…"; Kobori & Salkovskis, 2013; Kobori et al., 2012; Parrish & Radomsky, 2010).

Covert as opposed to overt RS is likely intended to reduce negative consequences, as are explained by Coyne's interactional model (1976). Coyne's model suggests that individuals seek reassurance to reduce uncertainty/distress about relationships, self-worth, or self-competence. Unfortunately, repeated RS eventually bothers significant others and leads to rejection, thereby confirming core fears (e.g., that they are unwanted/ incompetent; Coyne, 1976). Individuals with OCD also report concern about the consequences of RS and that this is a motivation to become covert (Kobori et al., 2012; Parrish & Radomsky, 2010). Individuals with other disorders likely also use covert RS to avoid negative interpersonal consequences though this has been understudied, perhaps due to lack of measures capturing covert RS.

Currently, measures exist to assess aspects of RS, namely the 1) Reassurance Seeking Scale (Rector et al., 2011), a 30-item measure assessing RS about decision-making, social attachment, and general threats, but which does not differentiate covert RS; 2) Threat-related Reassurance Seeking Scale (TRSS; Cougle et al., 2012), comprising eight items assessing RS in response to perceived general threats/worry or evaluative threats, but which Cougle and colleagues (2012) note may lack comprehensiveness; and 3) Reassurance Seeking Questionnaire (ReSQ; Kobori & Salkovskis, 2013), a measure of RS in OCD assessing reassurance sources (21 items), trust in reassurance(16 items), frequency (16 items), and process/consequences of RS (11 items), but which could be too lengthy for use in research or clinical settings.[1] Beyond these, the Reassurance Questionnaire (Pugh, Hadjistavropoulos, & Sharpe, 2013; Speckens, Spinhoven, Van Hemert, & Bolk, 2000) was published with the separate intent of assessing whether patients feels reassured by doctors, and the Depressive Interpersonal Relationships Inventory contains a reassurance seeking subscale (DIRI-RS; Joiner, Alfano, & Metalsky, 1992) which features only four items assessing overt social/relational RS and does not permit comprehensive assessment.

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[1] The RSS, TRSS, and ReSQ were published after data collection for the current study was underway and were thus not available for inclusion as convergent measures. See also Discussion.

Thus, there is not currently one measure that captures broadly-applicable themes of overt and covert, general threat- and social/relational RS (e.g., Coyne, 1976; Parrish & Radomsky, 2010).

Overall, covert RS is presently difficult to identify, as it is intended to be unrecognized and is essentially absent from existing measures. Having a comprehensive measure of both overt and covert RS could advance researchers' ability to identify the behaviour and could eventually help clinicians deliver more targeted interventions. Additionally, validating a measure including covert RS could illuminate the extent to which it is shared across disorders, thereby contributing to a more unified conceptualization of RS. This study therefore aimed to develop a psychometrically-sound measure of covert and overt RS behaviour concerning general and/or social/relational threats.

Method

Thirty initial items were developed by examining cognitive-behavioural theories (e.g., Beck, Rush, Shaw, & Emery, 1979; Coyne, 1976; Rachman & Hodgson, 1980; Salkovskis, 1985) and extracting common themes. Anecdotal clinical evidence also informed construction. Items included RS about general threats (e.g., safety, mistakes), and social/relational threats (e.g., self-worth, relationships), and were constructed to reflect overt and covert/subtle RS. Items were rated on a five-point, Likert scale from 0 ("Not at all") to 4 ("Very much").

All participants were treated in accordance with principles of ethical treatment of human research participants. This study was reviewed by and received clearance from a University Human Research Ethics committee.

Participants. Data for validating the 30-item measure were collected from a sample of ($N = 1821$) undergraduate students. Undergraduates were compensated with course credit. In addition, 30 individuals with a primary diagnosis of depression, 50 individuals with a primary diagnosis of OCD, and 60 individuals with a primary diagnosis of an anxiety disorder (e.g., GAD, SAD) were also tested to provide an initial description of clinical profiles on the measure, and to conduct known-groups analyses. These participants were recruited from the community via advertisements or were contacted through the laboratory's existing database of clinical participants, and were compensated $40. Primary diagnosis for the clinical groups (i.e., OCD, depression, or anxiety) was established via the Anxiety Disorders Interview Schedule for the DSM-IV (ADIS-IV; Brown, DiNardo, & Barlow, 1994). Comorbidities were permitted, as this better represents realities of clinical populations than would diagnostically "pure" groups.

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Measures

  ADIS-IV (Brown et al., 1994). The ADIS-IV is a semi-structured diagnostic interview assessing the presence and severity of mental disorders in adults. The interview demonstrates good inter-rater reliability ($\kappa = .81$; Brown et al., 1994). Interviewers required a bachelor's degree to qualify for administration and completed comprehensive training. Primary diagnosis was the disorder that received the highest severity rating and resulted in the greatest interference/distress.

  Vancouver Obsessional Compulsive Inventory (VOCI; Thordarson et al., 2004). The VOCI is a 55-item measure of obsessive-compulsive symptomatology. The VOCI had excellent internal consistency in the current undergraduate sample ($\alpha = .96$) as well as in the clinical sample when collapsing across groups ($\alpha = .96$). Previous research suggests that the VOCI has good to excellent internal consistency in both OCD (α's = $.85 - .96$; Thordarson et al., 2004) and student samples (α's = $.83 - .96$; Radomsky et al., 2006; Thordarson et al., 2004). The VOCI was selected as a convergent measure based on the previously-identified prevalence of RS in OCD (e.g., Starcevic et al., 2012).

  Beck Anxiety Inventory (BAI; Beck & Steer, 1993). The BAI is a 21-item measure of anxiety symptom severity. The BAI had excellent internal consistency in the current undergraduate and aggregated clinical samples ($\alpha = .91 - .94$). Previous research suggests the BAI has excellent internal consistency ($\alpha = .92$) and good convergent validity (Beck, Epstein, Brown, & Steer, 1988). The BAI was selected as a convergent measure based on the prevalence of RS across anxiety disorders (e.g., Heerey & Kring, 2007).

  Beck Depression Inventory – Second Edition (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item measure of depression symptomatology. The BDI-II had excellent internal consistency in the undergraduate and collapsed clinical samples ($\alpha = .91 - .94$). The BDI-II previously demonstrated good internal consistency in an undergraduate sample ($\alpha = .90$; Storch, Roberti, & Roth, 2004), and good convergent and divergent validity. The BDI-II was selected as a convergent measure based on the prevalence of RS in depression (e.g., Joiner et al., 1992).

  Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The RSES is a 10-item measure of global self-esteem. The RSES showed good internal consistency in the undergraduate and collapsed clinical samples (α's = $.85 - .87$), and previously demonstrated excellent internal

consistency (α = .91; Sinclair et al., 2010). The RSES was selected as a discriminant measure based upon the theorized negative association between RS and self-esteem.

Results

Data cleaning. Data from the (N = 1821) undergraduate participants were screened for missing/impossible values, of which there were none. Mahalanobis distance was calculated to identify multivariate outliers with $p < .001$ (Tabachnick & Fidell, 2007); 183 participants were identified and excluded. A further 12 participants were excluded due to being univariate outliers with standardized CORSI total scores exceeding $Z = 3.29$ (Field, 2009; Tabachnick & Fidell, 2007). This resulted in a final sample size of 1626. Skewness (0.96, $SD = 0.061$) and kurtosis (0.677, $SD = 0.121$) were within acceptable limits.

The final sample of undergraduates (N = 1626) was 85.2% (n = 1385) female. Participants averaged 23.2-years-old (SD = 6.02), and ranged from 18- to 68-years-old. The collapsed clinical sample had a mean age of 38.86 (SD = 15.10) years, ranging from 18- to 80-years-old, and was 59.0% (n = 82) female.

Half of the undergraduate cases (n = 813) were randomly selected for an exploratory factor analysis (EFA) to determine the CORSI's latent structure, surpassing typical guidelines for factor analysis sample size requirements (e.g., Gorsuch, 1983). The remaining half were reserved for a confirmatory factor analysis (CFA).

Part A. EFA. Principal axis factoring with oblique rotation was employed to determine the proportion of shared variance accounted for by the latent factors, while allowing for intercorrelations (e.g., Costello & Osborne, 2005; Martin & Savage-McGlynn, 2013). The data were assessed for multicollinearity by examining the correlation matrix for values surpassing $r = .89$ (Field, 2009), however no values surpassed $r = .69$ and there was no evidence of singularity. The Kaiser-Meyer Olkin measure of sampling adequacy (KMO) was .954, in the superb range and indicating that factor analysis will likely yield unique and reliable factors (e.g., Hutcheson & Sofroniou, 1999). Similarly, the KMO statistic for each individual item fell at or above .90. Inspection of Bartlett's statistic (χ^2 (435) = 13911.68, $p < .001$) indicated that factor analysis was likely appropriate.

The initial EFA produced five factors with eigenvalues greater than one, with values of 12.173, 2.166, 1.852, 1.339, and 1.186, suggesting a five-factor solution using Kaiser's (1960) greater-than-one rule. Scree plot inflections suggested two-, four-, five-, or six-factor models

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(Cattell, 1966). Additionally, parallel analysis (O'Connor, 2000) was conducted to compare whether the extracted eigenvalues were larger than the mean of those obtained from randomly generated, uncorrelated data (Horn, 1965; Ledesma & Valero-Mora, 2007). The parallel analysis suggested to retain up to 7 factors.

Taking the eigenvalues, scree plots, and parallel analysis into account, two-, four-, five-, and six-factor models were tested. Theoretical models of RS across disorders and the factors' interpretability were considered while deciding how many factors to retain (Hayton, Allen, & Scarpello, 2004). Items were considered for retention if a factor loading exceeded .32 and there were no cross loadings exceeding .32 (Tabachnick & Fidell, 2007).

1. Two factor model. A two-factor model accounted for 44.17% of the variance after extraction. Examination of the factor correlation matrix showed that the factors were moderately correlated ($r = .503$). One item was significant cross-loaded above.32 (Tabachnick & Fidell, 2007). Excluding the cross-loaded item, one factor encompassed 25 items whereas the second factor comprised four items, rendering the factors substantially unbalanced. Additionally, the factors were not clearly interpretable.

2. Four factor model. A four-factor model accounted for 52.05% of the variance after extraction. The correlation matrix showed correlations ranging from low ($r = .205$) to moderately strong ($r = .675$) indicating that some factors were closely related whereas others were more conceptually distinct. Nine items were cross-loaded at or above.32 (Tabachnick & Fidell, 2007) and thus were candidates for removal, however doing so would result in the third factor retaining only two items, too few for a reliable factor.

3. Five factor model. A five-factor model accounted for 55.00% of the variance after extraction. Correlations between the factors ranged from $r = .208$ to .690, suggesting that the factors may be tapping into unique facets of RS. Four items had complex loadings at or above .32 and were considered for removal (Tabachnick & Fidell, 2007). When excluding the four cross-loaded items, each of the five factors retained three to eight items, captured distinct facets of RS, and were readily interpretable.

4. Six factor model. A six-factor model accounted for 57.12% of the variance after extraction. Inspection of the item content revealed a combination of interpretable and unclear factors, while examination of the correlation matrix revealed that the factors' associations ranged

from r = .247 to .703. Three items loaded above .32 onto two factors and would therefore be removed (Tabachnick & Fidell, 2007), resulting in a total of 27 items.

Final model selection. On the basis of the EFA, consideration of theories (e.g., Coyne, 1976; Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010), and anecdotal reports/observations from clinical practice, the five-factor model was chosen as the most parsimonious solution. Four items were removed due to significant cross-loadings as noted above resulting in 26 retained items, and the analysis was re-run forcing five factors. Please refer to Table 1 for information about the cross-loadings of the four removed items, and to Table 2 for the initial, extraction, and rotation factor descriptions of the 26-item model. Factor loadings of retained items are displayed in Table 3.

The first factor, labeled **Covert Social/Relational Threat RS (C-SR)**, comprises seven items related to subtle RS about relationships/self-worth (e.g., "I often try to find out if others care about me without asking them directly"). The second factor, labeled **Overt General Threat RS (O-G)**, includes eight items concerning seeking reassurance openly from others in response to distress from general threats (e.g., "I become so anxious when I am uncertain about something that I need to ask my friends or family for reassurance over and over again"). The third factor, labeled **Covert General Threat Passive RS (C-G$_P$)**, consists of four items assessing subtle RS about general threats, with the person taking a "wait-and-see", observational approach to determine whether a situation/object is safe (e.g., "If I am uncertain about the cleanliness of an object, I will wait until somebody else touches it before I do"). The fourth factor, labeled **Overt Social/Relational Threat RS (O-SR)**, comprises three items associated with obviously-noticeable RS about relationships/self-competence (e.g., "I sometimes threaten to end a friendship in order to see if my friends really care about me"). The fifth factor, labeled **Covert General Threat Active RS (C-G$_A$)**, comprises four items related to subtle yet active attempts to seek reassurance about general threats in a "start-then-check" manner, (e.g., "When I am anxious about doing something, I often start and if nobody around me warns me to stop, I assume it is OK to continue"). Upon consideration of the measure's factor structure, intended purpose, and potential novel contributions, the measure was titled the **Covert and Overt Reassurance Seeking Inventory** (CORSI; please see Appendix A).

Correlations between CORSI factors. A total score for each of the factors was obtained by summing its items. A total CORSI score was obtained by summing all items. Please refer to

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Table 4 for factor and total score means from the undergraduate EFA sample, and to Table 5 for final correlations between the CORSI factors following removal of the four complex items.

    Internal consistency. Within the collapsed clinical sample, internal consistency was good for the C-SR ($\alpha = .88$) and O-G factors ($\alpha = .90$), fair for the C-G$_P$ ($\alpha = .72$), C-G$_A$ ($\alpha = .67$) and O-SR factors ($\alpha = .70$), and excellent for the overall 26-item measure ($\alpha = .93$). In the undergraduate sample, internal consistency was good for the C-SR ($\alpha = .89$) and O-G ($\alpha = .90$) factors, fair for the C-G$_P$ ($\alpha = .77$), C-G$_A$ ($\alpha = .75$) and O-SR factors ($\alpha = .78$), and excellent for the 26-item scale ($\alpha = .93$). Using Haberman's (2008) procedure to estimate the proportional reduction in mean squared error based on total scores (PRMSE$_{TOT}$), the values obtained for PRMSE$_{TOT}$ based on the undergraduate sample were .87 for O-G, .66 for O-SR, .83 for C-SR, .63 for C-G$_P$, and .36 for C-G$_A$, which are lesser than the internal consistency scores and thus indicates that the inclusion of subscales separate from the total score is warranted (see also Reise, Bonifay, & Haviland, 2013).

    Convergent validity. For the O-G, C-G$_A$, and C-G$_P$ factors, which reflect traditional conceptions of anxious/obsessive RS, convergent validity was assessed using the EFA sample by comparing correlations between the factors and the VOCI (Thordarson et al., 2004) and BAI (Beck & Steer, 1993), where positive correlations indicate convergent validity (Hinkin, 1988). The O-G factor correlated moderately strongly with the VOCI ($r = .65, p < .001$), as well as with the BAI ($r = .49, p < .001$); the C-G$_A$ factor correlated positively though weakly with the VOCI ($r = .28, p < .001$) and BAI ($r = .17, p < .001$); the C-G$_P$ correlated strongly and positively with the VOCI ($r = .60, p < .001$), and BAI ($r = .37, p < .001$). For the O-SR and C-SR factors, which most strongly reflect depressotypic RS, convergent validity was assessed with the BDI-II (Beck, Steer, & Brown, 1996). The O-SR and C-SR factors correlated moderately strongly with the BDI-II (r's = .41 and .49, p's < .001).

    Divergent validity. Divergent validity was calculated by examining correlations between the CORSI and RSES (Rosenberg, 1965), based on theorized negative relations between RS and self-esteem. Results using the EFA sample showed low to moderate negative correlations between RSES and CORSI total score ($r = -.43, p < .001$), O-G factor score ($r = -.42, p < .001$), C-G$_P$ factor score ($r = -.23, p < .001$), C-G$_A$ factor score ($r = -.16, p < .001$), O-SR factor score ($r = -.32, p < .001$), and C-SR factor score ($r = -.42, p < .001$).

To assess whether the correlations were significantly different between convergent and divergent measures, a series of tests for the difference between dependent correlations were conducted (Lee & Preacher, 2013; Steiger, 1980). Results using the EFA sample demonstrated significant differences in the values between each of the factors for convergent and divergent measures (z's = 5.83 to 22.58, p's < .001), suggesting that there are significantly stronger associations between the CORSI and the convergent measures than with the divergent measures.

Known groups validity. Next, t-tests were calculated to compare the scores of individuals with OCD, anxiety disorders, and depression, respectively, to those of the undergraduates (Hattie & Cooksey, 1984). In cases when equal variance could not be assumed based on Levene's test, corrected estimates were used.

When comparing individuals with primary OCD to undergraduates, there were significant group differences on CORSI total score (t (51.79) = 3.92, p < .001, d = .659), O-G (t (51.78) = 3.49, p = .001, d = .586), C-G$_P$ (t (51.26) = 4.89, p < .001, d = .845), O-SR (t (51.57) = 4.02, p < .001, d = .687), C-SR (t (53.06) = 3.11, p < .001, d = .493) factors, and a trend for the C-G$_A$ factor (t (861) = 1.82, p = .069, d = .259). When comparing individuals with primary anxiety disorders to undergraduates, there were significant differences on CORSI total (t (65.89) = 5.84, p < .001, d = .824), O-G (t (65.16) = 4.82, p < .001, d = .694), C-G$_P$ (t (871) = 4.17, p < .001, d = .520), C-G$_A$ (t (871) = 2.05, p = .041, d = .276), O-SR (t (62.71) = 4.55, p < .001, d = .707), and C-SR (t (65.15) = 5.62, p < .001, d = .809) factors. Results also showed group differences between individuals with primary depression and undergraduates on the CORSI total score (t (840) = 2.01, p < .001, d = .947), O-SR (t (29.14) = 2.97, p = .006, d = .631), C-SR (t (840) = 5.04, p < .001, d = .867), O-G (t (29.11) = 4.20, p < .001, d = .893), and C-G$_P$ (t (840) = 2.94, p = .003, d = .523) factors, but was *ns* for C-G$_A$ (t (840) = 1.19, p = .235, d = .241).

When examining profiles of scores between clinical groups, there was a significant difference between the OCD and anxiety disorders groups on the C-G$_P$ factor (t (86.39) = 2.11, p = .038, d = .409) only; there was also a trend towards a difference on this factor between the OCD and depression groups (t (74.66) = 1.89, p = .063, d = .279). There were no statistically significant differences between the anxiety disorder and depression groups on the total or any factor scores. Please refer to Table 4 for clinical groups descriptive statistics.

Part B. CFA. Subsequent to the EFA and in line with best practices (Martin & Savage-McGlynn, 2013), a CFA with maximum likelihood estimation was conducted with the remaining undergraduate data ($n = 813$) using AMOS 23.0.0.

For the initial, unmodified model, inspection of the fit indices showed χ^2 (289) = 1532.467, $p < .001$, though chi-square is influenced by sample size such that large samples often yield a significant result. For the unmodified initial model, the goodness of fit index (GFI) = .865, comparative fit index (CFI) = .880, Tucker-Lewis Index (TLI) = .865, and root mean square error approximation (RMSEA) = .073, which indicated that the unmodified model did not fit the data sufficiently (Bentler, 1990; Bentler & Bonett, 1980; Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1999; Schreiber, Nora, Stage, Barlow, & King, 2006; Steiger, 2007; Steiger & Lind, 1980; Tucker & Lewis, 1973).

Given the conceptual overlap in elements of the CORSI items, modification indices of the covariance matrix were considered to identify whether adding theoretically-appropriate covariances between error terms improved model fit. Four covariances were deemed appropriate for addition. Following the addition of the four covariances, the model fit chi-square value was improved to χ^2 (285) = 1136.143 (χ^2/df = 3.986), $p < .001$. With the modifications added, the GFI = .897, CFI = .918, TLI = .907, and RMSEA = .061, indicating overall good fit. Please see Figure 1 for the model estimates.

Discussion

This paper presented the psychometric analyses of a novel measure of RS, the CORSI. The measure assesses major domains of general and social/relational threat-related RS that are seen across disorders. More importantly, the measure assesses overt and covert styles of seeking reassurance, the latter of which has been largely neglected in the literature. Undergraduate samples were used for the EFA and CFA, and a clinical sample including individuals with OCD, depression, and anxiety disorders was obtained for preliminary examination of clinical profiles.

Inspection of fit indices from the EFA, as well as clinical knowledge and theories of RS, were considered in the ultimate selection of the five-factor model. The final 26-item CORSI accounts for a large proportion of variance, with good convergent and divergent validity. The CFA suggests that the model fit well after only minor, theoretically-appropriate modifications. This lends confidence to the underlying factor structure and suggests that the CORSI is a robust measure of covert and overt, general threat- and social/relational threat-related RS.

Given that the CORSI was constructed to assess overt and covert, general- and social/relational threat-related RS, the division of the anticipated covert, general threat-related RS factor into two distinct factors was unexpected. Here, the large sample size may have been advantageous as it allowed an active form (C-G_A factor) to be differentiated from a passive form (C-G_P) of covert, general threat-related RS. Upon inspection of the item content, the C-G_A factor identifies individuals who are willing to "start and stop" an activity and thus gain reassurance by the absence of others' objections to the person *continuing* the activity. An example of this type of RS would be an individual picking up a knife while subtly checking that their partner does not look nervous. This is in accordance with theory of how covert RS may function (Rachman & Hodgson, 1980). Conversely, the C-G_P factor corresponds to a "wait and see" form of RS, wherein someone gains reassurance of safety (etc.) by observing someone else acting *before* they are willing to do so themselves. An example of this would be an individual who will not eat until after their partner, to feel safe. Since the C-G_P was the only factor wherein individuals with primary OCD had a higher score than the depressed or anxious clinical groups, it would be intriguing to examine with future research whether C-G_P RS relates to obsessional doubt or slowness more strongly than other facets of OCD, and what factors allow a person to feel reassured when they use C-G_P RS as compared with more active styles.

The CORSI successfully differentiated undergraduate from clinical groups, and there were no significant clinical group differences in total or factor scores, save for the C-G_P factor as previously noted. These findings indicate that the CORSI may have utility as a measure of problematic RS across disorders. Examining RS across disorders may allow clinicians and researchers to identify additional similarities in functions and consequences. For instance, low self-confidence and difficulty making decisions are characteristic symptoms of depression, but would logically relate to problematic RS across disorders. Indeed, it is possible that certain core fears in depression, for instance that one is incompetent/worthless (e.g., Beck, 1976), may only be "checked" by seeking reassurance from others, thus leading individuals to seek reassurance about both general and relational threats. Furthermore, it is unsurprising that RS about general threats would be pervasive in anxiety disorders, as RS has previously been noted as a common behaviour in disorders including GAD (e.g., APA, 2013).

Previous research highlighted differences in RS motivations between depression and OCD, but the collective findings now suggest that there is significant overlap in why people seek

reassurance across disorders (Cougle et al., 2012; Parrish & Radomsky, 2010; Rector et al., 2011). Furthermore, these findings suggest that the CORSI may have utility in identifying transdiagnostic aspects of problematic RS, particularly if future research validates its use with larger clinical samples.

Limitations and future directions. In future, the CORSI would benefit from retest analyses to establish its temporal stability. While the large sample size for the EFA and CFA lend confidence to the interpretation of the CORSI's structure, the clinical sample was insufficiently large to conduct factor analysis. It would be informative to run another CFA in a larger clinical sample, to solidify that the factor structure is replicable. Moreover, as the CFA was conducted on a sample that had completed the 30-item version, it would be pertinent to re-run the CFA within novel samples using the 26-item CORSI to gain further confidence of the factor structure's robustness. As previously noted, the TRSS (Cougle et al., 2012), RSS (Rector et al., 2011), and ReSQ (Kobori & Salkovskis, 2013) were each published after the current study was underway, and were thus not available for inclusion in validation analyses. An informative next step would therefore be to include these measures in convergent validity analyses of the CORSI's psychometric properties.

Conclusions. The 26-item CORSI provides an efficient, comprehensive measure of overt and covert, general threat and social/relational threat RS. The CORSI is freely available for public use (see Appendix A), and distinguishes individuals with OCD, anxiety disorders, or depression from undergraduates. The measure seems effective in identifying problematic RS across disorders, which may in turn increase the CORSI's potential utility in clinical practice, but needs further study in clinical samples. Better identifying RS across disorders could improve our knowledge of the behaviour, and ultimately assist clinicians to better help clients reduce problematic RS behaviour.

Table 1

Items Removed from 30-item CORSI due to Complex Loadings

Item	Factor loadings
3. "I often ask my partner / family members / roommate to reassure me that I remembered to lock the door, turn off the stove, unplug the clothes iron, etc."	O-G (.522) C-G$_P$ (.323)
13. "I am always 'testing' my friends and family to see if they really care about me"	C-SR (.521) O-SR (.504)
15. "I sometimes ask others to reassure me again and again that I have done all that I can to make things safe"	O-G (.426) O-SR (.322)
22. "I would rather risk annoying other people with repeated requests for reassurance than to continue to feel anxious about something"	O-G (.569) O-SR (.351)

Note. Items are presented with numbering from the 30-item CORSI. Factor loadings are in parentheses. C-SR = Covert Social/Relational Threat RS, O-SR = Overt Social/Relational Threat RS, O-G = Overt General Threat RS, C-G$_P$ = Covert General Threat Passive RS.

Table 2

Exploratory Factor Analysis of the Reduced 26-item CORSI

Factor	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.48	40.30	40.30	10.05	38.65	38.65	8.37
2	2.07	7.97	48.27	1.60	6.14	44.79	8.65
3	1.66	6.39	54.67	1.22	4.68	49.47	5.53
4	1.18	4.54	59.21	0.75	2.87	52.34	6.84
5	1.10	4.24	63.45	0.69	2.65	54.99	3.60

Table 3

Factor Loadings for Exploratory Factor Analysis with Promax Rotation of the Retained 26 Items

	Item	Factor loadings					h^2
		1	2	3	4	5	
1	I often try to find out if others care about me without asking them directly	**.80**					.58
16	I look to other people's moods when they are around me to determine whether they like me	**.76**					.60
28	In social situations, I try to 'read' other people's body language to determine whether they like me	**.71**					.55
2	I often make a statement about something that I've done to get information from others about how well I've done it	**.68**					.53
9	In order to feel worthwhile, I need other people to continually show me that I am valued through their actions and gestures towards me	**.64**					.61
7	I spend an excessive amount of time looking for signs of approval from others	**.55**					.67
5	I sometimes make self-derogatory statements with the hope that someone will object to them	**.51**					.49
12	I become so anxious when I am uncertain about something that I need to ask my friends or family for reassurance over and over again		**.85**				.73
21	When faced with an important decision, I need to ask others for reassurance before I can make my final choice		**.78**				.54

Note. Item are numbered from the 30-item CORSI. RS Factors: 1 = Covert Social/Relational, 2 = Overt General, 3 = Covert General Passive, 4 = Overt Social/Relational, 5 = Covert General Active. h^2 = Extraction communalities. Loadings below .32 are suppressed for clarity.

(continued)

Table 3 (continued)

Factor Loadings for Exploratory Factor Analysis with Promax Rotation of the Retained 26 Items

Item		1	2	3	4	5	h^2
				Factor loadings			
6	If I am unable to check something I am anxious about, I will ask others to reassure me that it is OK		**.70**				.52
11	I often ask others to tell me if I have made the 'wrong' decision		**.63**				.58
4	I have trouble accepting responsibility for something important without asking for reassurance that everything will be OK		**.57**				.50
17	If I am really worried about something, it rarely seems good enough to have others reassure me about it only once		**.50**				.52
25	If I have checked something repeatedly and still feel unsure, I ask others to reassure me that things are safe		**.49**				.48
18	I spend far more time than most people looking to others for signs that things will be OK		**.41**				.65
8	If I am uncertain about the cleanliness of an object, I will wait until somebody else touches it before I do			**.80**			.65
14	I sometimes check the safety of an object or situation by looking to see how other people react to it			**.61**			.55

Note. Item are numbered from the 30-item CORSI. RS Factors: 1 = Covert Social/Relational, 2 = Overt General, 3 = Covert General Passive, 4 = Overt Social/Relational, 5 = Covert General Active. h^2 = Extraction communalities. Loadings below .32 are suppressed for clarity.

Table 3 (continued)

Factor Loadings for Exploratory Factor Analysis with Promax Rotation of the Retained 26 Items

				h^2
20	If I am unsure about the safety of my food, I will wait until someone else has tried some before I do	**.59**		.45
10	I always 'test the waters' before engaging in any activity that makes me anxious	**.36**		.45
23	I annoy people with repeated requests for reassurance about their feelings for me and this causes problems in my relationships	**.79**		.71
19	I sometimes threaten to end a friendship in order to see if my friends really care about me	**.74**		.48
27	I have often been told that I seem "insecure" because I constantly seek affirmation or approval from others	**.53**		.59
26	When I am anxious about doing something, I often start and if nobody around me warns me to stop, I assume it is OK to continue		**.84**	.69
29	If others do not object to my engaging in an activity, then it must be 'safe'		**.69**	.50
24	If other people do not tell me otherwise, I can assume that I've got things under control		**.65**	.39
30	I often try to find out if an object or situation is "safe" without asking anybody directly		**.44**	.32

Note. Item are numbered from the 30-item CORSI. RS Factors: 1 = Covert Social/Relational, 2 = Overt General, 3 = Covert General Passive, 4 = Overt Social/Relational, 5 = Covert General Active. h^2 = Extraction communalities. Loadings below .32 are suppressed for clarity.

Table 4

CORSI 26-item Undergraduate Student and Clinical Sample Means

		Clinical samples		
	Undergraduate sample ($N =$ 813)	Obsessive-compulsive disorder ($n = 50$)	Anxiety disorder ($n = 60$)	Depression ($n =$ 30)
CORSI Total	23.15 (15.17)	35.12 (22.78)	35.92 (17.56)	38.70 (17.63)
CORSI C-SR	7.56 (5.54)	10.48 (6.88)	12.40 (6.74)	12.83 (6.64)
CORSI O-G	7.28 (6.22)	11.42 (8.94)	11.58 (7.26)	13.80 (8.36)
CORSI C-G$_P$	2.39 (2.35)	4.94 (3.86)a	3.57 (2.75)a	3.93 (3.34)
CORSI O-SR	1.16 (1.76)	2.72 (2.86)	2.78 (2.87)	2.50 (2.45)
CORSI C-G$_A$	4.75 (3.40)	5.56 (3.59)	5.58 (3.32)	5.63 (3.05)

Note. Data are presented with standard deviations in parentheses. CORSI = Covert and Overt Reassurance Seeking Inventory. RS Factors: O-G = Overt General, C-G$_A$ = Covert General Active, C-G$_P$ = Covert General Passive, O-SR = Overt Social/Relational, C-SR = Covert Social/Relational. a = statistically significant difference in group factor scores. Please note that the numerous statistically significant differences between the undergraduate and clinical samples are not indicated on this table for the sake of clarity.

Table 5

Correlations Between the Final 26-item CORSI Factors

	1. C-SR	2. O-G	3. C-G$_P$	4. O-SR	5. C-G$_A$
			CORSI factors		
1.	--	.736**	.519**	.609**	.362**
2.		--	.628**	.656**	.335**
3.			--	.505**	.325**
4.				--	.268**
5.					--

Note. Results are derived from the undergraduate EFA sample. CORSI = Covert and Overt Reassurance Seeking Inventory. O-G = Overt General Threat RS, C-G$_A$ = Covert General Threat Active RS, C-G$_P$ = Covert General Threat Passive RS, O-SR = Overt Social/Relational Threat RS, C-SR = Covert Social/Relational Threat RS.
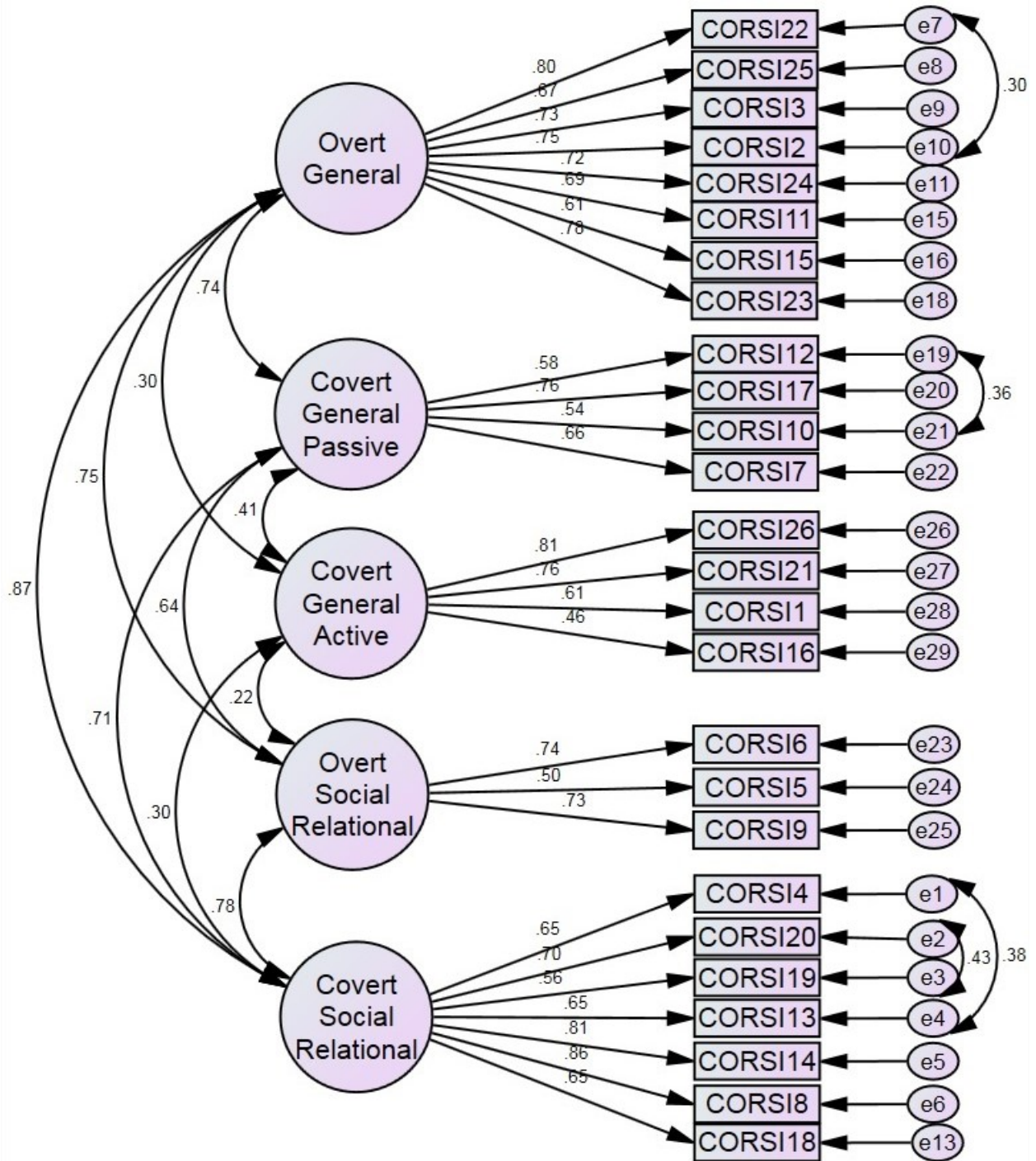
** $p < .01$.

Figure 1. Confirmatory factor analysis model for the five-factor CORSI using the 26 highest-loading items, including four added covariances.

Note. Model shown with standardized parameter estimates.

CHAPTER 3

Bridge

While RS has historically received little study relative to its prevalence in clinical populations (Starcevic et al., 2012), research in this area has highlighted shared features of the behaviour across disorders. These shared facets include motivations to seek reassurance in response to general threats and threats that have social/relational implications, as well as motivations to use overt and covert forms of RS (Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010). Existing measures of RS each provide useful assessments of different aspects of the behaviour and the consequences thereof, however, to the best of this author's knowledge, there was not one measure that allowed efficient assessment of the varied, nuanced ways that people seek RS, both covertly and overtly.

Study 1 was undertaken with the purpose of developing, assessing the factor structure of, and conducting psychometric analyses of a novel, comprehensive measure of RS: the CORSI. Data collection included samples of undergraduates and individuals meeting diagnostic criteria for primary OCD, anxiety disorders, and depression, respectively, to allow preliminary analyses of how RS may differ across disorders. A five-factor structure was reliable from an exploratory to confirmatory factor analysis with good fit following only minor modifications, and identified factors corresponding to Overt-General threat (O-G), Overt-Social/Relational threat (O-SR), Covert-Social/Relational threat (C-SR), Covert-General threat Active (C-G_A), and Covert-General threat Passive (C-G_P) styles of RS.

The results from Study 1 suggest that individuals with OCD share many features of their RS behaviour with individuals with other disorders, with the slight exception of the C-G_P factor, to an extent that the behaviour could be considered transdiagnostic. These findings help to clarify what individuals are looking for, and what concerns they are looking to assuage, when they engage in RS behaviour. In practice, once such factors are identified, they may be specifically addressed in therapy.

Research has facilitated advances in interventions for other domains of compulsive behaviour, such as checking (e.g., Rachman, 2002; Radomsky et al., 2010), yet RS has not received the same degree of specific attention regarding intervention options. As such, the most commonly adopted style of treatment for RS has remained an ERP-style of intervention called

reducing accommodation to RS behaviour, which can lead to decreased RS but is also suggested to significantly increase distress (Gillihan et al., 2012; Hallam, 1974; Marinchak, 2013). From the partners' perspective, reducing accommodation to RS typically entails ignoring or refusing to answer requests for reassurance when it is sought ("I can't answer that question"; e.g., Abramowitz et al., 2013; Gillihan et al., 2012; Hallam, 1974; Marinchak, 2013).

To date, there is some preliminary case study evidence that CBT is useful to reduce RS, but there is an overall lack of evidence regarding interventions that have been applied to this specific behaviour. The focus within the literature on the strict reducing accommodation style of intervention, and paucity of studies specific to RS, has resulted in a lack of evidence regarding how to use CBT principles intervene in a way that is both acceptable and effective in reducing RS behaviour. Thus, clinicians are currently met with the task of selecting a style of CBT intervention for this nuanced behaviour with little guidance from the literature. However, there are questions of how best to employ or operationalize an intervention for RS from a CBT framework, with the ultimate goals of reducing the occurrence of the behaviour and reducing the underlying distress that leads to the behaviour. Furthermore, it has become clear that reducing accommodation is not the sole option; a novel suggestion is instead to focus on having partners withhold reassurance but provide support to encourage the reassurance seeker to tolerate distress/anxiety (e.g., "I can see that you feel anxious, but I know you can tolerate this feeling"; see also Halldorsson & Salkovskis, 2017a, b). This support provision feedback style is suggested to be similarly effective in reducing RS but perceived as more helpful by those involved (e.g., Halldorsson & Salkovskis, 2017a).

Given that intervention based on support provision has demonstrated effectiveness in a previous case study design by Halldorsson and Salkovskis (2017), but that traditional ERP-based approaches seem most common in clinical practice, an important next step is to examine the effects of using the traditional accommodation reduction style of response in comparison with a support-provision style of response. Developing a better understanding of how each style of response affects phenomena pertinent to clinical outcomes, namely RS behaviour and related affect, will inform treatment recommendations for this interpersonal compulsive behaviour.

CHAPTER 4

How do I say this? An Experimental Comparison of the Effects of Partner Feedback Styles on Reassurance Seeking Behaviour

Excessive reassurance seeking (RS) is a common, problematic behaviour in various mental disorders including generalized anxiety disorder (American Psychiatric Association [APA], 2013; Beesdo-Baum et al., 2012), social anxiety disorder (Heerey & Kring, 2007), illness anxiety disorder (e.g., Salkovskis & Warwick, 1986), and obsessive-compulsive disorder (OCD; e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010; Radomsky, Neal, Parrish, Lavoie, & Schell, 2018; Rector, Kamkar, Cassin, Ayearst, & Laposa, 2011; Starcevic et al., 2012). While there is no universally-adopted definition of problematic RS, Parrish and Radomsky (2010) describe it as repeatedly seeking safety-related information from another person, despite having received the information previously.

In OCD, RS has been proposed to function like compulsive checking: individuals seek reassurance to reduce anxiety/distress, perceptions of responsibility, and/or perceptions of threat, but the temporary relief leads to long-term reliance on RS (e.g., Parrish & Radomsky, 2006, 2010; Rachman, 1997, 1998, 2002; Salkovskis, 1985, 1999). Reassurance seeking can contribute to relationship difficulties as significant/familiar others are sensitive to RS and want to help, but may be unsure what to do (Halldorsson, Salkovskis, Kobori, & Pagdin, 2016; Kobori, Salkovskis, Pagdin, Read, & Halldorsson, 2017; Neal & Radomsky, 2015). Accordingly, there is broad consensus that RS should be targeted during therapy to prevent it functioning as a maintaining factor, and to foster long-term positive outcomes (e.g., Abramowitz, 2009; Clark, 2004; Francis, 1988; Gillihan, Williams, Malcoun, Yadin, & Foa, 2012; Hallam, 1974; Halldorsson & Salkovskis, 2017a, b; Marinchak, 2013; Salkovskis & Kobori, 2015). However, there are significant gaps in the literature regarding interventions for problematic RS.

Of psychological interventions for OCD, cognitive behavioural therapy (CBT) demonstrates the greatest efficacy in reducing symptoms (e.g., Eddy; Dutra, Bradly, & Westen, 2004; Olatunji, Davis, Powers, & Smits, 2013). Cognitive-behavioural interventions commonly involve partners when they are accommodating compulsions, such as by providing reassurance (e.g., Abramowitz et al., 2013; Belus, Baucom, & Abramowitz, 2014; Renshaw, Steketee, & Chambless, 2005; Thompson-Hollands, Abramovitch, Tompson, & Barlow, 2015). Indeed, the significant literature on the negative effects of partner accommodation underscores the

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importance of addressing accommodation for positive treatment outcomes (see Lebowitz, Panza, Su, & Bloch, 2012). For instance, a recent randomized trial examined whether adding a brief family intervention to typical exposure and response prevention (ERP), which is a type of CBT, would improve outcomes for individuals with OCD (Thompson-Hollands et al., 2015). The brief family intervention utilized by Thompson-Hollands and colleagues (2015) aimed to reduce accommodation of compulsions via two hour-long sessions involving psychoeducation about OCD and ERP (including normalizing information about the instinct to accommodate significant others' compulsions), and role-playing exercises of how to communicate the change in accommodation behaviour to the patient. The results showed that ERP plus a brief family intervention led to better long-term symptom reduction than ERP alone, highlighting the need to address maladaptive interpersonal patterns during therapy (Thompson-Hollands et al., 2015). However, the study by Thompson-Hollands and colleagues (2015) was not principally aimed to target RS, and thus, best practices for specifically reducing accommodation of RS are less clear.

Overall, there is little empirically-derived information available on how to best foster reassurance reduction/removal. How should the partner react when asked to provide reassurance? What should they say?

Currently, clinicians typically emphasize a form of ERP for RS called *reducing accommodation* (e.g., Abramowitz, 2009; Gillihan et al., 2012; Thompson-Hollands et al., 2015). The aim of reducing accommodation is to extinguish RS behaviour by removing the reinforcement provided by the partner's reassurance (Abramowitz, 2009; Gillihan et al., 2012; Thompson-Hollands et al., 2015). Exposure and response prevention can lead to significant symptom reduction for some individuals with OCD (e.g., Foa et al., 2005; Simpson, Huppert, Petkova, Foa, & Liebowitz, 2006). Specifically, changing behaviour with ERP may promote new learning that inhibits previous associations between distress/uncertainty and the response to seek reassurance (e.g., Abramowitz, 2009; Craske et al 2008). Despite lack of consistency as to whether reducing accommodation involves entirely ignoring requests for reassurance or refusing to answer the questions, clinicians using this approach typically ask significant others to deny RS requests (e.g., "I cannot answer that"; Abramowitz, 2009; Baucom, Whisman, & Paprocki, 2012; Gillihan et al., 2012).

Despite some benefits, meta-analyses have suggested that ERP does not lead to positive outcomes for all individuals with OCD and can be associated with significant drop-out/refusal

(e.g., Olatunji et al., 2013; Öst, Havnen, Hansen, & Kvale, 2015). Moreover, there has been little study of how removing accommodation of requests for reassurance affects RS behaviour. To date, only case studies have provided clinical outcomes related to extinction-based interventions for RS in OCD, primarily with children/youth (Francis, 1988; Hallam, 1974; Marinchak, 2013; Tolin, 2001). Each suggest that reducing accommodation using extinction was successful in decreasing RS frequency, but also noted family- and/or clinician-reported increases in distress, interpersonal strain, and adherence difficulties (Francis, 1988; Hallam, 1974; Marinchak, 2013). Thus, it may be that reducing accommodation of RS is perceived as unhelpful, though there is little information to assess this. This has pertinent implications for treatment acceptability, as lack of acceptability is associated with lower perceived adherability and poorer outcomes (e.g., Caporino & Karver, 2012; Milosevic, Levy, Alcolado, & Radomsky, 2015).

While not presently clear, clues from the depression literature suggest that the focus of reducing accommodation on the partner denying reassurance may potentially increase feelings of guilt and anxiety in individuals who seek reassurance, both of which are closely connected to OCD (e.g., Nutt & Malizia, 2006; Shafran, Watkins, & Charman, 1996; Shapiro & Stewart, 2011). Coyne's (1976) interactional theory of depression suggests that excessive RS leads to rejection from others, and implies an association between being denied reassurance and negative affect. Given the potential mixed effects of reducing accommodation for RS, one may question whether there is an alternative.

At present, the literature has limited information about the exact intentions underlying RS in OCD, though there are numerous potential conceptualizations including transferring responsibility or reducing uncertainty (e.g., Salkovskis, 1985, 1999). Anecdotally, most clients who engage in excessive RS report that they often can predict what others will say in response to their requests for reassurance. This is intriguing, and suggests that these individuals already have the information they seem to be asking for, likely because they have sought similar reassurance previously (see also Rachman, 2012). If so, this indicates that individuals may not truly intend to get information when they seek reassurance. Rather, by seeking reassurance, individuals may be trying to elicit *support* from the interaction partner to help with managing their distress in the moment (see also Halldorsson & Salkovskis, 2017a).

In this context, support provision is defined as encouraging the individual to tolerate distress in the moment without providing a direct answer to the RS question/statement, whereas

providing reassurance may be understood as the partner helping to reduce the person's distress by providing an answer that relates to the request for reassurance (see also Halldorsson & Salkovskis, 2017a). If a person's true intention when they seek reassurance is to gain *support* rather than to gain information, then altering the partner's response to encourage tolerating distress may be a helpful and adaptive response (e.g., "You've handled uncertainty before, and I know you can do it again"). This form of support provision may have less potential for negative interpersonal consequences than reducing accommodation, based on Coyne's (1976) model. Hence, in comparison to strict accommodation reduction, it may be that receiving support helps individuals feel less negative affect, guilt, and/or anxiety after a threat-inducing situation, though this requires further empirical backing.

One case study to date has described an intervention based on a similar conceptualization of RS. This case study suggests that an intervention involving withholding reassurance but providing support to encourage coping with /tolerating distress was associated with reduced RS, anxiety, and urges to seek reassurance over time (Halldorsson & Salkovskis, 2017a). However, the effects of a support-focused intervention on other negative affect dimensions such as guilt would benefit from further study. Intriguingly, within the brief family accommodation reduction intervention by Thompson-Hollands and colleagues (2015) there was also mention that partners were provided alternative responses to reassurance, which bear resemblance to the conception of support presented here and by Halldorsson and Salkovskis (2017a) such as, "I can see this is really hard for you" or "I just want to support all of your hard work in treatment" (p. 221-222). Thompson-Hollands and colleagues (2015) also report that partners found the intervention to be highly useful, though it was unclear which aspects of the intervention they found most helpful between the accommodation reduction discussion, or discussion of more adaptive alternatives to providing reassurance. Together, the existing literature hints that a support-provision intervention for RS may be an effective alternative to traditional accommodation reduction. Nevertheless, further information about the effects of each intervention is needed for CBT practices to be well-informed and maximally beneficial.

The present research was undertaken based on the identified need for evidence to inform interventions for RS. This study aimed to clarify how response styles within CBT-based accommodation reduction and support-provision interventions each effected RS behaviour and associated affect/perceptions by experimentally manipulating feedback provided by partners in

response to RS. It was hypothesized that participants whose partners provided support to encourage coping with distress would perceive their partner's response as significantly more helpful than would those who received no reassurance via a traditional reducing accommodation response style. It was also hypothesized that relative to those who received a strict accommodation reduction-focused response, participants who received a support-focused response would seek reassurance fewer times overall, and would report lower negative affect, urges to seek reassurance, anxiety, and feelings of guilt.

Method

This study was reviewed by and received ethical clearance from the University Human Research Ethics Committee (certificate #30006114). All participants were treated in accordance with standards of ethical conduct for research involving human participants.

Participants

An initial sample of $N = 143$ undergraduate participants were recruited via a participant pool, classroom announcements, and posters. Eligibility requirements included being able to bring a familiar partner to the study (e.g., romantic partner, friend; see also Neal & Radomsky, 2015), as well as the ability to read, write, and communicate fluently in English. The sample was unselected, such that participants were not required to meet criteria for any mental disorder to be able to participate, nor were participants screened out if they had a current diagnosis or were receiving treatment. Exclusion criteria for this study included lack of English proficiency, inability to bring a partner to the study, and not following task protocol (see also Procedure below). Thirteen participants' data were excluded due to lack of English fluency ($n = 4$), protocol deviations (e.g., not leaving the kitchen after the stove task, participant/partner not following instructions for the RS task; $n = 7$), or self-discontinuing the study (i.e., due to not wanting to complete stove task; $n = 2$), which resulted in a sample size of 130 participants ($M_{age} = 22.27$ ($SD = 4.43$), 86.90% female; 62.10% Caucasian; 57.60% English primary language). Partners had a mean age of 22.32 ($SD = 4.71$) years and 67.00% were female. To allow examination of the effects of feedback type on RS behaviour and affect, only participants who sought feedback from their partner were included in the analyses, resulting in a final sample size of 102 participants ($n = 51$ per condition; $M_{age} = 22.09$ ($SD = 4.19$) years, 88.20% female; 60.80% Caucasian; 57.80% English primary language).

Measures

Demographics. Participants and partners were asked to provide information including age, sex, primary language, and ethnicity.

Rating of supportiveness. This single-item question was completed as a manipulation check, and asked participants to rate from 0 (indicating "Not at all") to 100 (indicating "Completely") how supportive they found their partner's feedback.

Rating of helpfulness. This single-item question asked participants to rate from 0 ("Not at all") to 100 ("Completely") how helpful they found the partner's feedback.

Total RS behaviour. The overall number of times participants sought reassurance from their partner was used as a behavioural outcome (see Procedures below).

Positive and Negative Affect Schedule (PANAS) – Moment version (Watson, Clark, & Tellegen, 1988). The PANAS is a 20-item measure assessing present moment positive affect and negative affect, with subscales for each consisting of 10 items each that are rated on a five point, Likert-type scale, and with total scores on each subscale ranging from 10 to 50. The PANAS previously demonstrated good internal consistency (α's = .85 – .89) and retest reliability (r's = .79 – .81; Watson et al., 1988). In the present study, only the Negative Affect subscale was employed, and had good internal consistency (α = .85).

Visual analogue scale (VAS) Ratings. A series of single-item measures was designed for this study to assess participants' *in vivo* feelings about aspects of the task. Participants were asked to respond by moving an electronic slider along a continuum from 0 ("Not at all") to 100 ("Completely") to items assessing urges to seek reassurance, feelings of anxiety, and guilt.

Credibility check. A three-part rating was constructed for the purposes of this study to assess participants' perceptions of the credibility/believability of the extent to which harm could occur if stove task instructions were not followed correctly; the extent to which they felt doubt, uncertainty, or anxiety after the stove task; and the extend to which participants felt that completing the stove task accurately was critical/important (see Procedure below). Each item was rated from 0 ("Not at all") to 100 ("Completely").

Procedure

Participants and partners were (falsely) instructed that the study's purpose was to examine how anxiety affects decision-making about kitchen tasks. They were informed that they would be completing a task with a working stove while being observed by their partner through a

one-way mirror, and would be asked to answer questionnaires. Following the provision of consent, participants were taken to a separate room from their partner to begin.

The stove task in this study was adapted with permission from Bucarelli and Purdon (2016). The experimenter provided participants with verbal and written instructions, which specified that participants should turn on a specific stove burner, place a pre-filled kettle on the burner, and wait for the water to boil; after the kettle whistled to indicate boiling, participants were to remove the kettle, turn off the burner, place a pot with dry rice on the same burner that they had just turned off, and then leave the kitchen to find the experimenter, closing the kitchen door behind them. The experimenter emphasized that the rice *should not burn* if the participants followed the instructions correctly, that it was the participant's responsibility to ensure that the kitchen was safe, and that they should be careful. Participants were then taken into the laboratory kitchen and completed the stove task while their partner observed.

While participants were completing the stove task, the experimenter randomly assigned the participant to one of two experimental conditions for an upcoming RS task: support-focused feedback (SF) or accommodation reduction-focused feedback (ARF) – see below. Once participants left the kitchen, the experimenter escorted them and their partners to a different building to remove any possibility that the participants could covertly check/gain knowledge of the stove/kitchen's safety. Upon arrival at the second location, the experimenter reinforced the importance of the participant being sure that the kitchen was safe, and then separated the participant and partner into different rooms.

Unbeknownst to participants, the experimenter informed the partner of the true study purpose to examine how feedback styles influence RS behaviour and related affect. The partner was told that the participant would be asked to complete a computer-guided task to decide whether the kitchen was safe, and would be able to ask for reassurance to make that decision. The experimenter described the condition to which the participant had been assigned, and provided the partner with verbal and written instructions for their responses.

Partners in the ARF condition were instructed that if the participant asked for feedback, the partners' job would be <u>not</u> to provide it, and instead, to say the phrase, "I've been instructed not to answer that question". These partners were instructed to not say anything other than this phrase, to keep a neutral facial expression, and to not change their body language in response to requests for feedback. Partners who were assigned to the SF condition were instructed to respond

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to requests by giving *support* to encourage coping/tolerance of distress rather than *information* about the task. Support condition partners were provided with several examples that they could choose from or modify such that the statement would be perceived as genuine ("I can tell you're feeling anxious but you can still do this"; "You have the skills to figure this out"; "You've handled uncertain situations in the past so you can do it again"; "I know you can manage this situation").

Following the condition-specific instructions, the partner was brought to the participant and seated beside them. Participants were instructed that their task was to decide whether the kitchen was safe and that they could seek feedback from their partner to make the decision; if so, the partner would provide one piece of information, and that if they sought feedback again, they may or may not receive a different piece of information. Participants were encouraged to seek as much feedback as would be helpful to them to make the decision. The experimenter remained seated in the corner to ensure that only on-task conversation occurred.

Participants guided themselves through the computer task at their own pace. A prompt appeared on the computer asking participants to think back to the stove task that they had just completed, and to consider if they had completed everything safely. They were shown an instruction that they must decide whether or not the stove was safe. They were shown an instruction that if they wished, they may be able to receive feedback from their partner to help with their decision. They were asked to indicate whether or not they would like to seek feedback from their partner by selecting either 'yes' or 'no'. If participants selected 'yes', they then turned to their partners to ask one question, and were provided with one (condition-appropriate) response; they were then presented with another opportunity to seek feedback from their partner, to which they could decide yes or no, and so forth until the participant indicated that they would not like feedback. After a response of 'no' to the prompt of whether they would like feedback, participants were presented with the VAS ratings and ratings of supportiveness and helpfulness to complete.

Once the task was finished, participants and partners individually completed the PANAS and credibility ratings. Finally, participants and partners were debriefed, and were asked to complete a second (debriefing) consent form.

Results

Data Screening

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Data were screened for missing and impossible values; five participants had missing data for the credibility checks as they were approved for addition to the protocol by the ethical review board just following the commencement of the study. The variables of interest were assessed for normality by inspecting the data for skewness values surpassing ± 3 and kurtosis values surpassing ± 10 (Kline, 2009). There were no skewness or kurtosis values that exceeded the guidelines for any of the outcome variables of interest; inspection of P-P plots also suggested that the data were approximately normally distributed. Levene's test was used to assess homogeneity of variance.

Demographics. To assess whether randomization resulted in similar distributions of participants, the conditions were compared on demographic variables. There were no significant differences between conditions with respect to age (χ^2 (11) = 8.745, p = .645), sex (χ^2 (1) = .102, p = .750), language (χ^2 (11) = 8.154, p = .699), or ethnicity (χ^2 (9) = 11.057, p = .272).

Manipulation check. As a manipulation check of how the partners' feedback was perceived, an independent samples t-test was conducted with condition as the between-participants variable and with the rating of supportiveness as the outcome variable. Results showed a significant difference between conditions (t (93.283) = 5.684, p < .001, d = 1.13), with participants in the SF condition giving higher ratings of supportiveness for the partner's feedback than did those in the ARF condition (please refer to Figure 2). Thus, the manipulation was considered successful.

Credibility check. Overall, participants felt that harm was moderately likely if the stove task instructions were not followed properly (M = 56.00, SD = 30.30); experienced some feelings of doubt, uncertainty, or anxiety after the stove task (M = 42.45, SD = 31.45), and indicated that completing the stove task accurately was important/critical (M = 75.70, SD = 27.00). No participants provided ratings of 0 to all three credibility checks. There were no significant differences between conditions for any of the three items (t's (95) = 0.442 – 1.246, p's = .216 – .660, d's = 0.09 – .25).

Ratings of Feedback Helpfulness

It was hypothesized that following the final request for reassurance, participants in the SF condition would rate their partner's feedback as significantly more helpful than participants in the ARF condition. Levene's test was significant (F (1, 100) = 146.89, p < .001). Results suggested a significant difference between conditions with a large effect size, such that

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participants in the support condition rated the partner's feedback as significantly more helpful than did those in the no reassurance condition, $t(56.143) = 6.143$, $p < .001$, $d = 1.22$. Please see Figure 3 for means.

Total Requests for Reassurance

It was expected that participants who received SF would seek reassurance fewer times overall than those who received ARF. Levene's test was not significant ($F(1, 100) = 2.016$, $p = .159$). Results showed a trend towards a statistical difference with small-to-moderate effect size, such that those who received SF asked for reassurance somewhat less than those who received ARF ($t(100) = -1.667$, $p = .099$, $d = 0.33$; please see Figure 4). Examination of the frequencies of RS in each condition showed that in the SF condition, 62.7% of participants sought reassurance once, 27.5% of participants sought reassurance twice, 7.8% of participants sought reassurance three times, and 2.0% of participants sought reassurance four times, with no participants seeking reassurance more than four times. In the ARF condition, 49.0% of participants sought reassurance once, 35.3% of participants sought reassurance twice, 7.8% of participants sought reassurance three times, 3.9% of participants sought reassurance four times, and 3.9% of participants sought reassurance five times.

PANAS Negative Affect

It was hypothesized that receiving SF versus ARF would be associated with lower ratings of negative affect as rated on the PANAS (Watson et al., 1988). Levene's test was not significant ($F(1, 97) = 0.333$, $p = .565$). The results showed no significant difference between conditions on ratings of negative affect ($t(97) = 0.897$, $p = .372$, $d = 0.180$). Please see Table 6 for means. Similarly, the results showed no significant difference between conditions for partners' ratings of negative affect ($t(93) = -0.312$, $p = .756$, $d = -0.065$; $M_{\text{SRF Partners}} = 24.57$ ($SD = 7.62$), $M_{\text{ARF Partners}} = 25.13$ ($SD = 9.48$)).

VAS Ratings

In comparison with participants in the ARF condition, it was expected that participants receiving SF would report significantly lower urges to seek further reassurance, anxiety, and guilt. Levene's test was not significant (F's $(1, 100) = 0.004 - 2.149$, p's $= .146 - .947$). Results showed that there were no significant differences for each of the three comparisons (t's $(100) = 0.284 - 1.068$, p's $= .288 - .777$, d's $= 0.056 - 0.211$). Please see Table 6 for means.

Discussion

Reassurance seeking is a problematic behaviour that is increasingly recognized as a maintaining factor in mental disorders including OCD (e.g., Starcevic et al., 2012). However, there has been a lack of clarity regarding how to operationalize interventions to remove accommodation of RS in OCD. Cognitive-behavioural interventions focused on support provision and reducing accommodation have been suggested to be effective (e.g., Abramowitz, 2009; Gillihan et al., 2012; Halldorsson & Salkovskis, 2017a, b; Thompson-Hollands et al., 2015), yet there has been insufficient research examining the effects of each. The aim of the current study was therefore to provide a first step towards understanding how guiding partners to respond to RS with SF versus ARF affected ratings of helpfulness of the partner's feedback, total requests for reassurance, urges to seek reassurance, anxiety, guilt, and negative affect.

An important preliminary step in this study was to establish that partners' responses to RS could be manipulated within an experimental setting after only a brief training period. Results of the manipulation check showed a significant difference between conditions, indicating that those in the SF condition rated their partner's feedback as more supportive than did those who received ARF. As the first experimental manipulation of *in-vivo* partner feedback to RS (to the best of our knowledge) and one of only several experimental studies to evoke behavioural RS (see Leonhart & Radomsky, in press; Neal & Radomsky, 2015), this is a valuable advancement in studying broader aspects of interpersonal RS that are relevant to intervention decisions.

A key intention of this study was to examine whether providing SF versus ARF would be associated with higher ratings of the *helpfulness* of the partner's feedback. Examples of questions posed to partners in this study included, "Did you see me turn if off?" and "Do you think it's safe?". As described above and in Figure 3, the results from this study strongly supported this hypothesis by showing that SF was associated with significantly higher ratings of helpfulness than was ARF. The fundamental difference in feedback styles between the SF and ARF conditions related to the explicit verbalization of support from the partner, which suggests that refusing reassurance in a way that better maintains the affiliation between the reassurance seeker and provider may be viewed as a more acceptable intervention. To that point, a recent vignette study examining perceptions of acceptability and endorsement similarly found that participants and partners rated a support-focused intervention for problematic RS as significantly more acceptable/endorsable than standard accommodation reduction, and were more likely to select it as the intervention they would prefer to receive (Neal & Radomsky, under review). Additionally,

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the findings from the current study showing that SF is perceived as more helpful than ARF provide a valuable complement the case study report by Halldorsson and Salkovskis (2017a) showing that adaptive support was an effective intervention technique to reduce problematic RS in an individual with OCD. Moreover, the difference in perceived helpfulness between SF and ARF suggests that Coyne's (1976) theory of how problematic RS can cause/exacerbate interpersonal difficulties warrants consideration when constructing interventions for RS across disorders, to make interventions more tolerable to those who would benefit from them.

A second primary intention of this study was to determine whether providing SF or ARF leads to different effects on RS behaviour. Results were partially in line with the hypothesis as the condition difference showed a trend with small-to-moderate effect size toward those in the SF showing fewer requests for reassurance than those in the ARF. This is a substantive finding when considering that neither feedback style provided reassurance to the participant by answering the specific questions they posed, and that both were therefore in line with the CBT principle that removing accommodation is imperative to reduce the likelihood that RS will maintain a disorder over time. Accordingly, these findings suggest that guiding partners to provide support may confer some unique potential to lead to fewer instances of RS behaviour than does a traditional reducing accommodation response. At minimum, these results could alternatively be interpreted as suggesting that SF is associated with equivalent, or no *worse* outcomes regarding requests for reassurance than is providing ARF. Considering the small-to-moderate effect sizes yet lack of statistical significance, the effects on RS behaviour warrant further examination in independent samples to better understand the implications of each style of intervention.

On the other hand, the findings did not uphold the initial hypotheses that in comparison with ARF, SF would be associated with significantly lower urges to seek reassurance, negative affect, anxiety, and guilt. In fact, after further considering theories of cognitive and behavioural change (e.g., Abramowitz, 2009; Craske et al., 2008; Freeston, Léger, & Ladouceur, 2001; Rachman, 1997, 1998, 2002; Rachman, Radomsky, & Shafran, 2008; Salkovskis, 1985; 1999; van Oppen & Arntz, 1994), it may be *beneficial* that there were no significant differences between conditions on these variables, in that they represent important core intervention targets during CBT. Given that reducing negative affect (at least temporarily) is a maintaining factor in problematic RS (e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010), the finding here

that support provision did not reduce urges to seek reassurance or ratings of negative affect actually reinforces the notion that it functions differently than merely providing reassurance, more so than had the original hypothesis been upheld (see also Halldorsson & Salkovskis, 2017a, b). Importantly however, the current sample was non-clinical and non-treatment seeking. While studies with nonclinical populations make significant contributions to the understanding of phenomenology in OCD (e.g., Abramowitz et al., 2014; Clark & Rhyno, 2005; Gibbs, 1996), it would be important to extend the current findings in a clinical sample to further understand whether RS-related perceptions and affect show the same pattern for clients/patients who engage in problematic RS. For instance, it would be important to employ clinical samples to answer questions concerning whether support provision functions equivalently as an adaptive response for all form of compulsions, or whether certain forms of RS (e.g., related to one's character or morality) are associated with different reactions to support provision. Furthermore, longitudinal studies with clinical samples of individuals who engage in problematic RS would provide pertinent information about how support provision functions over time to extend the current cross-sectional design, and would further complement the existing case study data from Halldorsson and Salkovskis (2017a).

While the present study was primarily focused on the participants' behaviour and perceptions, subjective feedback from partners following the RS task implied that partners in both conditions experienced some discomfort with responding in a circumscribed way. However, partners in the ARF condition seemed more likely to report that they found their role difficult or awkward. These anecdotal reports must be interpreted with due caution, but are in line with research into effects for caregivers of withholding reassurance (Halldorsson et al., 2016; Kobori et al., 2017) and suggest that support provision may be more acceptable to partners than traditional accommodation reduction. Nevertheless, the acceptability of both feedback styles would benefit from further research.

In assessing the results of the current study, it is noteworthy that the participants were not natural excessive reassurance seekers, and were accompanied by familiar partners who could not be identified as common sources of reassurance ahead of the study. Favourably, partners were trained carefully and there was a significant difference in perceived supportiveness. Nevertheless, the degree to which responses were perceived as genuinely supportive may have been negatively impacted versus if the participant were able to bring someone from whom they

regularly seek reassurance; this has potential to have dampened effects particularly in the SF condition. Additionally, the questions posed by participants to partners during the RS task were not coded by blind raters for the presence of RS versus other verbalizations, including support seeking. While the experimenters were trained to note any issues that could have led to data being excluded (e.g., not following task instructions), this is a limitation of the present study that could be useful to address with future research to add confidence that the protocol elicited true RS behaviour. It may also be that the experiences of threat related to the stove task were perceived as qualitatively different from personally-relevant situations for participants, despite being designed to represent an ecologically-valid situation and having been used previously by Bucarelli and Purdon (2016). While some loss of ecological validity is unavoidable with laboratory experiments, all participants' whose data were retained after initial screening provided ratings indicating that they experienced the protocol as credible to some degree. Still, a useful next step would be to examine a similar manipulation of feedback styles using a daily diary method with participants who engage in problematic RS. Doing so would further establish that support provision is associated with at least equivalent effects on reduced RS than is standard accommodation reduction.

The current findings have implications for theories of why individuals may seek reassurance excessively that have been put forth by Parrish and Radomsky (2010), Halldorsson and Salkovskis (2017a, b), and Rachman (2012). Specifically, the present results suggest that the style/content of feedback provided by the partner may influence subsequent perceptions of the interaction as well as RS behaviour. The significant effect for perceptions of helpfulness and trend towards reduced RS behaviour following SF together suggest that support provision may be a viable alternative to traditional accommodation reduction, within an overall framework of using CBT to reduce problematic RS. The notion of altering the partner's response to be perceived as less harsh also shares similarities with the judicious use of approach-facilitating physical or mental aids in ERP that has been suggested for other forms of compulsive behaviour (e.g., Levy & Radomsky, 2014; Levy, Senn, & Radomsky, 2014; Rachman et al., 2008; Senn & Radomsky, 2016). Indeed, the focus on finding the optimal means to reduce/remove reassurance bears resemblance to recent examinations of how best to fade physical safety behaviour/aids during exposure, which has been a source of controversy within the literature (Levy & Radomsky, 2016). Further, the SF (versus ARF) response style appears to coincide with

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recommendations previously put forth by Parrish and colleagues (2008) that strategies aimed to lessen distress during exposures may not be counter-productive if they boost self-efficacy, foster approach behaviour to encourage disconfirmatory learning, and do not encourage misattributions of safety. Of course, this assertion would require further study. It would be particularly intriguing for future studies to examine whether support provision functions as theorized to help individuals address a key cognitive bias, namely perceptions concerning their ability to cope with the distress or anxiety that they are experiencing as intolerable, by encouraging them to shift their attention towards coping resources that they possess. Further, based on the previously-noted anecdotal reports from partners that they were more comfortable with the SF than the ARF, it would be beneficial for future studies to examine whether a support provision intervention is associated with fewer negative interpersonal consequences than may be traditionally associated with reducing accommodation (Coyne, 1976; Francis, 1988; Hallam, 1974; Marinchak, 2013).

Together, the present experimental findings inform clinical practice and further research into RS behaviour by suggesting that clinicians have options beyond using conventional accommodation reduction. By designing an intervention focused on shifting towards adaptive support seeking and provision from a trusted other (see also Halldorsson & Salkovskis, 2017a), clinicians may be able to ameliorate maladaptive appraisals of threat and coping. Ultimately, by better understanding problematic RS and how support provision functions to address interpersonal processes that can otherwise maintain the problem, clinicians open another means to intervene against RS that may be effective, acceptable, perceived as helpful, and does not interfere with the type of disconfirmatory learning that facilitates long-term recovery.

Table 6

Mean affect-related ratings by condition

| Measure	ARF	SF
PANAS Negative Affect	20.02 (6.54)	21.24 (6.99)
Urges to seek reassurance	27.39 (29.46)	33.98 (32.77)
Anxiety	34.75 (27.96)	37.31 (31.60)
Guilt	9.93 (16.18)	11.19 (15.31)

Note. ARF = Accommodation reduction-focused feedback. SF = support-focused feedback. PANAS = Positive and Negative Affect Schedule. Data are presented with standard deviations in parentheses. There were no statistically significant differences between conditions on any of the four affect-related ratings (p's = .288 – .777).
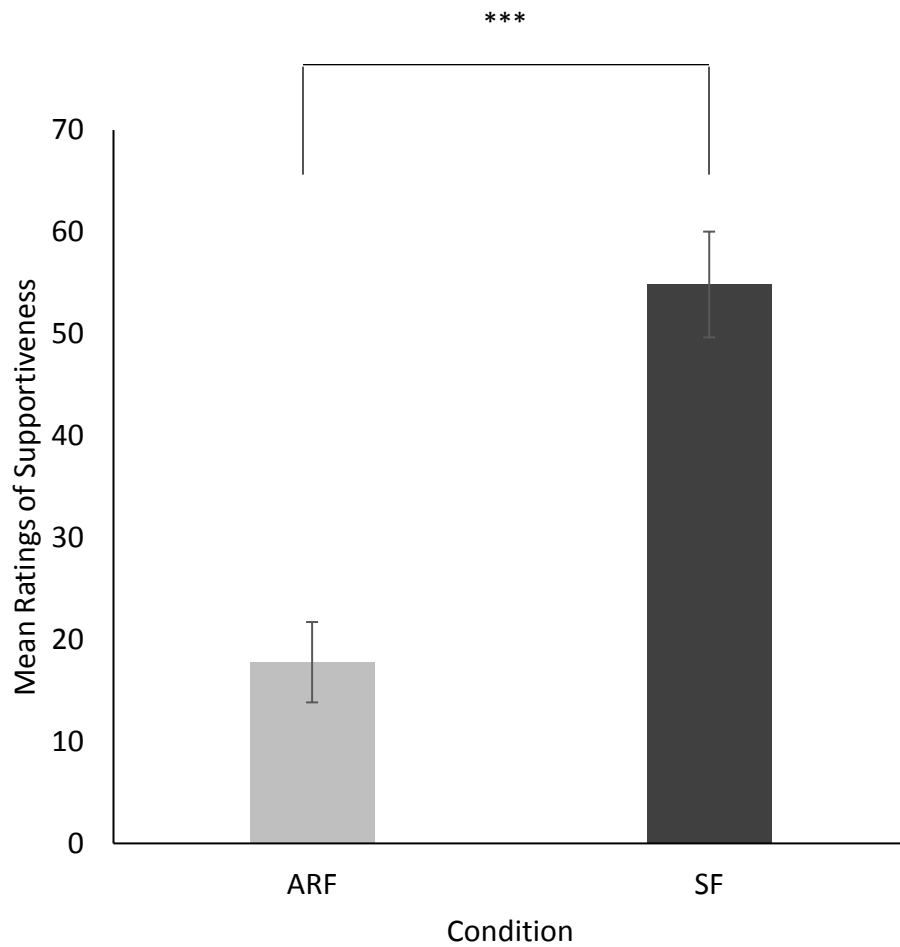
Figure 2. Mean ratings of the perceived supportiveness of the partner's feedback, by condition.

Note. ARF = Accommodation reduction-focused feedback. SF = Support-focused feedback. Data are shown with standard error bars.
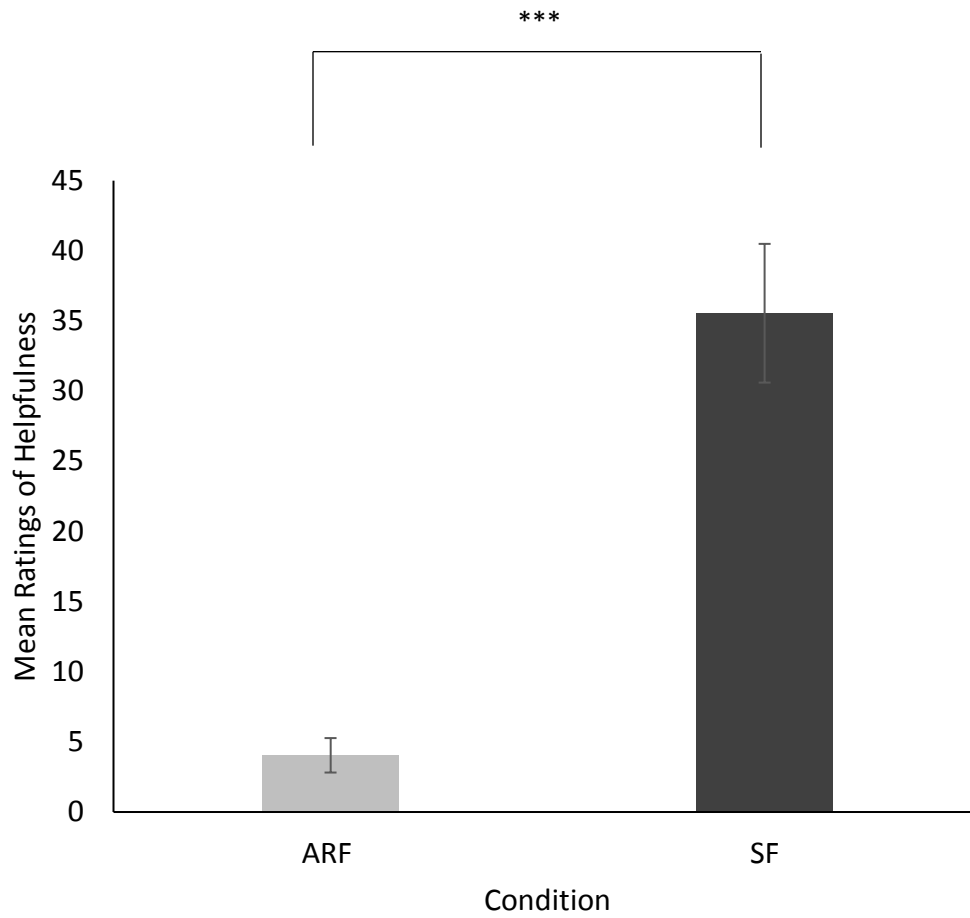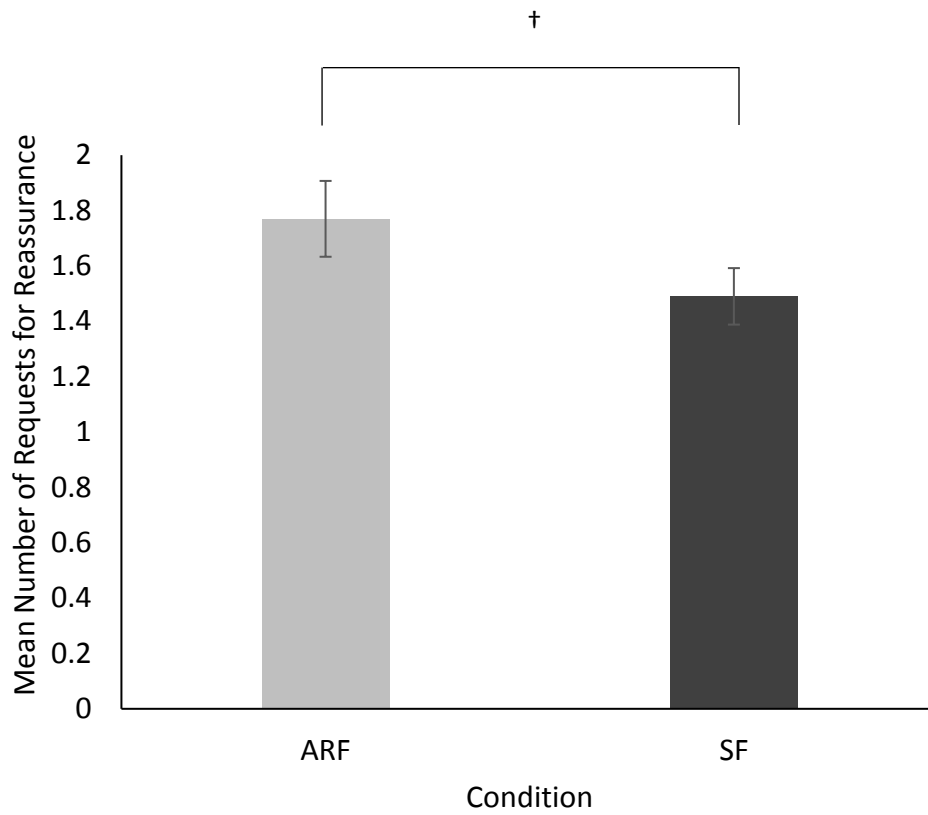
*** indicates *p* < .001.

Figure 3. Ratings of the perceived helpfulness of the partner's feedback.

Note. ARF = Accommodation reduction-focused feedback. SF = Support-focused feedback. Data are shown with standard error bars.

*** indicates *p* < .001.

Figure 4. Total requests for reassurance, by condition.

Note. ARF = Accommodation reduction-focused feedback. SF = Support-focused feedback. Data are shown with standard error bars.

† indicates $p < .10$.

CHAPTER 5

Bridge

As clinical practices evolve, clinicians and researchers are increasingly focused on ensuring that treatment options are acceptable as well as effective (e.g., Levy & Radomsky, 2014, 2016; Levy et al., 2014; Milosevic et al., 2015; Tarrier et al., 2006). The findings from Study 2 suggested that within a general CBT format, partner feedback in response to RS that was based on a support provision framework was rated as significantly more helpful than was feedback based on a strict reducing accommodation approach. Additionally, support provision also showed a trend towards being associated with fewer overall requests for reassurance in comparison with feedback based on the traditional, ERP-style of reducing accommodation. Importantly, the results of Study 2 also highlighted that support provision did not remove feelings of anxiety, guilt, or urges to seek reassurance, which suggests that it functions differently from merely providing reassurance.

With an eye towards the goal of helping individuals improve their RS behaviour through therapy, a next step is to assess what type(s) of treatment individuals are most interested in receiving. Cognitive behavioural therapy is an effective intervention for OCD, but effectiveness is only one piece of determining whether an intervention is *helpful*; the intervention also has to be acceptable, such that those for whom the treatment is designed are willing to begin and complete the intervention to receive its benefits without undue negative consequences. Treatment acceptability is a major component of whether individuals would complete treatment and therefore have the opportunity to reap its benefits (e.g., Milosevic et al., 2015). Further, given the interpersonal nature of RS and recent suggestions to involve significant others to maximize treatment gains, perceptions of acceptability from the seeker and provider are both highly relevant to treatment outcomes for RS. Indeed, RS differs from other types of compulsive behaviour in that the seeker and provider are both implicated in the maintenance of the behaviour; consequently, this suggests that the intervention must be acceptable to the partner as well, so that they are willing to participate in and maintain the demands of the intervention over time to facilitate their significant other's recovery.

To date, in those studies that have presented clinical outcomes regarding RS behaviour, there is a paucity of evidence regarding treatment preferences and acceptability. In fact, the limited evidence available suggests that the form of CBT that has been used for RS has limited

acceptability (e.g., Hallam, 1974; Marinchak, 2013; see also Halldorsson & Salkovskis, 2017a, b; Halldorsson et al., 2016), suggesting that further research in this area is warranted. Study 3 therefore presents an examination of treatment preferences and acceptability ratings within individuals and their familiar partners. Specifically, this study contrasted perceptions of a traditional reducing accommodation style and a novel support provision style of CBT intervention meant to reduce problematic RS, respectively, using a vignette-based design.

CHAPTER 6

What do you need? Self- and partner-reported intervention preferences within cognitive-behavioural therapy for reassurance seeking behaviour

When a person feels anxious or uncertain, a common response is to seek reassurance from another person. For some, though, reassurance seeking (RS) becomes problematic, such as by interfering with functioning (e.g., not making decisions at work before receiving reassurance) or interpersonal relationships (e.g., causing relationship strain; e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010; Rector, Kamkar, Cassin, Ayearst, & Laposa, 2011). Problematic RS is defined as repetitively asking for safety-related information about a perceived threat, despite having received the information before (Parrish & Radomsky, 2010). Problematic RS is evidenced in obsessive-compulsive disorder (OCD), where it shares features with checking (e.g., Parrish & Radomsky, 2010; Rachman, 2002), as well as in other disorders including depression (e.g., Coyne, 1976), generalized anxiety (e.g., Beesdo-Baum et al., 2012), social anxiety (Heerey & Kring, 2007), and illness anxiety/hypochondriasis (e.g., Salkovskis & Warwick, 1986). Theories across different problem domains suggest that RS contributes to the maintenance of disorders by preventing corrective learning, and therefore warrants attention in treatment (e.g., Coyne, 1976; Rachman, 2002; Salkovskis, 1985).

In the context of OCD, RS is common – over 40% of clinical participants report engaging in it (Starcevic et al., 2012). Despite its prevalence, only a small number of single-case reports have described clinical responses to interventions for RS in OCD (Hallam, 1974; Halldorsson & Salkovskis, 2017a; Marinchak, 2013). Additionally, since RS is an interpersonal behaviour, researchers and clinicians increasingly suggest that reassurance *providers* be involved in treatment, as it may improve outcomes by targeting another maintaining factor, namely, the partner's response (e.g., Abramowitz, 2009; Gillihan, Williams, Malcoun, Yadin, & Foa, 2012). However, the lack of extant research creates practical difficulties for clinicians when deciding how to guide significant others to respond to RS.

Within the literature on RS in OCD, the intervention most often suggested, and which was described in case examples (Hallam, 1974; Marinchak, 2013), is based on extinction of RS behaviour by removing the reinforcement provided by others' accommodation. This is a form of a cognitive behavioural therapy (CBT) called Exposure and Response Prevention (ERP)" that focuses on having a client/patient confront feared stimuli while refraining from engaging in

compulsive behaviour, with suggestions that the mechanism of change is decreased reactivity over time (i.e., habituation; e.g., Foa & Kozak, 1986), or inhibitory learning, whereby information that a patient learns interferes with their ability to retrieve previously-established, fear-associated responses (e.g., Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014). Using either framework, *reducing accommodation* is a central goal when ERP is applied to the context of RS, and partners are consequently guided to not answer requests for reassurance (e.g., Abramowitz, 2009; Abramowitz et al., 2013; Osborne & Williams, 2013).

In practice, recommendations for how to use an accommodation reduction approach vary, but generally suggest that partners ignore requests for reassurance or provide a neutral, non-reassuring response (e.g., "I've been instructed to not provide reassurance"; Abramowitz, 2009; Clark, 2004; see also Abramowitz et al., 2013; and Thompson-Hollands, Abramovitch, Tompson, & Barlow, 2015, for preliminary studies of using accommodation reduction for OCD more broadly). Unfortunately, specific procedures and effects related to using accommodation reducing for RS are unclear, which corresponds strongly to the lack of controlled studies examining how the intervention effects this uniquely interpersonal compulsion. The intervention *appears* effective, as the case studies noted that removing accommodation resulted in decreased RS (Hallam, 1974; Marinchak, 2013). Yet, in addition to providing information about the positive effects, these case studies provide valuable insights into patients' (and others') reactions to the intervention, which appear to be mixed.

Although there is preliminary evidence that reducing accommodation may be effective in decreasing RS behaviour, the case studies by Hallam (1974) and Marinchak (2013) noted negative reactions by reassurance seekers that may pose an obstacle to positive outcomes, including desire to end treatment, heightened anger, and self-harming behaviour. Additionally, the case studies did not provide structured evidence of patients' or others' perceptions of the treatment, which could have implications for adherence to/acceptance of the intervention. Indeed, anecdotal reports and qualitative studies with significant others suggest that it can be difficult for them to adhere to reducing accommodation, as they often find it distressing not to provide reassurance, and/or feel that not providing reassurance increases the other person's anxiety too much to be feasible as a long-term strategy (e.g., Halldorsson, Salkovskis, Kobori, & Pagdin, 2016). In practice, it is critical to ensure that effective treatments are also acceptable to patients, such that those who could benefit are willing to seek and complete them (e.g., Levy &

Radomsky, 2014, 2016; Milosevic & Radomsky, 2013; Rachman, Radomsky, & Shafran, 2008).

Thus, while reducing accommodation may be effective in decreasing RS behaviour, there is a paucity of research overall examining its use, and suggestions that it may not be entirely acceptable to clients/patients. Accordingly, it would be relevant to establish whether reducing accommodation to RS is the best CBT-based approach, or whether there may be a similar, yet more acceptable approach.

In considering whether there may be a more acceptable alternative to traditional reducing accommodation, it is pertinent to consider the function of RS behaviour. When individuals with clinical disorders seek reassurance, part of what renders the behaviour problematic is that information is sought repetitively, despite having received an answer previously (Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010; Rector et al., 2011). If individuals are seeking reassurance in a repetitive/ritualistic fashion, then it can logically be assumed that the individual already has the information that they appear to be seeking, in the same way that a person who engages in repetitive checking behaviour already has information about that which they are checking because they checked it previously (see also Rachman, 2002, 2012). As such, it is theorized that individuals are searching for something other than information when they seek reassurance, such as *support* to help them cope with distress. That is, when individuals experience heightened perceptions of threat and/or responsibility for preventing harm (e.g., Salkovskis, 1999), a function of the RS may be to elicit social support to help them tolerate the anxiety/distress evoked by those perceptions. If difficulty tolerating distress is a primary mechanism underlying the maintenance of problematic RS, then encouraging the person to tolerate distress by providing targeted social support without providing the requested reassurance may be a helpful response style. This proposed function of eliciting support to promote distress tolerance merits consideration with regards to intervention procedures, as support aimed specifically at encouraging coping with/tolerance of negative affect is distinguishable from more general supportive responding meant to 'rescue' the reassurance seeker from the experience of distressing cognitions or emotions (e.g., Halldorsson & Salkovskis, 2017a). Guiding partners to provide support to encourage distress/anxiety tolerance is theorized to not interfere with disconfirmatory learning as neutralizing reassurance would, but instead, to facilitate positive engagement with anxiety-provoking situations by encouraging the person to use coping skills, and/or to stay in a situation despite perceiving threat (Halldorsson & Salkovskis, 2017a, 2017b;

Rachman, 2012). Accordingly, providing support is conceptualized as functionally distinct from reassurance (see also Halldorsson & Salkovskis, 2017a). To date, one case study examined a treatment based on this notion that individuals may be helped by receiving support to cope with distress/anxiety when they have difficulties with RS; results suggested that RS was markedly reduced and that the patient was positively engaged with therapy (Halldorsson & Salkovskis, 2017a). However, the authors did not present findings specific to treatment acceptability.

In contrast with the behavioural focus of traditional ERP-based approaches, a support-provision approach is based in cognitive theories of why obsessions and compulsions persist, and suggests that addressing misappraisals of threat/ability to cope with threat will lead to symptom reduction over time (e.g., Clark, 2004; Rachman, 1997, 2002; Salkovskis, 1985). Hence, if a partner's responses to requests for reassurance do not provide information that the person is requesting, but instead support the person in coping with/tolerating distress, then it may in turn encourage treatment-facilitating approach behaviour/reduce avoidance behaviour. In this way, providing support shares similarities with the judicious use of approach-facilitating aids that is associated with higher acceptability of ERP for other forms of compulsive behaviour (e.g., Levy & Radomsky, 2014, 2016; Milosevic & Radomsky, 2013; Parrish, Radomsky, & Dugas, 2008; Rachman, 2012; Senn & Radomsky, 2015; Sighvatsson & Salkovskis, 2013). Still, the lack of evidence for each intervention leaves it unclear how to guide partners' involvement in CBT for RS, such that the intervention is perceived as effective and acceptable by both the reassurance seeker and provider.

The aim of this study was to inform CBT intervention recommendations for RS by examining the perceived endorsement and acceptability of interventions based on either reducing accommodation or providing support, as reported by individuals and a familiar partner. Specifically, this study examined which of the interventions was perceived as more acceptable/adherable and was endorsed more by individuals and partners, and which of the interventions they would prefer if given the choice.

It was expected that participants and partners would rate a support-provision intervention as more acceptable/adherable and that it would receive higher ratings of endorsement in comparison with an accommodation reduction intervention. Further, it was hypothesized that participants and partners would prefer the support intervention over the accommodation reduction intervention when presented with the choice.

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Method

This study employed a vignette design to assess participants' and familiar partners' perceptions, respectively, of two styles of CBT intervention for RS. Vignette designs allow valuable insight into respondents' perceptions, and have been used to ascertain intervention preferences including for OCD (e.g., Milosevic & Radomsky, 2013), trichotillomania (Elliott & Fuqua, 2002), depression (Caporino & Karver, 2012), health anxiety (Soucy & Hadjistavropolous, 2017), and parents' of children with autism spectrum disorder (Evans & Jastrowski Mano, 2016). This study was reviewed and approved by the University Human Research Ethics committee (certificate #30006114).

Participants

Undergraduate participants ($N = 179$ $M_{age} = 21.93$ ($SD = 4.07$) years; 87.70% female; 62.60% Caucasian) were recruited via a university participant pool, classroom announcements, and flyers. Participants were required to bring a familiar partner with them to the study (e.g., friend, family, romantic partner), as research suggests that familiarity influences perceptions of RS behaviour (Neal & Radomsky, 2015). Partners had an average age of 22.32 ($SD = 5.16$) years, and the majority identified as female (68.20%) and Caucasian (58.10%). All participants and partners were required to be able to read, write, and communicate fluently in English. All respondents were offered the choice of class credits or ballots into a cash draw.

Counterbalancing of the order of the intervention descriptions was not possible due to the nesting of the procedures within a broader design. Consequently, after an initial group of participants completed the study responding to the support-provision description first ($n = 132$; see also Procedure), data was collected from a secondary group of participants who responded to the accommodation reduction description first ($n = 47$).

Measures

Demographics. Participants and partners were asked to provide their age, gender, ethnicity, and language.

Treatment Acceptability and Adherence Scale (TAAS; Milosevic, Levy, Alcolado, & Radomsky, 2015). The TAAS is a 10-item, self-report measure of the extent to which individuals feel that an intervention is acceptable and that they could adhere to its requirements, as well as reverse-scored items assessing the likelihood that they would drop out of the intervention and how much distress it would evoke. Items are rated on a seven-point, Likert-type

scale with possible total scores ranging from 10 to 70, where higher overall scores indicate greater acceptability/adherability. The TAAS demonstrated good internal consistency in previous samples (α's = .87 – .88; Milosevic et al., 2015) and in the current study (α's = .814 – .880).

Endorsement and Discomfort Scales (EDS; Tarrier, Liversidge, & Gregg, 2006). The EDS is a self-report assessment of how an intervention is perceived, consisting of 10 scales: nine of positive endorsement (Acceptability; Suitability; Tolerability; Expectation of benefit; Credibility; Efficacy; Appropriateness; Reasonableness; Justifiability); and one assessing Discomfort provoked by the intervention. Items are rated on a nine-point, Likert-type scale. A total was obtained by reverse-scoring the Discomfort item and then summing the scores, with possible total scores ranging from 10 to 90, and with higher total scores indicating stronger endorsement. The EDS demonstrated excellent internal consistency in the current investigation (α's = .917 – 961).

Forced-choice Preference Rating. The forced-choice rating was a single-item question developed for this study assessing which of the two intervention options respondents would prefer. Respondents selected the option from a drop-down list.

Procedure

Participants arrived for the study accompanied by their familiar partner, and completed a consent form. Participants and partners were seated individually at computers, and provided demographics information before being presented with the vignette task.

The task began with a definition of RS and a description that the study was examining preferences related to interventions for RS. The task then provided an imaginal prompt: participants were asked to imagine that they were seeking help because RS was interfering with *their* life, and to imagine how they would respond if they were being offered CBT intervention. They were informed that CBT would involve psychoeducation about RS, and that the intervention would involve changing how significant others respond to requests for reassurance. Participants were told that to customize the treatment to their preference, they would be presented with two variations of the therapy. Participants read rationales of and descriptions for the support-provision intervention and the accommodation reduction intervention (please see Appendix B), and responded to the TAAS and EDS for each. Finally, respondents completed the forced-choice rating. Partners completed the task in the same manner as described above, but rather than responding to the task as though they were seeking intervention themselves, partners

were asked to imagine that their *loved one* was seeking intervention and would be involving them (i.e., if their family member or friend were seeking help for excessive RS behaviour and was asking them to assist by the partner changing their own responses to RS). Upon completion of the task, participants and partners were debriefed.

Results

Data Preparation

Nine participants' data were excluded due to lack of English proficiency and/or protocol deviations. This resulted in a final sample size of 179 participants and partners. Visual inspection and examination of frequencies revealed that there were no missing data within the primary outcome variables.

Standardized skewness and kurtosis values of the EDS and TAAS factor and total scores were examined to assess the normality of the data within the participant and partner data sets. Within the participant data and using a cut-off of $z = \pm 3.29$ (Field, 2009), the total score for ratings of the support intervention were significantly negatively skewed for the TAAS ($z = -3.544$); no kurtosis values exceeded the cut-off. Within the partners' data, the EDS for the support provision intervention was significantly negatively skewed ($z = -5.598$) and leptokurtic ($z = 6.144$). Accordingly, the standardized outcome measures were inspected for outlying cases to determine whether extreme scores were affecting the distribution. One participant was identified as having significantly outlying scores for total EDS, and one partner was identified as having outlying scores on the EDS total for the support intervention. Each outlying score was replaced by the value representing ± 3.29 *SD* of the mean, which was identified by adding or subtracting 3.29 times the standard deviation to the mean (as per Field, 2009). Following these changes, inspections of P-P plots suggested that the variables were approximately normally distributed.

Participants' and partners' data on demographic variables as well as on the outcome variables from the TAAS or EDS were compared across the two orders of vignette presentation to determine whether there were any pre-existing differences between groups. The participants' data showed no significant differences based on vignette order concerning age ($\chi2$ (15) = 22.236, $p = .102$), gender ($\chi2$ (2) = 2.359, $p = .307$), language ($\chi2$ (12) = 8.793, $p = .721$), or ethnicity ($\chi2$ (9) = 5.953, $p = .745$). The participants' data showed no significant differences based on vignette order of presentation for the accommodation reduction intervention when rated on the

EDS ($\chi2$ (67) = 71.491, p = .331) or TAAS ($\chi2$ (48) = 61.949, p = .085); there were also no significant differences based on order for the support provision intervention when rated on the EDS ($\chi2$ (59) = 71.866, p = .121) or TAAS ($\chi2$ (42) = 47.938, p = .245).

Examination of partners' data based on vignette order showed no significant differences for age ($\chi2$ (16) = 13.645, p = .625), gender ($\chi2$ (3) = 1.303, p = .729), language ($\chi2$ (15) = 12.664, p = .628), or ethnicity ($\chi2$ (8) = 10.696, p = .220). The partners' data showed a significant difference based on vignette order of presentation for partners' ratings of the accommodation reduction intervention when rated on the TAAS ($\chi2$ (47) = 64.194, p = .048, $M_{\text{Support first}}$ = 41.95, SD = 12.39; $M_{\text{Accommodation Reduction first}}$ = 49.36, SD = 7.73), however there was no significant difference based on order when rated on the EDS ($\chi2$ (68) = 72.834, p = .322). The partners' data showed no significant differences based on vignette order for the support provision intervention when rated on the EDS ($\chi2$ (45) = 48.888, p = .320) or TAAS ($\chi2$ (36) = 47.827, p = .090).

Intervention Perceptions

To examine participants' and partners' (respective) intervention perceptions, a series of mixed ANOVAs were conducted with vignette order as a between-subjects variable, with intervention type as the within-subjects variable, and with ratings on the TAAS (Milosevic et al., 2015) and the EDS (Tarrier et al., 2006), respectively, as outcomes. Bonferroni corrections were applied where appropriate to account for the effects of multiple comparisons.

Participants. When examining participants' perceptions of intervention acceptability/endorsement using the EDS, there were significant main effects of intervention type (F (1, 177) = 48.985, p < .001, partial η^2 = .217), with the support provision intervention receiving higher ratings of perceived acceptability/endorsement than the accommodation reduction intervention; and vignette order (F (1, 177) = 10.638, p = .001; partial η^2 = .057), with participants who viewed the accommodation reduction intervention first providing higher ratings to the accommodation reduction intervention as well as to the support provision intervention. There was no significant interaction effect (F (1, 177) = 0.029, p = .865; partial η^2 = .000). Please see Figure 5.

The same pattern of results held when examining participants' intervention ratings using the TAAS, wherein there were significant main effects of intervention type (F (1, 177) = 83.769, p < .001, partial η^2 = .321) and vignette order (F (1, 177) = 9.211, p = .003, partial η^2 = .049) and

no significant interaction effect (F (1, 177) = 0.638, p = .426, partial η^2 = .004). Please refer to Figure 6.

Partners. Inspection of the partners' ratings of perceived intervention acceptability using the EDS suggested that there were significant main effects of intervention type (F (1, 175) = 50.233, p < .001, partial η^2 = .223), with the support provision intervention receiving higher ratings overall than the traditional accommodation reduction intervention; and vignette order (F (1, 175) = 20.135, p < .001, partial η^2 = .103), with participants who viewed the accommodation reduction description first providing somewhat higher ratings. There was also a significant interaction effect (F (1, 175) = 7.378, p = .007, partial η^2 = .040), with the magnitude of the difference between ratings of the support intervention versus the accommodation reduction intervention being lesser for partners who viewed the accommodation reduction intervention first. Please see Figure 7.

The same pattern of results was observed for partners' ratings on the TAAS as with the EDS above, with significant main effects of intervention type (F (1, 175) = 67.486, p < .001, partial η^2 = .278) and vignette order (F (1, 175) = 16.198, p < .001, partial η^2 = .085), and a significant interaction effect (F (1, 175) = 4.095, p = .045, partial η^2 = .023) such that the support provision intervention received the highest ratings of acceptability/endorsement overall, but the magnitude of the difference in ratings between the two intervention options varied between partners who viewed the accommodation reduction intervention first versus the support intervention first. Please refer to Figure 8.

Forced-choice Task. To examine the hypotheses that participants and partners would show preference for the support-provision intervention in comparison with accommodation reduction, binomial tests were conducted to compare the preference rating data against chance rates (i.e., 50%). Results examining participants' intervention preference rating indicated that the proportion of participants who chose the support intervention was .82, p < .001, greater than the expected .50. The proportion of partners who chose the support intervention was similarly .83, p < .001, greater than the expected chance rate.

Discussion

This study presents an evaluation of the acceptability and endorsement of two styles of cognitive-behavioural intervention to reduce RS behaviour, using both first-person and partner perceptions. Specifically, this study compared a CBT intervention aimed at guiding partners to

provide support for coping with/tolerating distress (e.g., "You've handled uncertainty before, and you can do it again") with the most-commonly used CBT intervention for RS, which entails reducing accommodation to requests for reassurance (e.g., "I've been told not to answer that question"). It was hypothesized that both participants and their familiar partners would provide higher ratings of perceived acceptability/adherence, and of endorsement, for the support-based intervention as compared with an accommodation reduction intervention. It was also hypothesized that participants and partners would prefer the support intervention in a forced-choice task.

In line with hypotheses, the overall results suggested that participants and partners gave higher ratings of acceptability and endorsement across measures for the support intervention as compared with the accommodation reduction protocol. Findings also showed that participants and partners preferred the support intervention when given a choice. In practical terms, these findings indicate that participants and partners perceive that they would be more likely to complete the support-provision intervention and would find it less distressing than the accommodation reduction intervention. The current results also complement the findings by Halldorsson and Salkovskis (2017a) showing that a support intervention successfully reduced RS, as well as experimental findings by Neal and Radomsky (2019) suggesting that support provision was perceived as helpful and potentially associated with decreased RS frequency, by now suggesting that the support provision intervention is also seen as highly acceptable/adherable and endorsable. Still, controlled studies are needed to add credence to the effectiveness of the support intervention in decreasing problematic RS.

Another consideration relates to the interaction found for partners' intervention ratings, which suggested that the advantage in ratings for the support intervention over accommodation reduction became less pronounced when the accommodation reduction description was presented first. This suggests that partners may find reducing accommodation to be a more appealing intervention option when they have not received information about the support intervention alternative. Since the condition numbers were unbalanced in this study due to the nesting of the current procedures within a larger study design, which rendered it unfeasible to initially counterbalance the presentation order for the vignettes, it would be an important step in future research to counterbalance the order of presentation to ensure that this finding is replicable. Nevertheless, in terms of clinical applications, this interaction implies that the way treatment

information is framed can influence how it is perceived, which in turn can impact outcomes if adherence is affected. Moving forward, it would be informative to examine if and how the timing of the presentation of the intervention choices effects outcomes as has been previously examined in the context of safety aids for contamination fear (Levy & Radomsky, 2016), for instance comparing effects if the choice were to be presented at the outset of therapy versus if it were presented only when a problem arises with ERP.

The current conceptualization that an individual may engage in RS as a means to elicit help with tolerating distress is based on the notion that because problematic RS is repetitive, individuals already possess the information for which they are asking, in the same way that someone who engages in checking behaviour already has the information that they then check again (see also Halldorsson & Salkovskis, 2017a, b; Rachman, 2002, 2012). This conceptualization of RS also relates to previous research suggesting that individuals are more inclined to seek reassurance from trusted or familiar individuals (Kobori & Salkovskis, 2013; Neal & Radomsky, 2015), which suggests that they may be trying to obtain something particular from interacting with someone who knows them. Certainly, trying to elicit support with managing distress is likely one of several functions of interpersonal RS, in addition to the theorized functions of mitigating perceptions of threat, responsibility (i.e., by transferring responsibility to another person), and/or doubt (e.g., Parrish & Radomsky, 2010; Rachman, 2002; Rector et al., 2011; Salkovskis, 1999). Indeed, the conceptualization that a function of RS may be to elicit social support does not compete with theories that RS is also motivated by these other factors – rather, it proposes that individuals are seeking support aimed at tolerating distress, which in the context of OCD may be evoked by perceptions of threat, responsibility, or doubt/uncertainty about general threats (e.g., whether a door is truly locked or something is truly clean) and/or social/relational threats (e.g., whether one is truly liked or competent; Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010; Radomsky et al., 2018; Rector et al., 2011). Support seeking and support provision as presented here and by Halldorsson and Salkovskis (2017a) would differ from other theorized functions in that it may be adaptive rather than maladaptive if its function is to encourage the person to tolerate distress, thereby encouraging corrective learning about threat or one's ability to cope. Given the rather limited literature on problematic RS, it remains to be seen with future research whether individuals may be engaging in RS because of reasons beyond those that have been identified thus far through interview

studies (e.g., Parrish & Radomsky, 2010), such as to determine whether the other person's opinion has changed since the last time they sought reassurance. Regardless of what individuals are seeking reassurance about though, support provision would be theorized to be an effective response strategy insofar as it encourages the person to learn to tolerate the distress evoked from perceptions of threat/responsibility/uncertainty, which are theorized to be mechanisms underlying repetitive RS behaviour (e.g., Halldorsson & Salkovskis, 2017a, b; Rachman, 1997, 1998, 2002; Salkovskis, 1985, 1999).

While the strength of the current findings is heightened by the inclusion of data from both participants and partners, this study is not without limitations that merit consideration. Specifically, the sample included in this study was a non-treatment seeking, non-clinical sample. Although undergraduate/nonclinical samples are commonly used for research on clinical phenomena due to the dimensional nature of symptoms such as RS (e.g., Abramowitz et al., 2014), examining how a support-provision intervention is perceived by and functions within a treatment-seeking, clinical sample of individuals who engage in excessive RS would give weight to the implications of these findings. In addition, data were not collected regarding the specific relationships between participants and their partners (e.g., friends, romantic partners, family). It would be informative for future researchers to examine which person(s) within a reassurance seeker's support network are most beneficial to involve in the intervention by addressing their feedback style. Furthermore, this study employed a vignette design versus a comparison based on experiences. As such, it would be highly informative to explore the effects of reducing accommodation versus providing support in an *in-vivo* setting to determine how such perceptions affect RS behaviour and associated affect. To that end, this study focused exclusively on the partners' response, whereas the reassurance seeker's behaviour would naturally be targeted as well during CBT intervention. Accordingly, it would be intriguing and highly relevant for future researchers to conduct larger studies, ideally with clinical samples, examining the effects of altering the reassurance seeker's behaviour towards more adaptive support seeking, which would complement and extend the existing findings from Halldorsson and Salkovskis (2017a).

A primary goal of this study was to determine which intervention style was associated with greater perceived acceptability/adherability. As with other research into the acceptability of CBT interventions for OCD and anxiety, this study's findings support the notion that a cognitive framework and focus on approach-supporting behaviour increases the perceived ability to adhere

to an intervention's requirements (e.g., Levy & Radomsky, 2014; Milosevic & Radomsky, 2013; Rachman, Radomsky, & Shafran, 2008; Senn & Radomsky, 2015; Sighvatsson & Salkovskis, 2013). Given that the case studies of reducing accommodation suggest that negative reactions may be a barrier to treatment adherence, identifying alternatives that allow the intervention to become more acceptable, such as guiding significant others to provide adaptive support, is an important step towards ensuring that those who would benefit from the intervention are willing to complete it.

While the present study focused on RS in the context of OCD, growing literature suggests that RS occurs transdiagnostically as a problematic behaviour (e.g., Beesdo-Baum et al., 2012; Coyne, 1976; Heerey & Kring, 2007; Salkovskis & Warwick, 1986). There are suggestions that RS shares many features across disorders, including that individuals may engage in both overt/obvious and covert/subtle forms of the behaviour, and that they may share similar motivations to reduce perceptions of general threats (e.g., locks, germs) and/or social/relational threats (e.g., relationship stability, whether one is loved; see Parrish & Radomsky, 2010; Radomsky, Neal, Parrish, Lavoie, & Schell, 2018). Thus, it would be informative for future researchers to examine how individuals with various mental health disorders (e.g., social anxiety disorder) perceive traditional accommodation reduction versus support provision response styles, as well as clinical outcomes of using the different response styles related to long-term symptom reduction.

The current conceptualization of support provision as a component of CBT to decrease RS emphasizes that the partner provide support to encourage the individual cope with distress, anxiety, or uncertainty in the moment, rather than providing reassurance by answering the question posed, or refusing to engage with the individual's question. It would be important for clinicians to spend adequate time with clients/patients and partners to make clear the differences between providing this form of support, and providing reassurance. By providing appropriate support that encourages tolerance of anxiety/discomfort, the partner may help the individual seeking reassurance to stay in the presence of a trigger without removing their anxiety by providing reassurance, thereby maintaining the opportunity to address automatic thoughts, experiment with tolerating distress, or use other strategies to challenge the need for reassurance. Over time, the individual may come to learn that anxiety/uncertainty is tolerable without seeking reassurance, and may reduce their RS behaviour (e.g., Halldorrson & Salkovskis, 2017a, b).

Taken together, the findings from this study suggest that a CBT intervention based on providing support is viewed as more adherable/acceptable to individuals and their partners and is more endorsed than the most-commonly used CBT intervention based on removing accommodation to RS. These results may have important implications for CBT practices for addressing problematic RS, in that they provide evidence that there is an acceptable, CBT alternative to withholding reassurance. Clinically, allowing clients/patients and their partners the opportunity to make choices about the intervention they receive may not only maintain the therapeutic relationship, but also encourages long-term adherence to the therapy and more positive outcomes (e.g., Persons, 2012), which may be particularly important given that intervening against RS has the potential to effect both *intra*personal and *inter*personal changes. Thus, by continuing to improve the acceptability of CBT interventions for traditionally difficult-to-treat behaviour such as RS, it may become possible for clinicians to better help alleviate the negative effects of RS from the lives of those who currently seek and provide reassurance.
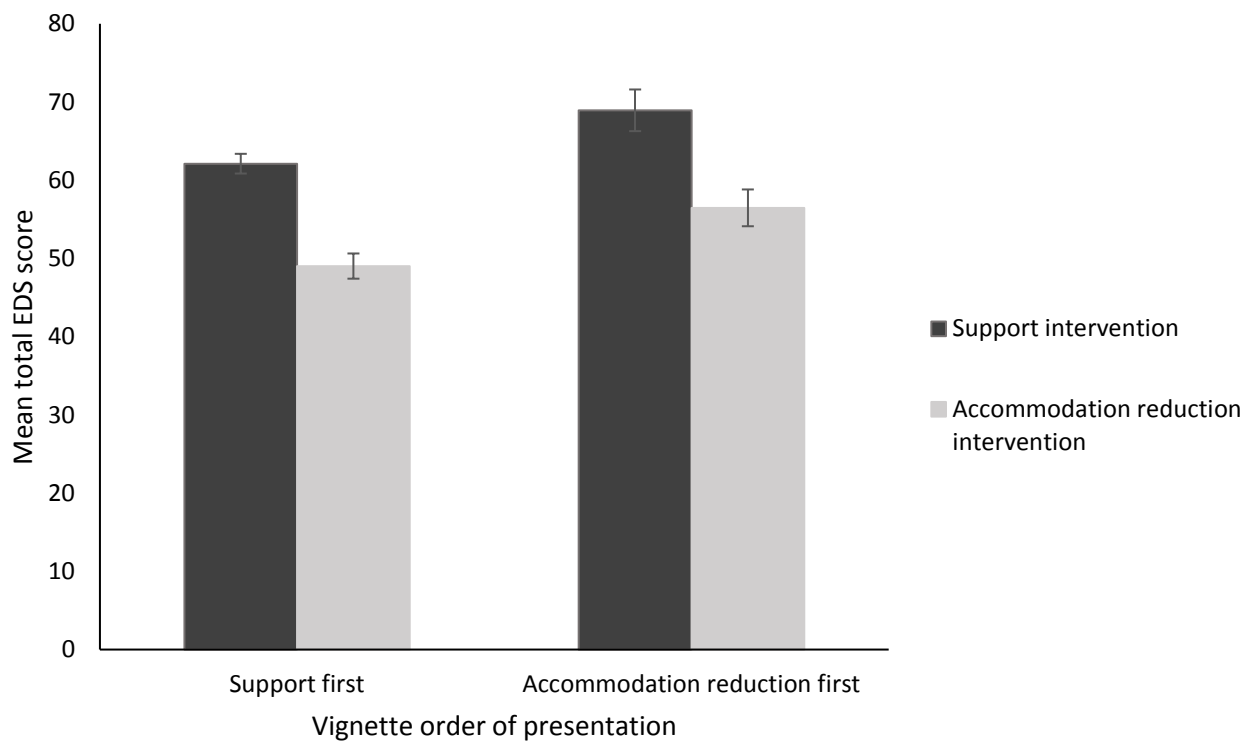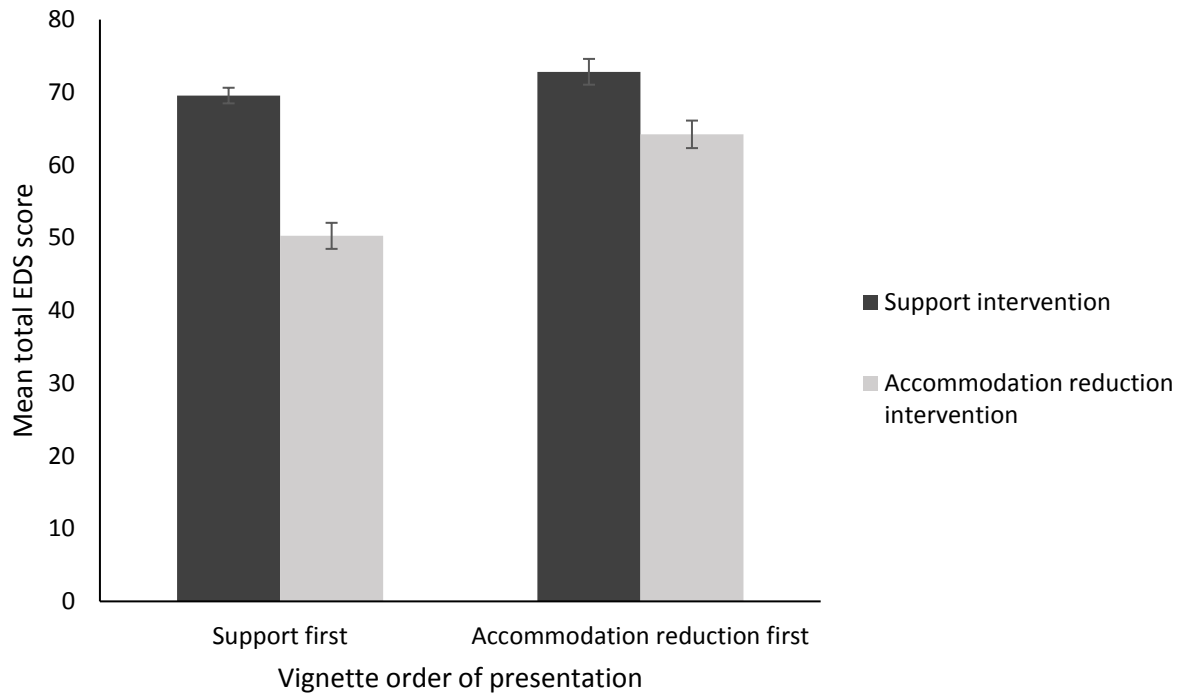
Figure 5. Participants' intervention ratings using the Endorsement and Discomfort Scales (EDS), by vignette order of presentation.

Note. Data are presented with standard error bars.
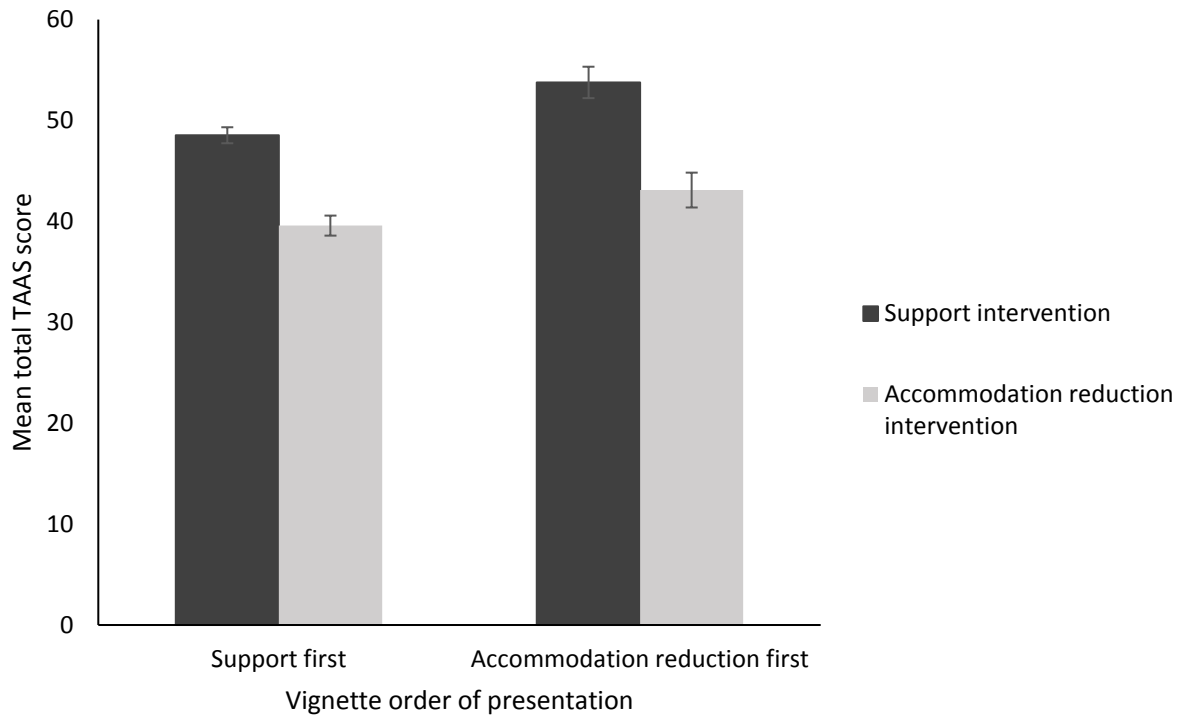
Figure 6. Participants' intervention ratings using the Treatment Acceptability and Adherence Scale (TAAS), by vignette order of presentation.

Note. Data are presented with standard error bars.

Figure 7. Partners' intervention ratings using the Endorsement and Discomfort Scales (EDS), by vignette order of presentation.

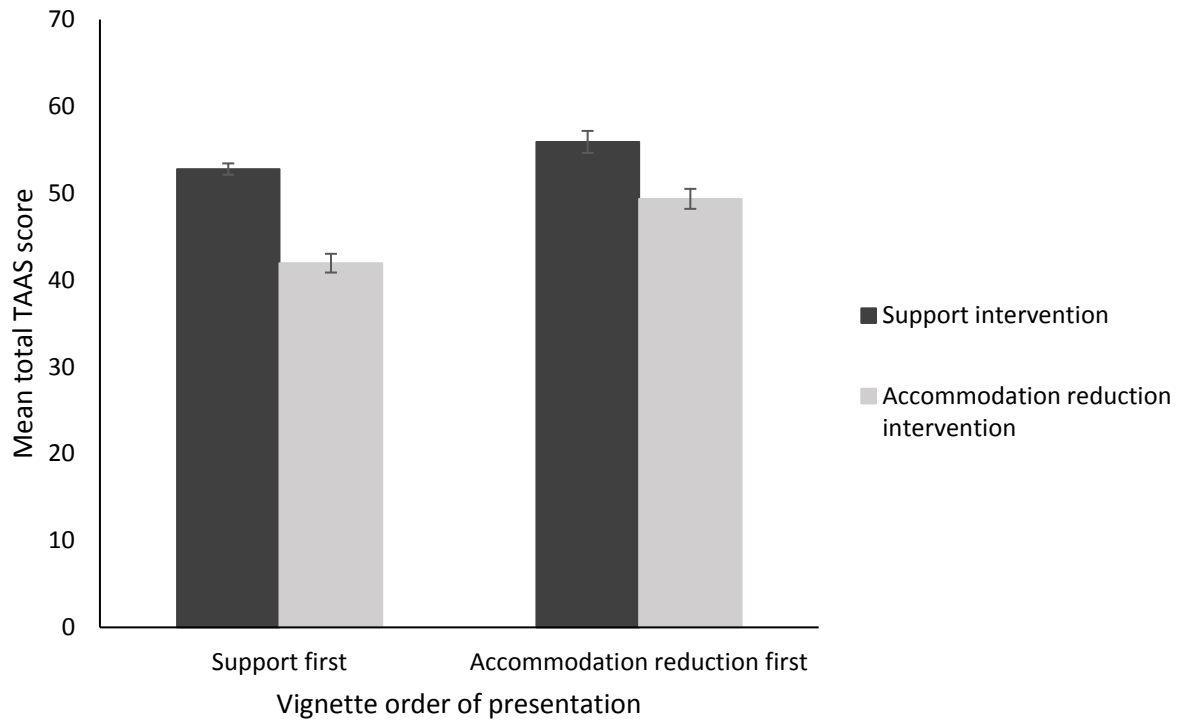*Note.* Data are presented with standard error bars.

Figure 8. Partners' intervention ratings using the Treatment Acceptability and Adherence Scale (TAAS), by vignette order of presentation.

Note. Data are presented with standard error bars.

Chapter 7

General Discussion

The goals of this program of research were to examine how problematic RS behaviour in OCD could be better assessed and treated using CBT principles, to improve outcomes for these individuals, and by extension their significant others. Given that problematic RS is highly prevalent, associated with significant negative interference in relationships and daily functioning, and maintains mental disorders such as OCD over time, it is pertinent to be able to identify those who seek reassurance excessively in both overt and covert formats, about key domains of both general threat-related RS and social/relational threat-related RS (e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010, 2011; Rector et al., 2011; Starcevic et al., 2012). Despite the paucity of existing research examining the effects of interventions specifically addressing RS in OCD, strict ERP-based approaches aimed to reduce accommodation to RS appear to be employed most often (e.g., Hallam, 1974; Marinchak, 2013). However, an alternative intervention focused on withholding reassurance while providing support to encourage tolerating distress may also be an effective means of addressing beliefs that drive compulsive behaviour, such as RS (Rachman, 2012; Halldorsson & Salkovskis, 2017a, b).

The current program of research included three studies in light of the high perceived need for a comprehensive and efficient measures of different types of RS, as well as the lack of clarity regarding the acceptability and effects of the two aforementioned CBT interventions on RS behaviour and related affect. Study 1 described a validation and psychometric analysis of a measure of covert and overt reassurance seeking, the CORSI. Next, Study 2 employed an experimental design to examine how manipulating familiar partners' feedback to approximate an accommodation reduction or support provision style of intervention, respectively, influenced undergraduate participants RS behaviour and related affect. To further inform intervention options, Study 3 employed a vignette design to examine preferences of undergraduate respondents and their familiar partners regarding CBT intervention options for problematic RS.

Summary of Findings

Study 1. A novel measure of RS, the CORSI, was previously constructed to assess overt and covert reassurance sought about general threats and social/relational threats, which were identified by Parrish and Radomsky (2010) as the primary themes encompassing RS in OCD and depression. Data were previously collected from a sample of undergraduate students ($N = 1621$

after data cleaning), which was subsequently randomly divided in two to allow the completion of an EFA and CFA; data were also collected from samples of individuals meeting clinical diagnostic criteria for primary OCD ($n = 50$), depression ($n = 30$), and anxiety disorders (as per the DSM-IV-TR, APA, 2000; $n = 60$) to allow the preliminary examination of clinical score profiles, as well as discriminant, convergent, and known-groups validity.

Results of the EFA on the validation sample suggested that two, four, five, or six factors be retained, while examination of the scree plot and parallel analysis similarly suggested the retention of between two and six, and up to seven factors, respectively. Based on model fit and interpretability of the identified factors, the five factor model was selected as the most parsimonious structure. The five factors – Overt-General threat (O-G), Overt-Social/Relational threat (O-SR), Covert-Social/Relational threat (C-SR), Covert-General threat Active (C-G_A), and Covert-General threat Passive (C-G_P) RS – contain three to eight items each, and together, the model accounted for a substantial proportion of the variance. A CFA conducted on the second half of the undergraduate validation sample confirmed good model fit following the addition of four theoretically-appropriate modification indices.

Overall, the CORSI had strong psychometric properties including evidence of convergent and divergent validity, and successfully differentiated clinical from undergraduate samples. Surprisingly, the results showed that there were no significant differences between the clinical groups with primary OCD, depression, or anxiety disorders across the CORSI factors save for one factor. Specifically, the C-G_P factor distinguished the OCD group from the other clinical groups through a "wait and see" style of being exceedingly hesitant to engage with a stimulus or situation without reassurance that it is safe or okay, which is often gained through subtle observation of others.

As a 26-item measure, the CORSI demonstrated convincing potential for use within both clinical and research settings due to its ability to identify covert as well as overt RS motivated by perceived general or social/relational threats, and to distinguish individuals who seek reassurance beyond the level seen in the validation undergraduate sample. Importantly, the current findings using the CORSI highlighted how strikingly similar RS can be across mental disorders in terms of encompassing both perceived general and social/relational threats and occurring in both overt and covert fashions. Thus, the current findings indicate that the CORSI may have transdiagnostic capacity for furthering research into RS across disorders as well as identifying individuals who

may be engaging in excessive RS, thereby allowing clinicians to deliver more targeted interventions (see also Clinical Implications below).

Study 2. Beyond establishing a means to assess RS behaviour, intervention-related questions remained to be answered regarding how the helpfulness of providing support versus no reassurance (as per a strict accommodation reduction intervention) after RS was perceived, as well as how each style of feedback was associated with subsequent RS behaviour and related affect. Accordingly, data from undergraduate participants with their familiar partners ($N = 102$ pairs following data cleaning) was examined to determine how manipulating the partner's feedback to conform to a traditional reducing accommodation or support provision intervention style influenced ratings of feedback helpfulness, total RS, urges to seek reassurance, negative affect, anxiety, and guilt.

Results from t-tests comparing the two experimental conditions showed a significant condition difference and large effect size for the difference in ratings of feedback helpfulness, suggesting that participants in the support condition rated their partner's feedback as more helpful than those who were provided no reassurance from a strict ERP framework. The data also evidenced a trend towards a significant difference and small-to-moderate effect size in favour of participants in the support condition seeking reassurance fewer times overall than those who were provided no reassurance. There were no significant differences between conditions regarding subsequent urges to seek reassurance, negative affect, anxiety, or guilt. Thus, providing support rather than using a traditional accommodation reduction response may hold potential to lead to fewer RS attempts. Importantly, it appears to do so without reducing affect-related perceptions such as urges to seek reassurance and anxiety that would suggest that support provision was functioning as reassurance, and are typically important targets for intervention.

Study 3. As another step towards identifying helpful and acceptable intervention options for RS within a CBT framework, undergraduate participants and their partners ($N = 179$ pairs) provided ratings of their perceptions of both a support provision and a traditional reducing accommodation intervention on two measures of treatment acceptability/endorsement. Respondents were also asked to indicate which of the two interventions they would select in a forced-choice format.

Across both the participant and partner data, the findings suggested that the support provision intervention was perceived as more acceptable/adherable and was endorsed

significantly more so than the reducing accommodation style of intervention, with substantial effect sizes. Further, the support intervention was selected significantly more often by both participants and partners as the intervention that they would prefer to receive than the accommodation reduction intervention. Though preliminary based on the vignette format, these results suggest that a support-based CBT intervention to reduce RS may be perceived as significantly more acceptable, adherable, and endorsable than a traditional style of reducing accommodation. From another angle, the results also uphold suggestions in the literature that the acceptability of the traditional reducing accommodation intervention may not be optimal, further reinforcing the need to identify an effective, alternative method of intervention for RS behaviour.

Limitations and future directions.

Naturally, the findings presented in this program of research are not without limitations that warrant consideration. For instance, the CFA in Study 1 was completed on a randomly-selected half of the validation sample, which allowed both factor analyses to be completed with sizeable samples. Nevertheless, these were not ideal conditions, as respondents in the CFA sample completed the 30-item version of the CORSI prior to deletion of four items rather than the 26-item final version. As such, it would be beneficial for the 26-item final CORSI to be examined with an additional CFA in an independent study to gain further confidence of the factor structure, and/or for a CFA to be conducted in more sizeable nonclinical and clinical samples. In addition, it would be beneficial to collect retest data for the CORSI to determine its stability/reliability over time, particularly with clinical groups to determine whether its stability is equivalent across diagnostic groups and/or suitable for use in the assessment of longer term outcomes. Moreover, it would be intriguing to examine the CORSI's utility in settings such as hospital or outpatient clinics attended by individuals presenting with various mental disorders, to speak more directly to the measure's clinical utility as an efficient, transdiagnostic measure of problematic RS. Further, it would be informative to examine whether CORSI scores decline as individuals with clinical disorders undergo effective intervention to reduce RS behaviour.

Since the initial item development of and data collection for the CORSI, other measures of RS have been disseminated (Cougle et al., 2012; Kobori & Salkovskis, 2013; Rector et al., 2011). As such, it was not possible to include these related measures in the validation battery for the CORSI to compare them directly. While the CORSI may present advantages over existing measures, including the sizeable validation sample, its more comprehensive yet relatively brief

structure capturing both general threat- and social/relational treat-related RS, and, most notably, ability to effectively assess covert RS, it would be a sensible next step to collect information about these multiple scales concurrently in order to assess their interrelationships as well as relative strengths and weaknesses.

With regard to Study 2, limitations include that participants and partners represented unselected samples, and were responding to an experimental paradigm rather than real-life experiences. While the experimental threat paradigm was designed to be ecologically valid and has been used previously to examine clinical checking behaviour (Bucarrelli & Purdon, 2016), it would again be pertinent to examine whether support provision functions similarly within a larger, controlled experiment and/or trial of individuals who engage in problematic RS and their partners who are typically asked to accommodate it. In addition, the computer paradigm was selected to guide the RS task so that participants' responses to the VAS measures could be obtained immediately after receiving feedback from their partners. While doing so allowed for greater experimental control, less delay between receiving feedback and providing responses to the VAS, and removed any requirement for the experimenter to interject with questions during the task, it also may have altered the degree to which participants experienced the feedback as realistic or genuine, which was not directly assessed with the credibility measures. It would therefore be informative to conduct a similar study using a more naturalistic conversation format to determine whether there was any influence of the computer paradigm or not.

As with Study 2, Study 3 employed unselected samples of participants and their familiar partners. While the use of undergraduate samples is common practice in clinical research based on the dimensional nature of OCD symptoms and prevalence of symptomatology such as intrusive thoughts in the general public (e.g., Abramowitz et al., 2014; Clark & Rhyno, 2005; Gibbs, 1996), as is the use of vignette designs (e.g., Caporino & Karver, 2012; Elliott & Fuqua, 2002; Evans & Jastrowski Mano, 2016; Levy & Radomsky, 2014; Milosevic & Radomsky, 2013; Soucy & Hadjistavropolous, 2017), it is nonetheless unclear based on the available data whether the current pattern of results would generalize to clinical samples with individuals who engage in habitual RS and/or are treatment seeking. Consequently, it would be useful to conduct a follow-up study to empirically examine the pattern of intervention preferences for RS with samples of individuals with various mental disorders and their familiar partners from whom they regularly seek/receive reassurance, to add weight to the current findings. Ultimately, it would be

valuable to collect data in a full randomized controlled trial comparing outcomes using a traditional accommodation reduction approach with outcomes using a support provision approach in samples of individuals with OCD and their familiar partners. Doing so would allow for more concrete conclusions to be drawn regarding the acceptability and effectiveness of shifting from a strict accommodation reduction protocol to a support provision-based protocol.

One of the overarching aims of this program of research was to examine whether there may be an alternative to the intervention currently deemed most helpful for RS in OCD that could be at least as effective in reducing RS but more acceptable to those who would receive it as a clinical intervention. In addition to the specific limitations addressed above, general limitations to the direction of this program of research include that the interventions for RS were conceptualized from a CBT orientation only. It is not without note that other therapy modalities have been examined for their utility in reducing OCD symptoms in general, such as Acceptance and Commitment Therapy (e.g., Twohig, Hayes, & Masuda, 2006; Twohig et al., 2010), and psychodynamic therapy (e.g., Leichsenring & Steinert, 2017); interpersonal psychotherapy (e.g., Bellino, Rinaldi, Brunetti, & Bogetto, 2012; Weissman, Markowitz, & Klerman, 2018) may also have applications in the contexts of OCD and/or RS behaviour. However, a CBT framework was selected based on the overwhelming evidence suggesting that it is an efficacious and effective intervention for OCD that has led it to be considered the standard treatment for anxiety and obsessive-compulsive disorders, whereas other modalities have not gained sufficient evidence to suggest that they are as helpful interventions for OCD (as per the APA Division 12 Task Force; Chambless et al., 1998; see also Butler, Chapman, Forman, & Beck, 2006; Otte, 2011).

The results of Studies 2 and 3 were intended to highlight that there are options within CBT intervention for RS in OCD. The effect size evidenced in Study 2 for ratings of feedback helpfulness ($d = 1.22$), as well as that for the trend towards fewer requests for reassurance ($d = 0.33$) are similar to or larger than effect sizes found in the limited available experimental research on RS in OCD by Parrish and Radomsky (d's = .21 - .42; 2006), Neal and Radomsky (partial η^2's= .24), and Leonhart and Radomsky (d's = |0.69 = 1.124|, partial η^2's = .099 - .22; 2019). Similarly, the effect sizes in Study 3 for intervention perception ratings (partial η^2's = .22 - .32) are comparable to previous vignette examinations of treatment acceptability by Milosevic and Radomsky (partial η^2 = .07 - .36). While the results are strengthened by the inclusion of varied methodologies as well as familiar partners, they nevertheless may be considered

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preliminary indicators of the potential for intervention effects. An important next step would therefore be to examine the effects of support provision versus reducing accommodation within a small intervention study or trial with clinical samples of individuals with OCD, and potentially other disorders as well based on the evolving understanding of the potential transdiagnostic nature of RS. Furthermore, given that the specific focus of Studies 2 and 3 was on the effects of intervening on partners' feedback style, it will be important for future researchers to further study the effects of shifting reassurance *seekers'* behaviour towards support seeking, to replicate and extend the findings by Halldorsson and Salkovskis (2017a) using case study and trial methodologies and a similar theoretical foundation.

Reassurance seeking is recognized to occur across contexts broader than the familiar partner relationships sampled in Studies 2 and 3, including within therapist-client/patient relationships (e.g., Kobori & Salkovskis, 2013). Thus, it would be illuminating for future researchers to examine whether support provision may be a useful response style when RS occurs in other contexts, such as that of a therapist-client/patient relationship. Additionally, in Studies 2 and 3 data were not collected on the specific nature of the relationships between partners (e.g., friends, romantic partners), which opens questions of with *specifically* whom the support provision intervention may be conducted to be maximally effective. As such, there is need for greater study of how many/which specific people within a reassurance seeker's social network need to be incorporated into the intervention for it to be optimally beneficial, as well a by whom and when it may be most beneficial to start incorporating significant others into the intervention (e.g., Levy & Radomsky, 2016). Furthermore, there is a significant need for long-term clinical studies that could comment on the longitudinal effects of using a support provision versus strict accommodation reduction approach. Unmistakeably there are many remaining nuances of CBT intervention for RS that would benefit from further research to continue improving the acceptability and effectiveness/efficacy of available interventions; nevertheless, the contributions of the present studies advance the theoretical and clinical literature in several ways towards better understanding how to assess and intervene with problematic RS behaviour.

Theoretical implications

Each of the studies in this program of research were informed by current theories of OCD, with emphasis on cognitive underpinnings of the disorder (e.g., Rachman, 1997, 1998, 2002; Rachman, Coughtrey, Shafran, & Radomsky, 2014; Radomsky et al., 2010; Salkovskis,

1985, 1999). Consequently, findings from the current program of research open related considerations about how theories may be refined.

One of the key ways that this program of research may advance theories of RS behaviour concerns the aforementioned results from Study 1 identifying overlapping features of RS across OCD, anxiety, and mood disorders that may have previously been under-recognized. That is, the lack of significant differences between clinical groups on almost all factors of the CORSI suggests that RS behaviour is transdiagnostic more so than it is manifested in disorder-specific ways. In turn, this implies that theories of RS may better account for the origination and persistence of the behaviour if they are expanded to account for the factors that are shared across disorders. This would stand in contrast to the current theories of RS presented in the literatures of OCD, depression, and other anxiety disorders that tend to emphasize perceived unique, disorder-specific features (e.g., social/relational threat-focused RS in depression and general threat-related RS in OCD).

By working towards a more comprehensive theory of RS across disorders, it may also help to elucidate any differences that do exist in RS between disorders. For instance, by incorporating groups with various primary mental disorders into research studies on RS, it may be possible to explain why and how the C-G_P style of RS features more prominently in OCD than in other disorders, as was identified in Study 1. Furthermore, by using transdiagnostic sampling procedures more commonly in psychometric research, it may become possible to identify problematic RS in clinical groups that were not directly sampled in the current study. For example, it is highly likely (though remains to be seen) that RS would function similarly within body dysmorphic disorder (BDD) as it does in OCD, based on theorized similarities of how the disorders originate and are maintained including conditioning and social learning that seem to relate to perceived general and social/relational threats (e.g., Neziroglu, Khemlani-Patel, & Veale, 2008; Wilhelm & Neziroglu, 2002). On the other hand, it remains to be seen whether there are also similarities with the content and forms of RS behaviour in less commonly comorbid disorders to OCD, such as psychotic spectrum disorders where perceived general threats as well as interpersonal stigma may also be concerns but where reassurance may be used somewhat differently by clinicians and family members (e.g., Caron, Lecomte, Stip, & Renaud, 2005; Cavelti, Kvrgic, Beck, Rüsch, & Vauth, 2012).

Numerous studies have previously demonstrated that OCD is associated with lower quality of life than individuals without mental disorders experience, and that CBT typically leads to improvements in overall quality of life (e.g., Cicek et al., 2013; Diefenbach et al., 2007; Eisen et al., 2006; Hofmann et al., 2014; Hou et al., 2010; Huppert et al., 2009; Moritz et al., 2005; Stengler-Wenzke et al., 2006). Nevertheless, meta-analysis suggested that improvements following CBT in quality of life for social domains of functioning have been found to be lower than for psychological and physical domains of life (Hofmann, Wu, & Boettcher, 2014). There is, however, a lack of research overall regarding how RS is related to quality of life in OCD. Given that using supportive feedback to address RS could be hypothesized to reduce the potential for negative interpersonal consequences as compared with providing no reassurance as per a reducing accommodation protocol, it may be that support provision could also be advantageous in improving social domains related to overall quality of life. Since it is presently unclear from the literature exactly why social functioning would be associated with lower quality of life outcomes than other domains, and that support provision may have beneficial effects on social functioning, it would be highly relevant for future researchers to examine whether a support provision intervention for RS may be associated with improvements in quality of life that are greater than improvements to quality of life that are typically seen after clients/patients complete ERP-based CBT, particularly regarding social functioning. Moreover, in light of the detrimental effects of OCD to significant others' quality of life (e.g., Cicek et al., 2013; Steketee, 1997; Stengler-Wenzke et al., 2006), it would be informative for such studies to also include measures of significant others' quality of life across various domains, to better understand how support provision versus accommodation reduction affects partners' quality of life. Furthermore, since the findings of Study 1 suggested that C-G$_P$ RS was the only form assessed by the CORSI to distinguish OCD from other mental disorders and could accordingly be hypothesized to relate to OCD symptom severity, it would be illuminating to examine whether all forms of RS impact quality of life equivalently, or whether some forms such as the C-G$_P$ RS may be more associated with negative effects on the lives of individuals with OCD and their significant others.

Intriguingly, the findings using the CORSI in Study 1 that RS is more transdiagnostic than disorder-specific also relate to those by Parrish and Radomsky (2010), if categorizations of RS behaviour are considered somewhat differently. Specifically, Parrish and Radomsky (2010) created six categories of RS content based on theorized concerns in OCD and depression, with

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three categories pertaining to each. If instead, however, their data are considered by two overarching, theoretically-appropriate categories of general threat-related RS and social/relational threat-related RS, then the percent of respondents with OCD who reported more traditionally-depressotypic "social/relational" content as the primary source of RS jumps to being highly similar (~46.2%) to the percent of individuals with OCD who reported that concerns related to perceived general safety/harm threats were their primary RS motivation (~53.9%). These suggestions highlight how theories and methodologies used in extant RS research may have influenced the identified outcomes regarding similarities or differences in RS across disorders, and importantly, emphasise the notion that RS ought to be considered a transdiagnostic behaviour that can encompass varying content related to general and social/relational threats. Moreover, these suggestions that RS in OCD could be motivated by social/relational threats nearly as often as by general threats imply that perhaps experimental methodologies such as that employed in Study 2, and in previous research (e.g., Leonhart & Radomsky, in press; Neal & Radomsky, 2015; Parrish & Radomsky, 2006) should be reconsidered in the future to also induce perceived social/relational threats rather than focusing exclusively on inducing perceived general safety/harm threats. Exploring RS with experimental studies in this way may allow better understanding of how social/relational threats influence covert and overt RS behaviour across disorders, including OCD.

To better examine how perceived social/relational threats relate to RS in OCD, it will be pertinent to examine how the current theory/model of RS in OCD could be expanded to incorporate, or perhaps be based upon other forms of intrusive thoughts and compulsions beyond doubt and checking, as has most often been the case to date (e.g., Rachman, 2002; Salkovskis, 1985). For instance, Williams and colleagues (2011) completed a factor analysis on the Yale-Brown Obsessive-Compulsive Severity Scale and found that RS loaded strongly onto an unacceptable/taboo thoughts and mental rituals factor ($r = 0.559$), whereas its loading onto a doubt/checking factor was weak ($r = 0.018$). Indeed, Williams and colleagues (2011) reported that RS was the primary compulsion of 35.7% of individuals whose primary obsession was sexual in nature, of 24.2% of individuals whose primary obsession was religious, of 14.8% of individuals whose primary obsession was somatic, of 9.7% of individuals whose primary obsession related to impulsive aggression, and by comparison, of 9.6% of individuals with all other primary obsessions (including doubt). This suggestion that RS relates strongly to

unwanted/repugnant thoughts could be examined with future research to further develop current theories of why and how RS functions transdiagnostically, for instance if individuals seek reassurance out of fear that they are "bad" for having unwanted thoughts and experience decreased self-worth (Rachman, 1997, 1998; see also e.g., Aardema et al., 2013; Melli, Aardema, & Moulding, 2016, for discussions of the fear of self in OCD).

The notion that RS is associated with negative feelings such as decreased self-worth is in line with anecdotal reports and research reviewed previously suggesting that individuals are aware that they may bring about negative interpersonal consequences by seeking reassurance, such as anger, and that this can motivate covert rather than overt RS (e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010). As it is defined (e.g., Parrish & Radomsky, 2010), covert RS entails subtle attempts at RS that are meant to go unnoticed – that is, they are intended to be *concealed,* which raises intriguing questions regarding the associations between RS and concealment that may also inform theories and understandings of how interventions function. Concealment, like RS, is an often-overlooked behaviour in OCD that also functions as a safety behaviour to reduce distress, and may be especially related to complex, distressing emotions such as shame or guilt that are evoked by obsessions (e.g., Newth & Rachman, 2001; Weingarden, Renshaw, Wilhelm, Tangney, & DiMauro, 2016; Wetterneck, Singh, & Hart, 2014). Intriguingly, the process of seeking reassurance from another person – overtly or covertly – involves verbalizing enough of one's concerns to elicit the desired reassurance from the provider, which involves a decrease or removal of concealment that could be experienced as anxiety-provoking or shameful. Thus, it is possible that there may be a more complex interplay of emotional responses in the context of RS than may occur with compulsive behaviour completed in isolation, such as checking, since RS is intended to decrease distress whereas decreasing concealment may increase distress. This potential inverse relation with concealment may also inform why RS has the potential to become repetitive and entrenched, if the decrease in concealment generates feelings of anxiety or distress afresh. Still, these hypothesized associations require future study to be better understood and incorporated into theorized models of the behaviour.

In addition to considerations around concealment and self-worth, it may be illuminating for future researchers to examine connections between RS behaviour and confidence. At face value, RS behaviour appears to be an attempt to alleviate feelings of low confidence/doubt, for

instance about safety or relationships. Confidence itself is a broad construct, however, hence it may be intriguing to further consider what type(s) of confidence are most strongly related to RS behaviour. For instance, low memory confidence has been identified as a factor in OCD, and particularly in leading to checking behaviour (e.g., Alcolado & Radomsky, 2011; Boschen & Vuksanovic, 2007; Radomsky & Alcolado, 2010; Radomsky, Gilchrist, & Dussault, 2006; Tolin, Abramowitz, Brigidi, Amir, Street, & Foa, 2001; van den Hout & Kindt, 2003). Given that RS is often conceptualized as a type of checking behaviour (see Rachman, 2002), it would logically follow that memory confidence may be implicated in increasing or perpetuating RS behaviour as well. However, given that RS is an interpersonal behaviour whereas checking is typically conducted alone, and hence that there are additional potential memory cues for encoding during an episode of RS (e.g., the person's specific wording, affect, or tone may differ across responses), it is unclear whether memory confidence is related to RS behaviour. In addition to studies of whether memory confidence may be related to RS, it would also be highly pertinent to examine how self-confidence is related to RS. Self-confidence may theoretically have an inverse association with RS behaviour, given that self-confidence conveys feelings of certainty and *assurance* of oneself. If indeed RS and self-confidence are inversely related, it may also be predicted that ratings of self-confidence may increase over time as RS behaviour decreases following therapeutic intervention. Nonetheless, the specific relations between RS and dimensions of confidence remain to be demonstrated through research.

As is illustrated, the evolving literature on RS suggests that current theories employed in the context of OCD should be expanded beyond the currently-employed checking framework to better reflect the complex nature and effects of this interpersonal behaviour. Effective theories of disorders, as well as of interventions, account for clients'/patients' past experiences as well as predict future experiences (e.g., Salkovskis, 1991). Although it requires further study, the theory that individuals who engage in RS are seeking help to tolerate distress more so than seeking information, and that being refused reassurance from a traditional accommodation reduction approach may increase negative feelings, suggests that RS becomes entrenched partly because it also *creates* interpersonal concerns; thus, it exacerbates existing negative beliefs about the self and/or generates new sources of concern that are handled through further compulsive RS (see also Halldorsson & Salkovskis, 2017a). This theory is in accordance with the high rates of comorbidity between OCD and depression and negative effect of comorbid depression on

outcomes for OCD treatment (e.g., Kessler & Wang, 2008; Overbeek, Schruers, Vermetten, & Griez, 2002), and with Coyne's (1976) interpersonal theory of depression. Furthermore, the results of Studies 2 and 3 showing that support provision was preferred and led to somewhat less RS align with theorized mechanisms of change in CBT, and cognitive approaches in particular, that therapeutic interventions are likely to produce positive outcomes if the intervention assists the person to learn to counter negative beliefs, and/or use behavioural tests of beliefs to facilitate change (e.g., Beck, 1983; Beck et al., 1979; Fama & Wilhelm, 2005; Persons, 2012; Wilhelm et al., 2015). Thus, support provision is theorized to create a more optimal environment for testing beliefs relative to strict accommodation reduction by decreasing the threat of negative interpersonal outcomes, thereby allowing the person to focus on adaptive management of the feelings and/or beliefs that are leading to the RS behaviour in the first place. Because reassurance is not provided in either form of intervention, this theory suggests that individuals will be faced with the same opportunities to address their negative cognitions/beliefs (e.g., of harm/responsibility) provoked in distressing situations when support provision is used. However, by using support provision they may be better able to adaptively manage their distress because there will not be additional interpersonal concern created when the partner must deny reassurance. These proposed developments to the theory of why RS becomes problematic in mental disorders have clear clinical implications that merit closer examination.

Clinical implications

There are several identifiable ways that the current program of research may influence clinical practices for individuals with mental disorders. In particular, this research has implications for both the assessment and intervention of problematic RS.

As reviewed previously, RS, and particularly covert RS, has been historically underrecognized as a problematic behaviour in various mental disorders, including OCD. Given the increasing literature highlighting its functions as a potentially maladaptive safety behaviour, it would be pertinent for clinicians to more regularly attend to the possibility that RS may be a maintaining factor across disorders by conducting thorough assessments of whether the behaviour is a problem for a given client/patient, and if so, what forms of the behaviour the person is using and in response to what types of threats. Indeed, the Study 1 findings using the CORSI showed that the clinical groups had the same profile of scores across almost all domains of RS, which reinforces the notion that there are significant similarities of the behaviour across

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disorders in terms of RS content and forms. These results also represent explicit advancements in the assessment of covert RS, as it suggests that the CORSI has unique advantages in identifying this subtle target for intervention during therapy for various mental disorders not limited to OCD. For instance, it would be intriguing to further examine the CORSI's ability to detect RS in clinical settings with individuals presenting with social anxiety, where Clark and Wells (1995) theorized that safety behaviour maintains the disorder if not intervened against effectively. Moreover, the suggestion posed above that RS may also be highly prevalent and problematic in other disorders that were not directly examined in Study 1 that features similar negative beliefs/schemas (e.g., BDD) implies that there may be utility in assessing for the presence of problematic RS regardless of the extent to which RS is included as a typical intervention target in existing treatment recommendations. Furthermore, using a self-report measure such as the CORSI may allow clinicians to identify clients/patients who engage in primarily covert RS who may not otherwise openly discuss their RS behaviour as a problem if it is associated with concealment efforts. Relatedly, there is a paucity of specific research regarding the degree of insight that clients/patients typically have into their RS. Thus, regularly assessing RS using a measure such as the CORSI removes an impediment that may otherwise exist of clients/patients needing to both be aware of, and willing to identify their RS as a problem in order for clinicians to suggest relevant intervention techniques that may help.

The apparent transdiagnostic similarities in RS behaviour regarding its content and form identified in Study 1 also suggest that there may be applications of refinements to interventions for problematic RS behaviour across mental disorders, if clinicians endorse the support provision intervention style as an alternative to a strict reducing accommodation style. Moreover, the potential for problematic RS to negatively affect the reassurance providers' quality of life in addition to the reassurance seeker themselves compounds the need for effective intervention that is also acceptable, to reduce the strain on caregivers that may otherwise exist if they are asked to complete an intervention that they find unpleasant (e.g., Halldorsson et al., 2016).

Results from Study 3 resoundingly pointed to a support provision intervention being seen as more acceptable than a reducing accommodation intervention, which were echoed with the higher rating of helpfulness for support provision in Study 2, as well as a trend towards support provision being associated with somewhat lesser RS. An important and logical next step is to assess whether support provision translates to improved real-life outcomes for individuals with

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OCD who seek reassurance. Based on the theorized model of support provision relative to traditional reducing accommodation reviewed throughout this program of research, it may be that individuals provided with this intervention – relative to a more austere style of reducing accommodation – may see similar OCD-related clinical outcomes due to the known efficacy of ERP approaches in reducing compulsive behaviour over time, but may experience less interpersonal conflict and/or improvements to overall perceived relationship strength. Further, theory as well as the findings from this program of research imply that the support intervention may be easier for partners as well, and thus predicts that partners may experience improvements to their quality of life as well relative to those who participate in a reducing accommodation intervention, though similar improvements with regards to reducing their overall accommodation to RS. While these are empirical questions that would be well-suited to study within a randomized clinical trial in the future, they (arguably more importantly) have substantive potential implications for improving the lives of individuals who seek reassurance excessively and their partners.

Beyond highlighting the need for consistent and thorough assessment of RS behaviour, the results of Studies 2 and 3 may inform questions opened by the findings from Study 1 of whether support provision may address mechanisms underlying transdiagnostic negative beliefs/schemas. For example, if the acceptability of the support provision style leads to better interpersonal functioning as compared with a traditional accommodation reduction feedback style, it could also affect symptoms of depression or social anxiety. In fact, previous clinical findings suggest that treating OCD often leads to reductions in depressive symptoms, indicating that there is a shared mechanism of change (e.g., Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000). Treating symptomatology of one disorder has been suggested to lead to improvements in other disorders through generalization of gains, especially related to cognitive change; learning new behavioural skills that can be applied across problem situations; and/or by leading to improvements in problems that had been generated by the original problem (e.g., interpersonal difficulties generated by excessive RS; Persons, 2012). Whether or not these sorts of associated symptom changes might occur during CBT in the future, and if so whether that may be because a support provision intervention targets transdiagnostic mechanisms, would therefore merit study based on its promise for provoking broader improvements in clients' lives.

Shifting to support provision from a strict accommodation reduction response style may seem a small alteration to current practices with RS behaviour in CBT. If so, what should motivate clinicians to consider its use? From a fundamental standpoint, interventions can only be effective if those who would benefit from them are willing to engage with and carry out the procedures involved. Subtle differences such as in the way that clinicians describe treatment options are known to impact how they are perceived and evaluated by clients/patients starting therapy, and indeed, fear of ERP-style intervention has been identified as a major contributor to individuals' likelihood to either not begin or prematurely end treatment (Mancebo et al., 2011). That is, ensuring that clients/patients understand and endorse how an intervention accords with their values and goals is a principle determinant in gaining their investment for long-term interventions (e.g., Sackett, Haynes, Guyatt, & Tugwell, 1991). Advocating the use of support provision rather than a more traditional accommodation reduction feedback style also shares similarities with recent suggestions to incorporate the judicious use of safety behaviour into exposure-based treatments for other compulsive behaviour, which can increase the acceptability/tolerability of interventions, thereby facilitating better long-term outcomes (Levy & Radomsky, 2014, 2016; Levy et al., 2014; Milosevic et al., 2015; Milosevic & Radomsky, 2013; Parrish et al., 2008; Rachman et al., 2008; Rachman et al., 2011; Senn & Radomsky, 2015). Ultimately, clinicians are in a position of privileged knowledge regarding intervention options and effectiveness/efficacy literature and thus, must ensure that their clients/patients are providing informed consent to treatment including having heard descriptions of all intervention options available to them for their presenting difficulty (e.g., Persons, 2012). Overall and particularly if the results are extended with controlled, clinical studies in the future, Studies 2 and 3 have implications for helping clinicians deliver effective and acceptable intervention for RS that is in accordance with the cognitive-behavioural mentality of using research to guide clinical practices.

Conclusion

Reassurance seeking can be a pernicious behaviour for individuals with OCD as well as their partners if it is remains undetected and untreated. Within a CBT framework, using a cognitively-driven conceptualization of problematic RS opens an alternative intervention possibility from the most commonly-used, strict ERP style of reducing accommodation. Instead, it can be argued that guiding partners to provide support may be similarly effective but perceived as more acceptable. The current program of research advances the otherwise limited body of

research on problematic RS in OCD by providing results from a series of psychometric, vignette, and experimental studies. The CORSI is a novel measure of covert and overt, general threat- and social/relational threat-related RS that allows for efficient yet comprehensive assessment of the behaviour, successfully distinguishes clinical from non-clinical groups, and helped illuminate that problematic RS shares more features across disorders than it has differences. Clinicians and researchers alike may wish to use the CORSI to help identify individuals who seek reassurance beyond a normative level as well as the specific types of RS that are most prominent for that individual; further validation of the CORSI is expected to support its use in tracking changes in RS behaviour over time. With regards to intervention options, experimental findings highlighted that support provision may be effective by showing that it is associated with a trend towards less overall RS behaviour than receiving no reassurance based on traditional accommodation reduction, and that it is perceived as significantly more helpful as well. Vignette-based results further solidified that participants and their familiar partners each rated a support provision style as more acceptable, endorsable, and selected it as the intervention of choice significantly more often than a reducing accommodation style. The findings have opened a number of questions that could be used as a framework for future studies to better understand RS behaviour in OCD, and across disorders. Together though, the findings suggest that problematic RS can be readily identified, and that support provision presents a straightforward, simple, yet potentially meaningful shift in clinical practice for reducing problematic RS that could better the lives of individuals with OCD as well as their partners.

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Final 26-item CORSI

Covert and Overt Reassurance Seeking Inventory (CORSI)

Please rate each statement by putting a circle around the number that best describes how much the statement is true of you. Please answer every item, without spending too much time on any particular item.

How much is each of the following statements true of you?	**Not at all**	**A little**	**Some**	**Much**	**Very Much**
1. If other people do not tell me otherwise, I can assume that I've got things under control	0	1	2	3	4
2. I often ask others to tell me if I have made the 'wrong' decision	0	1	2	3	4
3. If I am unable to check something I am anxious about, I will ask others to reassure me that it is OK	0	1	2	3	4
4. I often try to find out if others care about me without asking them directly	0	1	2	3	4
5. I sometimes threaten to end a friendship in order to see if my friends really care about me	0	1	2	3	4
6. I annoy people with repeated requests for reassurance about their feelings for me and this causes problems in my relationships	0	1	2	3	4
7. I always 'test the waters' before engaging in any activity that makes me anxious	0	1	2	3	4
8. I spend an excessive amount of time looking for signs of approval from others	0	1	2	3	4
9. I have often been told that I seem "insecure" because I constantly seek affirmation or approval from others	0	1	2	3	4
10. If I am unsure about the safety of my food, I will wait until someone else has tried some before I do	0	1	2	3	4
11. If I am really worried about something, it rarely seems good enough to have others reassure me about it only once	0	1	2	3	4
12. If I am uncertain about the cleanliness of an object, I will wait until somebody else touches it before I do	0	1	2	3	4
13. I often make a statement about something that I've done to get information from others about how well I've done it	0	1	2	3	4

(continued)

How much is each of the following statements true of you?	Not at all	A little	Some	Much	Very Much
14. In order to feel worthwhile, I need other people to continually show me that I am valued through their actions and gestures towards me	0	1	2	3	4
15. If I have checked something repeatedly and still feel unsure, I ask others to reassure me that things are safe	0	1	2	3	4
16. I often try to find out if an object or situation is "safe" without asking anybody directly	0	1	2	3	4
17. I sometimes check the safety of an object or situation by looking to see how other people react to it	0	1	2	3	4
18. I sometimes make self-derogatory statements with the hope that someone will object to them	0	1	2	3	4
19. In social situations, I try to 'read' other people's body language to determine whether they like me	0	1	2	3	4
20. I look to other people's moods when they are around me to determine whether they like me	0	1	2	3	4
21. If others do not object to my engaging in an activity, then it must be 'safe'	0	1	2	3	4
22. I become so anxious when I am uncertain about something that I need to ask my friends or family for reassurance over and over again	0	1	2	3	4
23. I spend far more time than most people looking to others for signs that things will be OK	0	1	2	3	4
24. I have trouble accepting responsibility for something important without asking for reassurance that everything will be OK	0	1	2	3	4
25. When faced with an important decision, I need to ask others for reassurance before I can make my final choice	0	1	2	3	4
26. When I am anxious about doing something, I often start and if nobody around me warns me to stop, I assume it is OK to continue	0	1	2	3	4

Vignette Intervention Descriptions for Participants and Partners

Overall general CBT description for participants

Imagine that you have decided to seek professional help for an enduring problem with seeking reassurance excessively due to fear, low mood, or anxiety (e.g., about whether the stove is off or doors are locked, whether a relationship will last, or whether a situation is safe), which has been causing you distress, has interfered with your daily activities, and is getting in the way of your relationships. You have been coping so far with your fear, low mood, or anxiety by seeking reassurance from someone you know and trust.

You receive a referral to cognitive-behavioural therapy (CBT) clinic, and during your first appointment, you are informed that treatment involves approximately 12-20 weekly 50-minute sessions with a psychologist, and that <u>one its key components is changing how your significant others (i.e., close family, friends) respond when you seek reassurance</u>. You learn also that this type of treatment has a very good success rate if you adhere to it and complete all of the sessions and exercises.

During the treatment, you will receive psychoeducation about why reassurance-seeking can become a problematic behaviour over time, and about how eliminating the behaviour assists in overcoming mental health disorders. Together with the psychologist, you will develop a plan, to which you will have your significant others (e.g., close family and friends) agree, that clearly establishes what you typically do in situations when you seek reassurance, and how you would like your significant other(s) to respond instead in order to assist with treatment. Throughout the treatment, you will monitor your daily reassurance-seeking behaviour, along with other factors including your anxiety level.

<u>In order to customize the treatment to your specific preferences, the psychologist describes to you two possible variations of the available therapy procedure, which are presented on the following pages.</u>

<u>Please read each treatment description carefully as there may be subtle differences between them.</u>

Overall general CBT description for partners

<u>Imagine that your family member or friend has decided to seek professional help for an enduring problem with seeking reassurance excessively due to fear, low mood, or anxiety</u> (e.g., about whether the stove is off or doors are locked, whether a relationship will last, or whether a situation is safe), which has been causing him/her

distress, has interfered with his/her daily activities, and is getting in the way of his/her relationships. S/he has been coping so far with fear, low mood, or anxiety by seeking reassurance from you and others that s/he knows and trusts.

Your family member or friend receives a referral to cognitive-behavioural therapy (CBT) clinic, and during his/her first appointment, s/he is informed that <u>treatment involves approximately 12-20 weekly 50-minute sessions with a psychologist</u>, and that one its key components is <u>reducing how often his/her significant others (i.e., close family, friends) provide reassurance when s/he asks for it</u>. <u>Thus, if you are to help with the treatment, you would be asked to not respond to requests for reassurance by simply providing reassurance as you have in the past.</u> Your family member or friend learns also that this type of treatment has a very good success rate if s/he adheres to it and completes all of the sessions and exercises.

During the treatment, s/he will received psychoeducation about why reassurance-seeking can become a problematic behaviour over time, and about how eliminating the behaviour assists in overcoming mental health disorders. Together with the psychologist, s/he will develop a plan, to which s/he would have significant others (e.g., close family and friends) including you agree, that clearly establishes what s/he typically does in situations when s/he seeks reassurance, and how s/he would like you to respond instead in order to assist with treatment.

The involvement of family members or friends in changing problematic reassurance-seeking behaviour is an important aspect of treatment. In order to customize the treatment to your specific preferences, the psychologist describes to your family member or friend **two possible variations of the available therapy procedure**, which are presented on the following pages.

<u>Please read each treatment description carefully as there may be subtle differences between them.</u>

Support intervention for participants

Although it will be challenging to confront situations that make you fearful or anxious without receiving reassurance, you will find that doing so will help you learn new information about your anxiety and about whether it is necessary to seek reassurance. Fear and anxiety are uncomfortable sensations, so people may engage in strategies such as reassurance seeking in order to make themselves feel more comfortable or safe.

People who seek reassurance tend to be able to predict in advance, quite accurately, how another person will respond, but still feel compelled to seek reassurance anyway. Reassurance-seeking is defined as the *repeated* seeking of safety-related information, even though a person has received the information before. <u>If it's true that people tend</u>

to be able to predict what others will say, and that reassurance-seeking is asking again for information that's already been given, then it can be hypothesized that people may not actually be looking for information when they seek reassurance, since they already have the information they seem to be asking for. Instead of information, when people seek reassurance it may be because they are having trouble managing their anxiety or distress on their own. Thus, instead of information, they may actually be looking for their significant others to provide social support in dealing with the anxiety or distress that's causing them to seek reassurance in the first place. In this context, "social support" includes statements or gestures to express empathy for the person's distress or to offer emotional encouragement for the person to cope with the anxiety or distress, without actually addressing the content of the person's request for reassurance. It would be important that significant others provide support rather than reassurance, because support is thought to help them learn to better manage distress over time, which in turn can lead the person to learn new information about their ability to handle distress or about the dangerousness of the feared situation.

The intervention would entail your significant others providing you with support rather than reassurance whenever you ask for reassurance. You and the therapist together would discuss what to say to your significant others about how social support can help you learn to manage anxiety/distress better, and come up with one or more phrases that your significant other(s) would say in place of providing reassurance. For instance, if a person asked whether the kitchen counter was truly clean, the person's spouse could respond by saying, "I can tell this is a stressful situation for you, but I believe that you can tolerate this anxiety". This intervention aimed at providing social support to help people tolerate distress or anxiety would help them address the difficulties that are causing them to seek reassurance in the first place, which in turn would lead to a decrease in how often they seek reassurance. The focus is on testing the beliefs underlying the reassurance seeking, rather than on the behaviour itself.

To summarize, in this intervention you will ask your significant others to provide support to help you learn to manage anxiety/distress directly, rather than to provide reassurance when you seek it.

Traditional accommodation reduction intervention for participants

Although it will be challenging to confront situations that make you fearful or anxious without receiving reassurance, you will find that doing so will help you learn new information about your anxiety and about how necessary it is to seek reassurance. Fear and anxiety are uncomfortable sensations, so people may engage in strategies in order to make themselves feel more comfortable or safe.

Reassurance is one way to take away doubt or anxiety in the moment. Because it tends to be a successful way to reduce anxiety, reassurance-seeking becomes a

reinforced behaviour, meaning that it becomes more likely that you will use reassurance as a solution again in the future when you feel doubt or anxiety. The problem, though, is that there are lots of things in the world that *can* make a person anxious or doubtful, depending in part on the beliefs they hold about themselves and the world, so the anxiety almost always comes back again. Theory suggests that the problem with receiving reassurance is that it does not help a person learn to differentiate situations that are realistically dangerous or threatening from those that are not, nor does it help the person learn to manage anxiety on their own. So, in the short-term, receiving reassurance can work to lessen anxiety or doubt, but over the long run, it may actually maintain the anxiety problem.

The intervention would therefore entail your significant others not providing you with reassurance when you ask for it. You and the therapist together would discuss what to say to your significant others about why it is important to not receive reassurance anymore. You and your therapist would also come up with a plan for your significant others to either ignore requests for reassurance, or to use a neutral phrase that you and your therapist would come up with in advance instead of providing reassurance. For instance, if a person asked whether the kitchen counter was truly clean, the person's spouse could either ignore the request or respond by saying, "That is reassurance-seeking". This intervention aimed at reducing how often your significant others accommodate or "give in" to your requests for reassurance helps individuals learn that the compensation strategies they are using to manage anxiety are not necessary in order to tolerate the situation. The focus is on eliminating the behaviour of reassurance-seeking.

To summarize, in this intervention you will ask your significant others to stop providing you with reassurance when you seek it.

Support intervention for partners

Although it will be challenging for your family member or friend to confront situations that make him/her fearful or anxious without receiving reassurance, you will find that doing so will help him/her learn new information about anxiety and about whether it is necessary to seek reassurance.

People who seek reassurance tend to be able to predict in advance, quite accurately, how another person will respond, but still feel compelled to seek reassurance anyway. Reassurance-seeking is defined as the *repeated* seeking of safety-related information, even though a person has received the information before. If it's true that people tend to be able to predict what others will say, and that reassurance-seeking is asking again for information that's already been given, then it can be hypothesized that people may not actually be looking for information when they seek reassurance, since they already have the information they seem to be asking for. Instead of information, when people seek reassurance it may be because they are having trouble managing their

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anxiety or distress on their own. Thus, instead of information, they may actually be looking for their significant others to provide <u>social support</u> in dealing with the anxiety or distress that's causing them to seek reassurance in the first place. In this context, "social support" includes statements or gestures to express empathy for the person's distress or to offer emotional encouragement to manage the anxiety or distress, without actually addressing the content of the person's request for reassurance. It would be important that significant others provide support rather than reassurance, because support is thought to help them learn to better manage distress over time, which in turn can lead the person to learn new information about their ability to handle distress or about the dangerousness of the feared situation.

<u>The intervention would entail you providing your family member or friend with support rather than reassurance whenever s/he asks for reassurance.</u> S/he and the therapist together would discuss what to tell you about his/her reassurance seeking, and come up with one or more phrases that s/he would like for you to say in place of providing reassurance. For instance, if a person asked whether the kitchen counter was truly clean, the person's spouse could respond by saying, "I can tell this is a stressful situation for you, but I believe that you can tolerate this anxiety". This intervention aimed at providing social support to help people tolerate distress or anxiety would help them address the difficulties that are causing them to seek reassurance in the first place, which in turn would lead to a decrease in how often they seek reassurance. The focus is on testing the beliefs underlying the reassurance seeking, rather than on the behaviour itself.

To summarize, in this intervention you would be asked to provide your family member or friend with support to help him/her learn to manage anxiety/distress directly, rather than to provide reassurance when s/he seeks it.

Traditional accommodation reduction intervention for partners

Although it will be challenging for your family member or friend to confront situations that make him/her fearful or anxious without receiving reassurance, you will find that doing so will help him/her learn new information about anxiety and about whether it is necessary to seek reassurance.

Fear and anxiety are uncomfortable sensations, so people may engage in strategies in order to make themselves feel more comfortable or safe. Reassurance is one way to take away doubt or anxiety in the moment. Because it tends to be a successful way to reduce anxiety, reassurance-seeking becomes a reinforced behaviour, meaning that it becomes more likely that a person will use reassurance as a solution again in the future when s/he feels doubt or anxiety. The problem, though, is that there are lots of things in the world that *can* make a person anxious or doubtful, depending in part on the beliefs they hold about themselves and the world, so <u>the anxiety almost always comes back again</u>. Theory suggests that the problem with receiving reassurance is

that it does not help a person learn to differentiate situations that are realistically dangerous or threatening from those that are not, nor does it help the person learn to manage anxiety on their own. <u>So, in the short-term, receiving reassurance can work to lessen anxiety or doubt, but over the long run, it may actually maintain the anxiety problem</u>.

<u>The intervention would therefore entail you not providing your family member or friend with reassurance when s/he asks for it.</u> S/he and the therapist together would discuss what to say to you about why it is important to not receive reassurance anymore. S/he and the therapist would also come up with a plan for you to either ignore requests for reassurance, or to use a neutral phrase that s/he and the therapist would come up with in advance instead of providing reassurance. For instance, if a person asked whether the kitchen counter was truly clean, the person's spouse could either ignore the request or respond by saying, "That is reassurance-seeking". This intervention aimed at reducing how often you accommodate or "give in" to your family member or friend's requests for reassurance helps individuals learn that the compensation strategies they are using to manage anxiety are not necessary in order to tolerate the situation. The focus is on eliminating the behaviour of reassurance-seeking.

To summarize, in this intervention you will be asked to not provide reassurance when your family member or friend asks for it, and instead either ignore requests or use a pre-selected neutral phrase.

Appendix C.

Ethics Approval Certificates

Study 1

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CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant: Dr Adam Radomsky

Department: Psychology

Agency: CIHR

Title of Project: Compulsive Reassurance Seeking in OCD:
A New Focus on an Old Problem

Certification Number: UH2006-080-6

Valid From: April 19, 2012   to: April 18, 2013

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Dr. James Pfaus, Chair, University Human Research Ethics Committee

01/29/2009

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CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant: Rachael Neal

Department: Faculty of Arts and Science\Psychology

Agency: N/A

Title of Project: What are you looking for? Psychometric and experimental analyses of reassurance seeking in obsessive-compulsive disorder

Certification Number: 30006114

Valid From: April 22, 2016   to: April 21, 2017

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

_____
Dr. James Pfaus, Chair, University Human Research Ethics Committee

CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant: Rachael Neal

Department: Faculty of Arts and Science\Psychology

Agency: Concordia University

Title of Project: What are you looking for? Psychometric and experimental analyses of reassurance seeking in obsessive-compulsive disorder

Certification Number: 30006114

Valid From: August 22, 2016   to: August 21, 2017

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

_____

Dr. James Pfaus, Chair, University Human Research Ethics Committee

CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant: Rachael Neal

Department: Faculty of Arts and Science\Psychology

Agency: Concordia University

Title of Project: What are you looking for? Psychometric and experimental analyses of reassurance seeking in obsessive-compulsive disorder

Certification Number: 30006114

Valid From: March 27, 2017   to: March 26, 2018

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

_____

Dr. James Pfaus, Chair, University Human Research Ethics Committee

**CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS**

Name of Applicant: Rachael Neal

Department: Faculty of Arts and Science\Psychology

Agency: Concordia University

Title of Project: What are you looking for? Psychometric and experimental analyses of reassurance seeking in obsessive-compulsive disorder

Certification Number: 30006114

Valid From: October 11, 2017   **To:** October 10, 2018

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

_____

Dr. James Pfaus, Chair, University Human Research Ethics Committee

Study Consent Forms

Study 1 Undergraduate Participant Pool Consent Form and Debriefing Information Sheet

CONSENT FORM TO PARTICIPATE IN RESEARCH

This is to state that I agree to participate in a program of research being conducted by Dr. Adam S. Radomsky in the Psychology Department of Concordia University.

A. PURPOSE
I have been informed that the purpose of this study is to examine psychological factors that are associated with fear, anxiety and related behavior.

B. PROCEDURES
If you agree to participate in this study, you will be asked to complete a questionnaire package. The package should take approximately 45-60 minutes to complete. After you have finished filling out the questionnaires, we will explain the hypotheses of the study. For your participation, you will receive either (i) one credit for the Concordia University Psychology undergraduate Pool (if you are eligible), or (ii) entry into a draw for a cash prize.

C. CONDITIONS OF PARTICIPATION
I understand that I am free to withdraw my consent and discontinue my participation in this study at any time, without any negative consequences whatsoever. I understand that all information obtained will be kept strictly confidential and will be stored under lock and key for a period of seven years after which they will be shredded. Access to this information will be made available only to restricted members of Dr. Radomsky's research team. I understand that to ensure my confidentiality all data will be coded by number only and will be kept separate from my name. I understand that data from this study may be published, but that no identifying information will be released.

If you have any questions or concerns, please feel free to contact our lab at (514) 848-2424, ext. 2199.

Adam S. Radomsky, Ph.D., Assistant Professor
Stefanie Lavoie, B.A., Laboratory Coordinator

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT.
I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

If at any time you have questions about your rights as a research participant, please contact Adela Reid, Research Ethics and Compliance Office, Concordia University, at 514-848-2424, ext. 7481 or by e-mail at Adela.Reid@concordia.ca

DEBRIEFING

Thank you for your time and cooperation. The purpose of this research is to assess the reliability and validity of a new questionnaire measuring excessive reassurance seeking in anxious, depressed and undergraduate student populations. Reassurance seeking is defined as compulsive behavior that is characterized by repeated attempts to obtain information about a threatening object, situation or interpersonal characteristic, despite having received this information previously. While reassurance seeking has been studied in the context of low self-esteem and depression (e.g. "Do you really love me?"), it has not been investigated in the context of OCD (e.g. "Do you really think that my hands are clean?"). Additionally, reassurance seeking may be overt (e.g. "Did I lock the door?") or covert ("I've just locked the door, right in front of you, so we can leave now."). Covert attempts at neutralization often anticipate a response and, if none is received, the individual feels reassured.

We seek to determine whether our new scale will have strong psychometric properties.

Results from our work will be disseminated to scientific, community and clinical populations and it is anticipated that our findings will help to refine and improve psychological treatments for this manifestation of OCD and a number of other anxiety and mood disorders.

If you have any questions or comments about this study or to contact the laboratory for your compensation, please contact Stefanie Lavoie (stefalav@alcor.concordia.ca; 848-2424, x.2199). or Dr. Adam Radomsky (adam.radomsky@concordia.ca).

Further readings:

Rachman, S., & De Silva, P. (2009). Obsessive-Compulsive Disorder: The Facts (4th edition). New York: Oxford University Press.

Parrish, C.L., & **Radomsky, A.S.** (2010). Why do people seek reassurance and check repeatedly? An investigation of factors involved in compulsive behavior in OCD and Depression. *Journal of Anxiety Disorders, 24,* 211-222.

Study 1 Clinical Participant Group Consent Form and Debriefing Information Sheet

CONSENT FORM TO PARTICIPATE IN RESEARCH

This is to state that I agree to participate in a program of research being conducted by Dr. Adam S. Radomsky in the Psychology Department of Concordia University.

A. PURPOSE
I have been informed that the purpose of this study is to examine psychological factors that are associated with fear, anxiety and related behavior.

B. PROCEDURES
If you agree to participate in this study, you will be asked to participate in an interview lasting between 60 an 120 minutes. You will then be asked to complete a questionnaire package. The package should take approximately 45-60 minutes to complete. After you have finished filling out the questionnaires, we will explain the hypotheses of the study. For your participation, you will be offered $50 for your time.

C. CONDITIONS OF PARTICIPATION
I understand that I am free to withdraw my consent and discontinue my participation in this study at any time, without any negative consequences whatsoever. I understand that all information obtained will be kept strictly confidential and will be stored under lock and key for a period of seven years after which they will be shredded. Access to this information will be made available only to restricted members of Dr. Radomsky's research team. I understand that to ensure my confidentiality all data will be coded by number only and will be kept separate from my name. I understand that data from this study may be published, but that no identifying information will be released.

If you have any questions or concerns, please feel free to contact our lab at (514) 848-2424, ext. 2199.

Adam S. Radomsky, Ph.D., Assistant Professor
Stefanie Lavoie, B.A., Laboratory Coordinator

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

Signature_____

Date_____

Witness signature_____

If at any time you have questions about your rights as a research participant, please contact Adela Reid, Research Ethics and Compliance Office, Concordia University, at 514-848-2424, ext. 7481 or by e-mail at Adela.Reid@concordia.ca

DEBRIEFING

Thank you for your time and cooperation. The purpose of this research is to assess the reliability and validity of a new questionnaire measuring excessive reassurance seeking in anxious, depressed and undergraduate student populations. Reassurance seeking is defined as compulsive behavior that is characterized by repeated attempts to obtain information about a threatening object, situation or interpersonal characteristic, despite having received this information previously. While reassurance seeking has been studied in the context of low self-esteem and depression (e.g. "Do you really love me?"), it has not been investigated in the context of OCD (e.g. "Do you really think that my hands are clean?"). Additionally, reassurance seeking may be overt (e.g. "Did I lock the door?") or covert ("I've just locked the door, right in front of you, so we can leave now."). Covert attempts at neutralization often anticipate a response and, if none is received, the individual feels reassured.

We seek to determine whether our new scale will have strong psychometric properties.

Results from our work will be disseminated to scientific, community and clinical populations and it is anticipated that our findings will help to refine and improve psychological treatments for this manifestation of OCD and a number of other anxiety and mood disorders.

If you have any questions or comments about this study or to contact the laboratory for your compensation, please contact Stefanie Lavoie (stefalav@alcor.concordia.ca; 848-2424, x.2199). or Dr. Adam Radomsky (adam.radomsky@concordia.ca).

<u>Further readings:</u>

Rachman, S., & De Silva, P. (2009). Obsessive-Compulsive Disorder: The Facts (4th edition). New York: Oxford University Press.

Parrish, C.L., & **Radomsky, A.S.** (2010). Why do people seek reassurance and check repeatedly? An investigation of factors involved in compulsive behavior in OCD and Depression. *Journal of Anxiety Disorders, 24,* 211-222.

INFORMATION AND CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Study Title: What Are You Looking For?
Researcher: Rachael Neal, M.A.
Researcher's Contact Information: r_neal@live.concordia.ca
Faculty Supervisor: Adam Radomsky, Ph.D.
Faculty Supervisor's Contact Information: adam.radomsky@concordia.ca
Source of funding for the study: CIHR Grant Number M00142

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to examine decision-making about tasks in a kitchen setting. The goal of this research is to collect normative information about how young adults complete such tasks in order to compare their performance to that of older adults with cognitive impairment, with the ultimate goal of developing aids to assist older adults with cognitive impairment to continue living independently as long as possible. Please note that we will be video recording you during the study.

B. PROCEDURES

If you participate, you will be asked to begin the experiment once you sign the consent form. You will be randomly assigned to an experimental condition by drawing from a hat. Participants will be asked to complete a task on the stove in the laboratory's kitchen, and to complete questionnaires on the computer.

In total, participating in this study will take approximately 90 minutes.

Some parts of the study are part of standard care, and they are done for your benefit. However, the following procedures are done for the scientific purpose of the study, and not for your benefit:
You will be randomly assigned to an experimental condition. You will be video recorded. You will be asked to complete questionnaires about various perceptions during the experiment and some features of your mental health for baseline comparisons between conditions.

As a research participant, your responsibilities would be: Please try your best to follow task instructions. Please read all forms and questionnaires carefully and provide the most accurate answers you can.

C. RISKS AND BENEFITS

You might face certain risks by participating in this research. These risks include: You may become mildly anxious or frustrated while completing the kitchen stove task. You may feel mildly uncomfortable while

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being video recorded. Some of the items in the questionnaires pertain to sensitive issues, and as such, you may feel some mild discomfort in answering.

You might or might not personally benefit from participating in this research. Potential benefits include: You will receive 1.5 participant pool credits OR a ballot entry in a cash draw to be held in August 2017 for participating. You will have the opportunity to interact with graduate students in a psychology laboratory and see how research is conducted. You may learn about factors that maintain different aspects of anxiety and/or obsessive-compulsive disorder symptomatology. You may gain insight into your own ways of thinking and behaving. You will have contributed to the collective understanding of a serious mental health problem and insight into potential aspects of psychological treatments for mental health problems.

This research is not intended to benefit you personally.

D. CONFIDENTIALITY

We will gather the following information as part of this research: Your informed consent, age, ethnicity, sex, gender, years of completed education (including primary, secondary, CÉGEP, and university), your perceptions about different aspects of the task, and some features of your mental health for baseline comparisons between conditions.

By participating, you agree to let the researchers have access to information including your name, demographic information, symptoms you may be experiencing related stress, anxiety, depression, and obsessive-compulsive disorder. This information will be obtained from questionnaires that we will ask you to complete as well as observations made from video recording part of the experiment.

We will not allow anyone to access the information, except people directly involved in conducting the research, and except as described in this form. We will only use the information for the purposes of the research described in this form.

To verify that the research is being conducted properly, regulatory authorities might examine the information gathered. By participating, you agree to let these authorities have access to the information.

The information gathered will be confidential. That means that the research team will know your real identity, but it will not be disclosed.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name.

We will protect the information by storing all hard copy documents under lock and key in the laboratory and password protecting all electronic data. Your data will be accessible by knowledge of password(s) used for digital encryption or the physical keys used to lock cabinets containing all paper documents. The only people with access will be Dr. Radomsky, Rachael Neal, and/or research assistants who work on the study. Completed questionnaires and video files will be associated with your participant ID only, and your personal identifying information will not be included in any posters, reports, presentations, or any other publications that result from this study. Your personal identifying information will be stored separately from your questionnaires, observation notes, and video recordings, also under lock and key for a period

of seven years after publication of the results, after which all identifying information will be destroyed and all other data will be archived indefinitely.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

We will destroy all identifying information seven years after the results are published, while all other data will be archived indefinitely.

In certain situations we might be legally required to disclose the information that you provide. This includes situations where you disclose intentions to harm yourself or others, or knowledge of child abuse/neglect, or a subpoena or related court order is issued for the data being collected in this study. If this kind of situation arises, we will disclose the information as required by law, despite what is written in this form.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher within 24 hours of the end of your study participation.

As a compensatory indemnity for participating in this research, you will receive 1.5 participant pool credits OR one ballot entry towards a cash draw that will occur in Aug. 2017 for a prize of $250. If you withdraw before the end of the research, you will receive 1.5 participant pool credits OR one ballot entry for the cash draw (i.e., your compensation will not be affected if you choose to withdraw your consent to participate). To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

We will tell you if we learn of anything that could affect your decision to stay in the research.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

You are not waiving any legal right to compensation by signing this form.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print) _____

SIGNATURE _____

DATE   _____

AGE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

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INFORMATION AND CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Study Title: What Are You Looking For?
Researcher: Rachael Neal, M.A.
Researcher's Contact Information: r_neal@live.concordia.ca
Faculty Supervisor: Adam Radomsky, Ph.D.
Faculty Supervisor's Contact Information: adam.radomsky@concordia.ca
Source of funding for the study: CIHR Grant Number M00142

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to examine decision-making about tasks in a kitchen setting. The goal of this research is to collect normative information about how young adults complete such tasks in order to compare their performance to that of older adults with cognitive impairment, with the ultimate goal of developing new ways to help older adults with cognitive impairment to continue living independently as long as possible. Please note that you may be video recorded during the study.

B. PROCEDURES

If you participate, you will be asked to begin the experiment once you sign the consent form. You will be randomly assigned to an experimental condition by drawing from a hat. Participants will be asked to wait while your partner completes a task on the stove in the laboratory's kitchen, which. You will be asked to complete questionnaires on a computer.

In total, participating in this study will take approximately 90 minutes.

Some parts of the study are part of standard care, and they are done for your benefit. However, the following procedures are done for the scientific purpose of the study, and not for your benefit:
You will be randomly assigned to an experimental condition. You may be video recorded. You will be asked to complete questionnaires about various perceptions during the experiment and some features of your mental health for baseline comparisons between conditions.

As a research participant, your responsibilities would be: Please try your best to follow task instructions. Please read all forms and questionnaires carefully and provide the most accurate answers you can.

C. RISKS AND BENEFITS

You might face certain risks by participating in this research. These risks include: You may become mildly frustrated while waiting for your partner to complete the kitchen stove task. You may feel mildly uncomfortable while being video recorded. Some of the items in the questionnaires pertain to sensitive issues, and as such, you may feel some mild discomfort in answering.

You might or might not personally benefit from participating in this research. Potential benefits include: You will receive 1.5 participant pool credits OR one ballot entry in a cash draw with a $250 prize to be held in August 2017 for participating. You will have the opportunity to interact with graduate students in a psychology laboratory and see how research is conducted. You may learn about factors that maintain different aspects of anxiety and/or obsessive-compulsive disorder symptomatology. You may gain insight into your own ways of thinking and behaving. You will have contributed to the collective understanding of a serious mental health problem and insight into potential aspects of psychological treatments for mental health problems.

This research is not intended to benefit you personally.

D. CONFIDENTIALITY

We will gather the following information as part of this research: Your informed consent, age, ethnicity, sex, gender, years of completed education (including primary, secondary, CÉGEP, and university), your perceptions about different aspects of the task, and some features of your mental health for baseline comparisons between conditions.

By participating, you agree to let the researchers have access to information including your name, demographic information, symptoms you may be experiencing related stress, anxiety, depression, and obsessive-compulsive disorder. This information will be obtained from questionnaires that we will ask you to complete as well as observations made from video recording part of the experiment.

We will not allow anyone to access the information, except people directly involved in conducting the research, and except as described in this form. We will only use the information for the purposes of the research described in this form.

To verify that the research is being conducted properly, regulatory authorities might examine the information gathered. By participating, you agree to let these authorities have access to the information.

The information gathered will be confidential. That means that the research team will know your real identity, but it will not be disclosed.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name.

We will protect the information by storing all hard copy documents under lock and key in the laboratory and password protecting all electronic data. Your data will be accessible by knowledge of password(s) used for digital encryption or the physical keys used to lock cabinets containing all paper documents. The only people with access will be Dr. Radomsky, Rachael Neal, and/or research assistants who work on the study. Completed questionnaires and video files will be associated with your participant ID only, and your personal identifying information will not be included in any posters, reports, presentations, or any other publications that result from this study. Your personal identifying information will be stored separately from your questionnaires, observation notes, and video recordings, also under lock and key for a period

of seven years after publication of the results, after which all identifying information will be destroyed and all other data will be archived indefinitely.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

We will destroy all identifying information seven years after publication of the study results, while all other data will be archived indefinitely.

In certain situations we might be legally required to disclose the information that you provide. This includes situations where you disclose intentions to harm yourself or others, or knowledge of child abuse/neglect, or a subpoena or related court order is issued for the data being collected in this study. If this kind of situation arises, we will disclose the information as required by law, despite what is written in this form.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher within 24 hours of the end of your study participation.

As a compensatory indemnity for participating in this research, you will receive 1.5 participant pool credits OR one ballot entry towards a cash draw that will occur in Aug. 2017 for a prize of $250. If you withdraw before the end of the research, you will receive 1.5 participant pool credits OR one ballot entry for the cash draw (i.e., your compensation will not be affected if you choose to withdraw your consent to participate). To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

We will tell you if we learn of anything that could affect your decision to stay in the research.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

You are not waiving any legal right to compensation by signing this form.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print) _____

SIGNATURE _____

DATE   _____

AGE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

Study 2/3 Debriefing Consent Form for Participants and Partners

CONSENT FORM TO PARTICIPATE IN *What Are You Looking For?*

I have been informed that deceptive information was necessarily provided to me in this study in order to simulate conditions wherein reassurance seeking behaviour may occur. I have been informed of the study's true purpose, and have also been informed that participants were randomly assigned to receive one of two types of feedback in response to requests for reassurance: support or no information. I have been informed that there was no real danger posed at any stage in the experiment had the kitchen stove task been completed incorrectly.

By signing below I am hereby indicating that I have been informed of this minor deception and am allowing my results to be included in the analyses for this study. Given the nature of the deception, I acknowledge that I have been asked to refrain from talking about specific details of this study with friends and/or classmates.

I acknowledge that I have been given the opportunity to ask the experimenter any questions I have about the study, and/or to voice any concerns I have stemming from my participation in this study. I understand that if I have any questions or concerns following the study, I may contact Rachael Neal, Department of Psychology, by phone at 514-848-2424 ext. 5965 or by email at r_neal@live.concordia.ca; or Dr. Adam Radomsky, Department of Psychology, by phone at 514-848-2424 ext. 2202, or by email at Adam.Radomsky@concordia.ca.

NAME (print) _____

SIGNATURE _____

DATE _____

WITNESS _____

If at any time you have questions about your rights as a research participant, please contact the Research Ethics and Compliance Advisor, Concordia University, 514.848.2424 ext. 7481, or email at oor.ethics@ concordia.ca.