Journal of Anxiety Disorders 67 (2019) 102109

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

journal homepage: www.elsevier.com/locate/janxdis

Focus Article

Reassurance seeking in the anxiety disorders and OCD: Construct validation, clinical correlates and CBT treatment response

Neil A. Rector[a,b], Danielle E. Katz[a], Lena C. Quilty[b,c], Judith M. Laposa[b,c], Kelsey Collimore[d,e], Tatjana Kay[a]

[a] Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, Suite F327, M4N 3M5, Toronto, Canada
[b] University of Toronto, Department of Psychiatry, Toronto, Ontario, Canada
[c] Centre for Addiction and Mental Health, Toronto, Ontario, Canada
[d] University of Ottawa, Department of Psychiatry, Ottawa, Ontario, Canada
[e] The Royal Ottawa Health Care Group, Ottawa, Ontario, Canada

ARTICLE INFO

Keywords:
Reassurance seeking
Anxiety
Anxiety disorders
Obsessive-compulsive disorder
Measurement
CBT

ABSTRACT

Background: Reassurance seeking has been hypothesized to be a key factor in the maintenance of anxiety and obsessive-compulsive disorders according to contemporary cognitive-behavioural therapy (CBT) approaches. The present study sought to examine the structure, clinical correlates, and malleability of reassurance seeking in the context of CBT treatment.

Methods: Treatment-seeking participants (N = 738) with DSM-IV-TR (American Psychiatric Association, 2000) panic disorder with agoraphobia (PD/A), social anxiety disorder (SAD), generalized anxiety disorder (GAD), and obsessive compulsive disorder (OCD) completed the Reassurance Seeking Scale (RSS) with other symptom measures prior to and following CBT treatment.

Results: A confirmatory factor analysis supported a three factor solution: the need to seek excessive reassurance regarding decisions, attachment and the security of relationships, and perceived general threat and anxiety. The RSS was moderately correlated with general measures of anxiety and depression as well as disorder-specific symptom scales. Further, CBT was found to produce changes in reassurance seeking across CBT treatments and these reductions were significantly associated with disorder-specific clinical improvement.

Conclusion: Reassurance seeking appears to be a common factor across anxiety disorders and its reduction in CBT treatment is associated with improved clinical outcomes.

1. Introduction

Within contemporary cognitive-behavioural approaches, excessive reassurance seeking (ERS) has been hypothesized to be a key factor in the maintenance of anxiety (e.g., Cougle et al., 2012; Salkovskis, 1996). Broadly, ERS has been defined in the context of anxiety disorders as "the repeated solicitation of safety-related information from others about a threatening object, situation or interpersonal characteristic despite having already received this information" (Parrish & Radomsky, 2010, p. 211) with the purpose of reducing doubt or fear (Simpson & Weiner, 1989). Reassurance seeking can be conceptualized along a continuum: while lower levels of reassurance-seeking can be a common behaviour in nonclinical populations, higher levels of frequent or repetitive reassurance seeking, or ERS, have been associated with clinical disorders. ERS behaviours may work effectively to reduce anxiety in the short term, but may be associated with increased anxiety and further urges to seek reassurance over the long-term (Kobori, Salkovskis, Read, Lounes, & Wong, 2012; Rachman, 2002). Engaging in ERS may impede the process of habituation, maintain threat overestimation, as well as hamper an individual's sense of their ability to cope with anxiety (Lohr, Olatunji, & Sawchuk, 2007; Parrish & Radomsky, 2010). Seeking reassurance is a universal experience but individuals with anxiety and obsessive-compulsive (OCD) disorders experience a greater unease and need for reassurance over time than do healthy controls (Salkovskis & Kobori, 2015). ERS has also been hypothesized to play an important role in maintaining anxiety across the anxiety disorders, including social anxiety disorder (SAD; Heerey & Kring, 2007), generalized anxiety disorder (GAD; Woody & Rachman, 1994), panic disorder (PD; Onur, Alkin, & Tural, 2007), health anxiety (Abramowitz & Moore, 2007; Taylor & Asmundson, 2004) and especially OCD (Salkovskis, 1996).

ERS in the anxiety and OCD literature has been conceptualized as a "safety behaviour" (Abramowitz & Moore, 2007), or unhelpful and

E-mail address: Neil.Rector@sunnybrook.ca (N.A. Rector).

https://doi.org/10.1016/j.janxdis.2019.102109
Received 12 December 2018; Received in revised form 17 April 2019; Accepted 21 June 2019
Available online 22 June 2019
0887-6185/

negatively reinforced attempts to avoid threats associated with anxiety (Helbig-Lang et al., 2014), that function to promote security and prevent or minimize feared outcomes (Korte, Unruh, Oglesby, & Schmidt, 2015; Salkovskis, 1991). Although ERS appears to be a common safety behaviour across the anxiety disorders and in OCD, the triggers, function, frequency, and intensity of ERS may vary based on the primary anxiety/OCD diagnosis (Kobori & Salkovskis, 2013).

1.1. The form and function of ERS in distinct anxiety disorders and OCD

To date, a limited number of studies have addressed the form and function of ERS in the anxiety disorders. Preliminary evidence supports early hypotheses asserting that ERS plays a significant role in SAD. For example, a study examining social interactions in dyads found that interactions with socially anxious individuals were characterized by more frequent reassurance seeking and giving than those without socially anxious individuals (Heerey & Kring, 2007). Additionally, in a study of safety behaviours in SAD, Cuming et al. (2009) found that the item "Ask others about your performance" was one of the highest loading items on a factor reflecting safety behaviours. Cougle et al. (2012) found that ERS related to general threats rather than self-evaluations were predictive of SAD symptoms in a nonclinical sample suggesting a potential broader range of triggers for ERS in social anxiety beyond fear of negative social evaluation.

Individuals with GAD frequently seek reassurance from family, friends, professionals, and authorities (Woody & Rachman, 1994). Although largely untested, individuals with GAD might seek reassurance pertaining to common worry (threat) domains including ensuring the security of their relationships, the safety of their loved ones, the status of their own health and safety, and the adequacy of their decisions. Cougle et al. (2012) found that ERS related to general threats predicted worry symptoms prospectively in a non-clinical sample whereas Dugas, Gagnon, Ladouceur, and Freeston (1998) demonstrated that individuals with GAD often seeking reassurance before making decisions due to their general intolerance of uncertainty. As such, in GAD, preliminary research has suggested that ERS is often triggered by general threat and decision-making.

With respect to ERS in panic disorder with agoraphobia (PD/A), many individuals experience anxiety when in places or situations in which escape might be difficult or help might not be available during a panic attack. Anxiety in PD/A can often be reduced substantially when the individual is accompanied by a "safe" reassuring person (Carter, Hollon, Carson, & Shelton, 1995), and individuals with PD/A often seek reassurance from others, either through the presence of others or the belief they could provide help if necessary (Cassano et al., 1997, 1999) suggesting that ERS in PD/A may be triggered frequently around contexts that are perceived as generally threatening (and leading to panic).

ERS has been noted to be especially prominent in OCD (Salkovskis, 1996). Higher levels of ERS are associated with increased symptom severity in OCD (Orr, McCabe, McKinnon, Rector, & Ornstein, 2018; Starcevic et al., 2012). As well, the nature and strength of the relationship between OCD and ERS may differ from that of ERS and other disorders. Studies have found that individuals with OCD report greater levels of ERS than healthy controls (Orr et al., 2018), seek reassurance more persistently and repeatedly than those with panic disorder (Kobori & Salkovskis, 2013), and exhibit a greater urge to seek reassurance when it is not provided compared to those with depression (Kobori, Sawamiya, Iyo, & Shimizu, 2015). Further, the triggers for reassurance may differ between those with OCD, who may seek reassurance in response to general threat, and those with depression, who may seek reassurance in response to social threat (Parrish & Radomsky, 2010). Reasons for seeking reassurance among those with OCD include dispelling potential threats, decreasing uncertainty, and sharing responsibility with others (Halldorsson & Salkovskis, 2017). Given the functions reassurance serves for individuals with OCD, some researchers have suggested that reassurance sought by individuals with OCD may be best characterized as a form of compulsive checking behaviour (Parrish & Radomsky, 2010; Rachman, 2002; Salkovskis & Kobori, 2015) or "checking by proxy" (Rachman, 2002) in response to elevated levels of anxiety or perceived threat (Parrish & Radomsky, 2010).

In summary, the small extant literature suggests that ERS is a common behaviour across the anxiety disorders and OCD although save the Kobori and Salkovskis (2013) study comparing OCD and panic disorder, no research has directly examined whether ERS is more relevant to some anxiety/OCD disorders compared to others and/or whether the nature of triggers for ERS are distinct in the different conditions.

1.2. The role of ERS in anxiety treatment

Contemporary cognitive-behavioural therapy (CBT) approaches to the conceptualization and treatment of anxiety disorders suggest that safety behaviours such as ERS play a significant role in the maintenance of anxiety. Specifically, from a behavioural point of view, safety behaviours prevent full exposure and habituation to the feared stimulus; from a cognitive point of view, the performance of safety behaviours precludes the occurrence and incorporation of disconfirming experiences and decrease self-efficacy to deal with the triggers. Several studies have found that the reduction of safety behaviours is associated with improved treatment outcomes in group CBT (Cuming et al., 2009; Desnoyers, Kocovski, Fleming, & Antony, 2017; Morgan & Raffle, 1999). Alternatively, it has been demonstrated that the presence of safety behaviours may not be a detriment (e.g. Deacon, Sy, Lickel, & Nelson, 2010), may not differ between clinical and nonclinical populations (Wilson, Koerner, & Antony, 2018) and, in some cases, may potentially facilitate treatment engagement and ultimately improve outcomes (see Piccirillo, Dryman, & Heimberg, 2016; Rachman, Radomsky, & Shafran, 2008 for a review). It appears that while safety behaviours are likely to interfere with the effective cognitive-behavioural mechanisms of treatment, several factors may influence the effect of safety behaviours on anxiety symptoms, including the specific type of safety behaviour assessed and the particular nature of the sample investigated (Helbig-Lang & Petermann, 2010). Previous studies on the CBT treatment of safety behaviours often assess multiple safety behaviours and either fail to include items tapping ERS or employ a single item (e.g., Beesdo-Baum et al., 2012; Desnoyers et al., 2017), thus suggesting a need for the re-examination of ERS in CBT treatment with a reliable and valid measure.

1.3. Measurement of ERS

Various measures have been developed to assess components of ERS in the anxiety disorders and OCD (Cougle et al., 2012; Kobori & Salkovskis, 2013; Rector, Kamkar, Cassin, Ayearst, & Laposa, 2011). While existing measures of ERS differ in significant ways, a common element is the attempt to distinguish ERS-related motivations, such as differences in triggers (Cougle et al., 2012; Rector et al., 2011) or reassurances sources (Kobori & Salkovskis, 2013). The Reassurance Seeking Scale (RSS; Rector et al., 2011), for example, postulates that the trigger or motivation for ERS in anxiety and OCD most commonly stem from threats to general threats, decision making, and social attachment, consistent with other findings in the anxiety disorders and OCD (e.g., Cougle et al., 2012; Cuming et al., 2009; Parrish & Radomsky, 2010; Robichaud, 2013). Previous exploratory factor analytic investigations of the RSS provided support for a higher-order, one-factor model or three lower-order ERS factors reflecting General Threat, Social Threat, and Decision-Making domains, thus reflecting the domains of ERS shown to be most relevant. While the subfactors of the RSS have been described based on exploratory factor analysis, hypothesis-driven confirmatory factor analysis with a large participant pool of individuals diagnosed with anxiety disorders and/or OCD is necessary to confirm

the content and construct validity of the RSS scale composition.

1.4. The current study

The purpose of the present study was as follows: 1) To confirm the factor analytic structure of the RSS in a large group of clinical participants with DSM-diagnosed anxiety and OCD disorders, 2) to examine the overlap and distinction of ERS *between* conditions where ERS has been hypothesized to contribute to the maintenance of anxiety (PD/A, SAD, GAD and OCD) and *within* group patterns of associations between ERS and symptom expression and severity in each condition, 3) to explore the effect of CBT on RSS, and 4) to examine the relationship between RSS change over treatment and treatment outcome. Based on prior research (Rector et al., 2011), it was hypothesized that (1) CFA would support a one higher-order and three sub-dimensional model of the RSS, (2) ERS would be associated cross-sectionally at baseline with more severe symptom reporting, on both disorder-specific and general symptom measures, and (3) CBT would lead to significant reductions in ERS across treatments and this change would be associated with lower post-treatment symptom severity within each diagnostic condition. No a priori hypotheses were established around lower-order ERS factor differences cross-sectionally or within treatments. The small extent literature has suggested that ERS may be most frequently triggered to manage general threats and attempts to reduce uncertainty around decisions, and to a less extent, social evaluative threat – suggesting the relevance of each of the dimensions measured by the RSS – but, we are unaware of any research that has addressed the different content of triggers within or between anxiety/OCD disorders that would provide the context for hypothesizing lower-order RSS domain differences. For this reason, the current study aimed to explore potential differences even though there were no a priori hypotheses. Two possibilities were entertained – first, that disorders may differ in their overall level of ERS consistent with a unidimensional operationalization of the RSS and/or second, that disorders differ to the extent that certain reassurance-seeking trigger domains are more pronounced.

2. Method

2.1. Participants

Participants were referrals (N = 738; 57.6% women, M_{age} = 34.0, SD_{age} = 10.97, range = 18–65) from a large university-affiliated hospital-based anxiety/OCD assessment and treatment centre. Participants received a primary diagnosis based upon the disorder that was found to be most distressing and impairing at the time of the assessment, including PD/A (n = 167; 22.6%), SAD (n = 287; 38.9%), GAD (n = 147; 19.9%), or OCD (n = 137; 18.6%). In terms of additional mood and anxiety diagnoses, 7.2% reported an additional diagnosis of PD/A, 12.2% reported an additional diagnosis of SAD, 10.2% reported specific phobia, 12.2% reported GAD, 1.9% reported posttraumatic stress disorder, 17.6% reported major depressive disorder, 4.7% reported dysthymic disorder, and 1.8% reported bipolar disorder. Additional diagnosis data was not available for 16.3% of participants. Diagnostic criteria were based on the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text revision; DSM-IV-TR; American Psychiatric Association, 2000) and diagnoses were assigned using the Structured Clinical Interview for DSM-IV, Patient Version (SCID-I/P; First, Spitzer, Gibbon, & Williams, 2002; First, Spitzer, Gibbon, & Williams, 1996). Most participants reported having completed at least some post-secondary education (70.7%), high school (8.8%), or partial high school (3.3%). Most participants identified as single (51.8%), married/cohabitating (25.7%), or separated or divorced (5.7%). In terms of ethnicity, 67.5% identified as White, 6.4% as Asian, 2.7% as Black, 6.1% identified as a different ethnicity than what was previously mentioned, 17.2% did not report their ethnicity. Inclusion criteria were as follows: (1) primary diagnosis of OCD, SAD, GAD, or PD/A based on the Structured Clinical Interview for DSM-IV-TR, Research-Version (First et al., 1996, 2002), (2) ability to provide informed consent, (3) completion of the RSS at baseline. Exclusion criteria included the following: (1) active psychosis or bipolar disorder, (2) substance use that would interfere with treatment, (3) recent suicide attempt or active suicidality/self-harm. This study was performed in compliance with the standards established by the Research Ethics Board (REB) where the research was conducted. Participation was voluntary and all participants gave their informed consent. Participants were not compensated for their participation. In order to examine the sensitivity of the RSS to CBT treatment, a smaller subset of the participant sample was used (n = 241). This subset was composed of participants from the larger sample who received CBT interventions and completed the RSS at pre- and post-treatment; many of the clients referred to this treatment centre can be referred to types of interventions other than CBT, such as pharmacotherapy. Based on logistic regression, the subset did not differ from the main sample in terms of gender, but those in the subsample were more likely to be of older age, OR = 1.02, $p < 0.05$. Mean age of the subsample was 35.27 years.

2.2. CBT treatments

Treatment for PD/A, SAD, GAD, and OCD each involved 12 sessions of disorder-specific group therapy based on well-validated first-line manualized CBT interventions (Clark & Wells, 1995; Clark, 2007; Craske & Barlow, 2006; Craske, Barlow, & Meadows, 2000; Dugas & Robichaud, 2007; Foa & Kozak, 1997; Hope, Heimberg, & Turk, 2006; Wells, 1997; Wilhelm & Steketee, 2006), from a large university-based anxiety and OCD program with a history of CBT trial publications in these clinical disorders. Staff were trained in the manualized treatments, and had opportunities for consultation on a weekly basis as needed. Graduate students co-leading the groups had weekly supervision with a registered (licensed) psychologist, to ensure that fidelity to the CBT protocols was maintained. For all CBT groups, homework assignments were given weekly, and reflected exposure-based and cognitive restructuring interventions. All groups met for two hours once a week and were co-led by licensed psychologists or members of allied mental health and psychology graduate students. Group size ranged from roughly eight to twelve participants.

2.3. Measures

2.3.1. Structured Clinical Interview for DSM-IV (SCID; First et al., 1996, 2002)

The SCID IV is a semi-structured clinical interview used to formulate diagnoses based on DSM-IV criteria. Interviewers in the present study included psychologists, psychometrists, predoctoral psychology interns, and clinical psychology graduate students, all of whom received extensive training and supervision in conducting the SCID. Earlier versions of the SCID have been found to have adequate inter-rater reliability for all disorders (overall reliabilities range from .69 to 1.0; Zanarini & Frankenburg, 2001).

2.3.2. RSS (Rector et al., 2011)

The RSS is a 30-item self-report measure designed to assess reassurance seeking in a variety of situations (see Table 1). Each item is rated on a five-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). The RSS is comprised of three subscales which assess reassurance-seeking related to indecisiveness and decision-making (RSS-DM), social affiliation and fear of loss and rejection (RSS-SA), and perceived general threat and the ability to cope with anxiety (RSS-GT; Rector et al., 2011). Items were developed based on existing ERS literature as well as clinical notes culled from the provision of CBT treatment to clients with anxiety disorders (Rector et al., 2011). The RSS has been found to possess a three-factor structure in exploratory factor analysis, good internal consistency (α = .88–.93) and there is

Table 1
Standardized factor loadings of three-factor model of the RSS.

Item content	Decision-Making	Social Attachment	General Threat
Prior to making a decision? (Item 13)	.84		
When you have to choose among alternative options? (Item 16)	.82		
When you doubt your decision? (Item 14)	.82		
To whether you have considered all the possible details prior to making a decision? (Item 18)	.75		
When you have to do something on your own? (Item 15)	.73		
Before initiating or doing things? (Item 25)	.76		
When you think you have made the wrong decision? (Item 22)	.74		
To gain more certainty about a situation or something that is uncertain? (Item 27)	.77		
Prior to making a change in some areas of your life? (Item 12)	.70		
When you have a lot of responsibility about something? (Item 21)	.70		
Before exploring something new? (Item 9)	.63		
To avoid feeling responsible for the outcome of decisions in major areas of your life? (Item 19)	.60		
To decrease your sense of personal responsibility? (Item 23)	.55		
To whether you are loved or cared for? (Item 6)		.76	
When you are not getting “enough attention”? (Item 10)		.68	
To whether you are a lovable/caring person? (Item 26)		.72	
To get support from others? (Item 11)		.75	
To get approval from others? (Item 5)		.70	
To feel close to others? (Item 39)		.66	
To whether you have received a negative evaluation? (Item 29)		.67	
To whether others are upset with you? (Item 36)		.68	
To whether something bad is going to happen to you? (Item 1)			.63
To make sure you are okay? (Item 2)			.68
To prevent the occurrence of a catastrophic event? (Item 33)			.61
When you think a negative event is likely to occur? (Item 35)			.71
To whether you are safe? (Item 31)			.62
To feel more relaxed? (Item 4)			.69
To feel better inside? (Item 34)			.76
To turn off your anxiety feelings? (Item 38)			.70
To gain more peace and serenity within yourself? (Item 8)			.70

some evidence for convergent and discriminant validity (Rector et al., 2011).

In the current sample, the internal consistencies for the RSS total score (α = .95) and subscale scores (decision-making (DM), α = .95; social attachment (SA), α = .87; general threat (GT), α = .88) were acceptable. Moreover, based on a subsample of n = 55, the RSS (r = .81) and the three subscales, RSS-DM (r = .82), RSS-SA (r = .79), and RSS-GT (r = .71) exhibited excellent test-retest reliability over a three-month inter-test interval prior to the commencement of treatment.

2.3.3. Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996)

The BDI-II is a 21-item self-report measure designed to assess the severity of depressive symptoms. Items are rated on a scale from zero to three, with higher ratings indicating more severe symptoms. The BDI-II has demonstrated high internal consistency (α = .92 in outpatient samples; Beck et al., 1996; Steer, Kumar, Ranieri, & Beck, 1998), and excellent reliability and validity (Beck et al., 1996; Dozois & Dobson, 2002). In the current sample, internal consistency for the BDI-II was excellent (α = .91).

2.3.4. Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988)

The BAI is a 21-item self-report measure designed to assess the frequency of anxiety symptoms in the past week. Items are rated on a four-point Likert scale ranging from 0 (*not at all*) to 3 (*severely: I could barely stand it*). The BAI shows high internal consistency in anxiety disorder samples (αs = .85-.94; Beck & Steer, 1993; Fydrich, Dowdall, & Chambless, 1992), and strong psychometric properties (de Beurs, Wilson, Chambless, Goldstein, & Feske, 1997; Fydrich et al., 1992). In the current sample, internal consistency for the BAI was excellent (α = .93).

2.3.5. Yale-Brown Obsessive-Compulsive Scale – Self Report (YBOCS-SR; Goodman, Price, Rasmussen, Mazure, Delgado et al., 1989; Goodman, Price, Rasmussen, Mazure, Fleischmann et al., 1989)

The YBOCS-SR is a 10-item self-report measure that assesses the severity of OCD symptoms. Items are rated on a five-point Likert scale ranging from 0 (*none*) to 4 (*extreme*). The YBOCS-SR has demonstrated strong psychometric properties (Baer, Brown-Beasley, Sorce, & Henriques, 1993; Steketee, Frost, & Bogart, 1996). In the current sample, the internal consistency was α = .87.

2.3.6. Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990)

The PSWQ is a 16-item self-report measure that assesses the tendency to worry excessively. Items are rated on a five-point Likert scale ranging from 1 (*not at all typical*) to 5 (*very typical*). The PSWQ has demonstrated strong psychometric properties (Brown, Antony, & Barlow, 1992). In the current sample, the internal consistency was α = .77.

2.3.7. Panic Disorder Severity Scale –Self Report (PDSS- SR; Shear et al., 1997)

The PDSS is a seven-item self-report measure that assesses the severity of panic disorder symptoms. Items are rated on a five-point Likert scale ranging from 0 (*none*) to 4 (*extreme*). The PDSS-SR has demonstrated good reliability, validity, and internal consistency (Houck, Spiegel, Shear, & Rucci, 2002; Shear et al., 2001; Wuyek, Antony, & McCabe, 2011). The internal consistency was good for the current sample (α = .88).

2.3.8. Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998)

The SIAS is a 20-item self-report measure that assesses social anxiety with respect to interacting with others. Items on the SIAS are rated on a five-point Likert scale ranging from 0 (*not at all characteristic or true of me*) to 4 (*extremely characteristic or true of me*). Studies support the

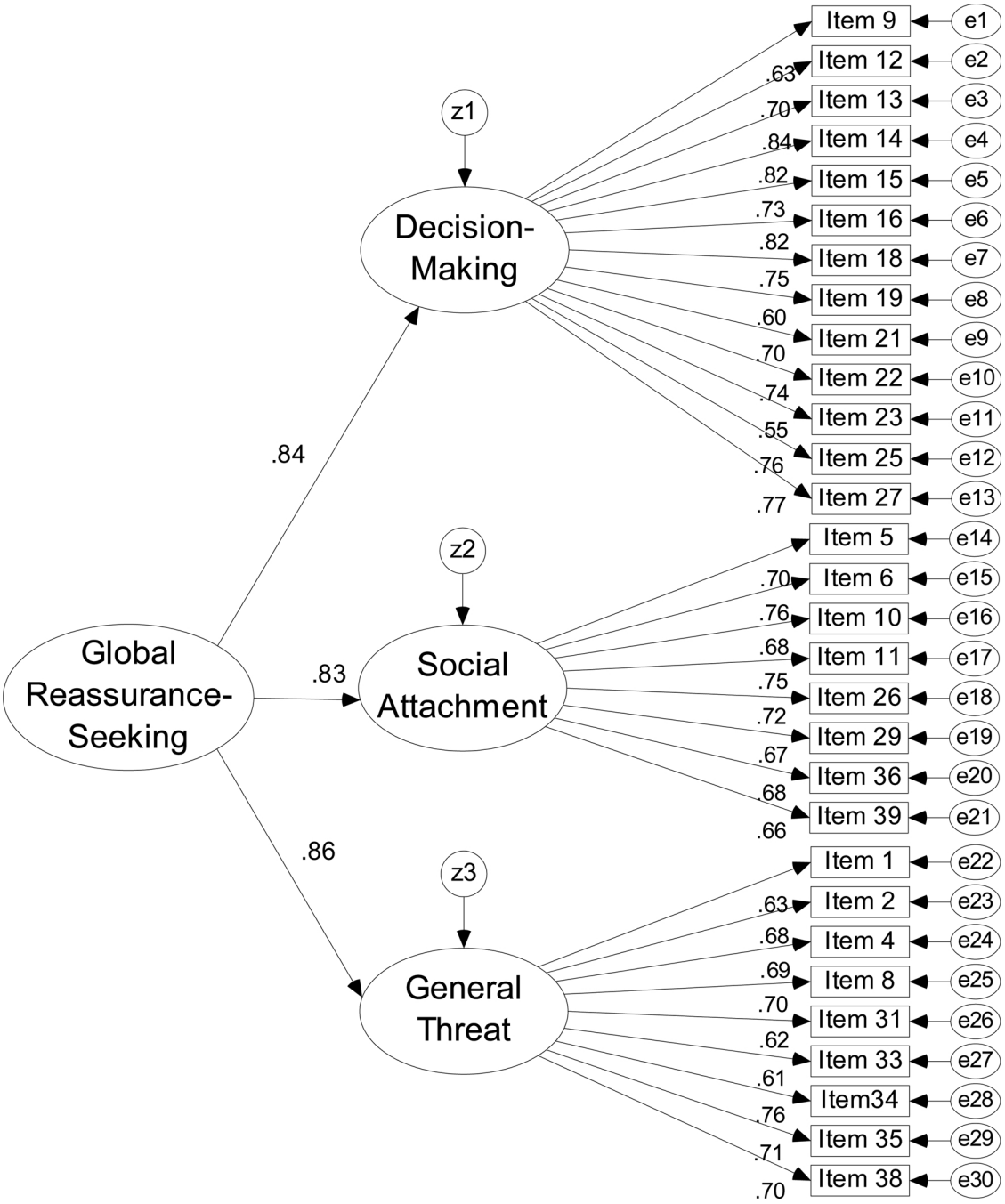

Fig. 1. Three factor hierarchical model of reassurance seeking.

reliability and validity of the SIAS in anxiety disorder samples (Mattick & Clarke, 1998). The internal consistencies were good for the current sample (α = .90).

2.4. Data analysis

To address the first purpose of the present research, to confirm the factor analytic structure of the RSS in a large group of clinical participants with DSM-diagnosed anxiety and OCD disorders, confirmatory factor analysis of the RSS was conducted. For the confirmatory factor analysis, the full sample (N = 738) was used. Confirmatory factor analysis of the RSS was conducted with *Mplus* (Muthén & Muthén, 1998–2006Muthén and Muthén, 1998Muthén & Muthén, 1998–2006), using maximum likelihood estimation. We report the scaled χ^2 statistic (Satorra & Bentler, 1994) as well as the following fit indices: Confirmatory Fit Index (CFI), with values > .90 are indicative of acceptable fit; Root Mean Square Error of Approximation (RMSEA), with values > .1 indicative of poor fit, < .08 acceptable fit, and < .05 close fit; and the Standardized Root Mean Square Residual (SRMR), with values < .08 indicative of acceptable fit (Bentler, 2007; Hu & Bentler, 1999; Kline, 2005).

To address the second purpose of the present research, an examination of the overlap and distinction of ERS between conditions where ERS has been hypothesized to contribute to the maintenance of anxiety examine cross-sectional diagnostic specificity of the RSS, a multivariate analysis of variance (MANOVA) was conducted on the full sample (N = 738). To examine the association between the RSS and general as well as disorder-specific symptom measures, Pearson's correlations were analyzed using the full sample. As all participants completed the RSS, correlations for the RSS subscales, BAI, and BDI-II were

evaluated across diagnostic groups. On the other hand, correlations between RSS subscales and disorder-specific symptom severity measures were analyzed within diagnostic groups, as each diagnostic group only completed the symptom severity measure that corresponded to their primary diagnosis. Partial correlations were also analyzed while controlling for pre-treatment depressive symptoms based on BDI-II scores. Of note, only 330 participants completed the BDI-II, thus limiting the sample size of the partial correlation analyses.

To address the third purpose of the current study and examine the treatment effects of the RSS the sample was limited to data from individuals who completed both pre-treatment and post-treatment RSS across the four diagnostic groups ($N = 241$). A repeated measures ANOVA was conducted in order to determine whether the subscales of the RSS significantly changed over treatment while controlling for BDI-II and whether change in RSS subscales differed significantly according to diagnostic group. To address the fourth purpose of the present study and explore the relationship between RSS change over treatment and treatment outcome, linear regression analyses were conducted within each diagnostic group in which post-treatment symptom severity measures were regressed on RSS subscales using forward regression, while controlling for pre-treatment symptom measures and pre-treatment BDI-II.

3. Results

3.1. Confirmatory factor analysis

We tested a one-factor model for the RSS, in which all 30 items load on a single factor, as well as the three-factor model reported in Rector et al. (2011). These models were compared using the χ^2 difference test as well as change in CFI and Akaike Information Criterion ($\Delta CFI > .01$ and $\Delta AIC > .03$) indicative of superior fit (Cheung & Rensvold, 2002). The fit of the one-factor model was below all established cutoffs, $\chi^2 = 2931.36$, $df = 405$, $p < .01$; CFI = .75, RMSEA = .10, 95% CI [0.09, 0.10]; SRMR = .08; parameter estimates are thus not displayed. In contrast, the fit of the three-factor model was acceptable, $\chi^2 = 1381.14$, $df = 400$, $p < .01$; CFI = .90; RMSEA = .06, 95% CI [0.06 – 0.07]; SRMR = .05. The fit of the three-factor model was also significantly improved as compared to the one-factor model, $\Delta\chi^2 = 1236.57$, $p < .01$; $\Delta CFI = .15$, $\Delta AIC = 1921.29$. Table 1 depicts the standardized parameter estimates associated with this model. Decision-making was correlated .70 with Social Attachment and .72 with General Threat, and Social Attachment was correlated .72 with General Threat. A hierarchical model in which all factors loaded on a second-order Global Reassurance-Seeking factor provided equivalent fit to the data (i.e. the second-order structural component of this model was just-identified). See Fig. 1 for a graphic depiction of this model. This analysis revealed that Decision-Making, Social Attachment, and General Threat loaded strongly and positively on a higher-order factor – supporting a general reassurance-seeking factor underlying all RSS items, subsumed by more specific anxious subsets. See Table 1 for factor loadings.

3.2. Cross-sectional diagnostic specificity of RSS

See Table 2 for descriptive statistics RSS domains, general measures of distress, and disorder-specific symptom measures (descriptive statistics limited to participants who completed both pre- and post-treatment measures). A multivariate analysis of variance (MANOVA) was used to examine the effect of diagnosis on RSS dimensions at baseline. There was a significant effect of diagnosis on RSS dimensions, Wilks' $\lambda = .86$, $F(9, 1781.65) = 12.54$, $p < .001$, partial $\eta^2 = 0.05$. Post-hoc comparisons using Tukey's HSD test indicated that participants with PD/A had significantly lower RSS-DM than all other diagnoses, participants with PD/A and OCD had significantly lower RSS-SA than those with SAD or GAD, and participants with SAD had significantly lower RSS-GT than those with GAD, all p's < 0.05.

Table 2
Descriptive Statistics and Comparison of Pre- and Post-Treatment Means.

	Variable	Time 1			Time 2		
		n	*M*	*SD*	*n*	*M*	*SD*
Total	RSS-DM	241	42.79	11.85	241	37.04	12.48
	RSS-SA	241	23.56	7.74	241	19.81	7.36
	RSS-GT	241	26.93	8.46	241	23.09	8.28
PD/A	RSS-DM	36	40.25	12.67	36	37.75	11.91
	RSS-SA		22.42	8.16		20.17	6.85
	RSS-GT		27.14	9.54		26.31	8.64
	PDSS	26	13.65	6.21	29	9.14	6.16
SAD	RSS-DM	96	43.74	11.33	96	37.88	11.32
	RSS-SA		24.83	7.86		21.15	6.95
	RSS-GT		26.22	8.58		22.78	7.35
	SIAS	90	51.44	13.67	95	40.74	13.47
GAD	RSS-DM	60	44.03	10.19	60	38.27	11.71
	RSS-SA		24.87	6.30		20.52	6.80
	RSS-GT		28.40	7.10		24.25	8.31
	PSWQ	59	67.97	7.70	59	57.89	9.89
OCD	RSS-DM	49	41.29	13.88	49	33.39	15.35
	RSS-SA		20.29	7.90		16.04	8.11
	RSS-GT		26.37	8.96		19.92	8.77
	Y-BOCS	43	21.65	6.24	43	18.23	7.49

Note. RSS-DM = Reassurance Seeking Scale-Decision Making; RSS-SA = Reassurance Seeking Scale- Social Attachment; RSS- GT = Reassurance Seeking Scale-General Threat; SAD = Social Anxiety Disorder; PD/A = Panic Disorder with or without Agoraphobia; OCD = Obsessive-Compulsive Disorder; GAD = Generalized Anxiety Disorder; PDSS = Panic Disorder Severity Scale; SIAS = Social Interaction Anxiety Scale; PSWQ = Penn State Worry Questionnaire; Y-BOCS = Yale-Brown Obsessive Compulsive Scale.

3.3. Association between RSS domains and general symptoms, disorder-specific symptoms

At baseline, all three RSS dimensions were significantly correlated with the BAI, BDI-II, and SIAS, all p's < 0.05. The RSS-GT was significantly correlated with all general and specific symptom measures, all p's < 0.05. The Y-BOCS and PDSS were also significantly correlated with RSS-DM, while the PSWQ and the SIAS were significantly correlated with the RSS-SA, all p's < 0.05.

Partial correlations were then completed controlling for the BDI-II to examine whether depression was a confounding variable in the relationships between RSS subscales and symptom severity measures (see Table 3). Of note, disorder-specific measures were only completed by participants who entered CBT treatment. Controlling for the BDI-II, the RSS subscales remained significantly correlated with each other, all p's < 0.05. RSS-DM was also significantly correlated with the BAI and SIAS, all p's < 0.05. RSS-SA was significantly correlated with the PSWQ. RSS-GT was significantly correlated with the BAI, SIAS, and Y-BOCS, all p's < 0.05. The relationship between the PDSS and RSS-GT was marginally significant, $p = 0.054$.

As such, higher RSS scores were associated with greater transdiagnostic symptom reporting on the BDI-II and BAI, and within diagnostic groups, higher RSS scores were associated with greater disorder-specific symptom severity.

3.4. CBT treatment and the reduction of ERS

A chi-square test indicated that diagnostic groups differed significantly according to gender, $p < 0.01$ (PD/A: 69.44% female; OCD: 40.82% female; SAD: 54.17% female; GAD: 73.33% female), while a univariate analysis of variance (ANOVA) failed to indicate that diagnostic groups differed significantly according to age, $p = 0.27$. A

Table 3
Partial correlations at baseline between RSS and symptom measures controlling for BDI-II.

	RSS-DM	RSS-SA	RSS-GT	BAI	PDSS	SIAS	PSWQ	YBOCS
RSS-DM		**.60****	**.59****	.12*	.22	.20*	.04	.24
RSS-SA			**.57****	.09	.09	.14	.27*	.11
RSS-GT				.31**	.30	.19*	.21	.34*
BAI					**.69****	.12	.13	.18
PDSS						——	——	——
SIAS							——	——
PSWQ								——
Y-BOCS								

Note. RSS-DM = Reassurance Seeking Scale-Decision Making; RSS-SA = Reassurance Seeking Scale- Social Attachment; RSS-GT = Reassurance Seeking Scale-General Threat; BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory-II; PDSS = Panic Disorder Severity Scale; SIAS = Social Interaction Anxiety Scale; PSWQ = Penn State Worry Questionnaire; Y-BOCS = Yale-Brown Obsessive Compulsive Scale. Correlation coefficients with large effect sizes are in bold.

* = p < .05.

** = p < 0.01 using two-tailed significance tests.

repeated measures ANOVA was conducted separately for each of the three RSS subscales controlling for baseline depression as measured by adding the BDI-II as a covariate (see Table 4). There was a significant effect of time on RSS-DM, Wilks' $\lambda = .92$, $F(1, 187) = 16.01$, $p < .001$, partial $\eta^2 = 0.08$, RSS-SA, Wilks' $\lambda = .95$, $F(1, 187) = 10.37$, $p < .01$, partial $\eta^2 = 0.05$, and RSS-GT, Wilks' $\lambda = .97$, $F(1, 187) = 6.74$, $p = 0.01$, partial $\eta^2 = 0.04$, indicating that each RSS domain significantly changed over treatment. The effect of diagnosis differed significantly as a function of time of measurement for RSS-GT, Wilks' $\lambda = .93$, $F(3, 187) = 5.07$, $p < .01$, partial $\eta^2 = 0.08$, and RSS-DM, Wilks' $\lambda = .95$, $F(3, 187) = 3.10$, $p < .05$, partial $\eta^2 = 0.05$. Comparisons between means of RSS-GT and RSS-DM at pre- and post-treatment indicated that at pre-treatment, none of the means differed according to diagnosis controlling for BDI-II scores at baseline, all p's > 0.05. RSS-DM means also did not significantly differ post-treatment, $p = 0.10$. However, at post-treatment, mean RSS-GT for participants with OCD was significantly lower than participants with PD/A, $p = 0.04$.

The degree to which change in RSS dimensions over treatment predicted post-treatment symptom severity was explored using four regression analyses (see Table 5). Each regression model began with block entry of pre-treatment symptom severity and BDI-II as the first step. For the second step, each regression model then used forward entry methods to determine whether residual gain scores between pre- and post-treatment RSS-DM, RSS-SA, and RSS-GT accounted for significant variability in post-treatment symptom severity.

Among participants with PD/A, the addition of the residual gain score of the RSS-GT accounted for a significant increase in variance accounted for in post-treatment PDSS, $p = 0.03$. Among participants with OCD, the addition of the residual gain score of the RSS-GT accounted for a significant increase in variance accounted for in post-treatment Y-BOCS, $p < 0.001$. Among participants with GAD, the addition of the residual gain score of RSS-GT accounted for a significant increase in variance accounted for in post-treatment PSWQ, $p < 0.001$. For participants with SAD, the addition of the residual gain score of the RSS-SA accounted for a significant increase in variance accounted for in post-treatment SIAS, all $p < 0.001$.

4. Discussion

The first aim of the present study was to confirm the factor structure of the RSS. Confirmatory factor analysis upheld the three factor structure of the RSS, namely, reassurance seeking regarding a) decision making, b) general threats, or c) potential threats to social attachment. These three domains of reassurance-seeking identified by the RSS are consistent with those described in the existing theoretical and research literature as being associated with anxiety disorders (e.g., Cougle et al., 2012; Cuming et al., 2009; Parrish & Radomsky, 2010; Robichaud, 2013). As in prior studies (Rector et al., 2011), the RSS subscales exhibited acceptable internal consistency.

The second aim of the study, to examine the relationships between ERS and anxiety disorders, as well as the third and fourth aims of the study, to examine how ERS changes over treatment and the relationship between ERS change and treatment outcome, are best discussed in concert. The combination of the cross-sectional and treatment findings of the present study increases our knowledge of the relationship between ERS and the disorders under examination. In the between-group cross-sectional analysis, individuals with SAD scored higher than some of the other disorders on ERS related to social affiliation. Among those with SAD, higher symptom severity was associated with higher ERS related to social affiliation in the bivariate correlation, though this relationship ceased to be significant upon controlling for depressive symptoms. However, the treatment analysis supports the importance of ERS related to social affiliation for those with SAD, as changes in RSS-SA predicted SAD treatment outcome in the forward regression while controlling for baseline depressive symptoms. The relationship between SAD and social affiliation ERS supports previous research findings that individuals with SAD were likely to ask for reassurance regarding social performance (Cuming et al., 2009). The present findings differ somewhat from those of Cougle et al. (2012), who found that ERS related to general rather than social threats predicted SAD symptoms. The difference could be a result of the use of a clinical group undergoing treatment in the present study rather than a nonclinical population: while significant correlations between SAD and RSS-GT were found, RSS-GT did not appear to be as important a predictor of treatment outcome compared to RSS-SA.

In the between-groups cross-sectional analysis, those with OCD had higher ERS related to decision making compared to those with PD/A. Among those with OCD, higher symptom severity was associated with ERS related to general threats after controlling for depressive symptoms. These findings expand on those of Kobori and Salkovskis (2013), who compared ERS in those with OCD and PD/A and found more persistent or repetitive ERS in those with OCD, but did not describe the particular nature (i.e., triggers) for ERS. The findings are also consistent with previous research showing elevations on ERS related to general threats in OCD (Parrish & Radomsky, 2010) and/or dispelling

Table 4
Repeated Measures ANOVA for each dimension of the RSS dimensions including BDI-II as a covariate.

	Effect of time				Effect of time x diagnostic group			
	Type III Sum of Squares	Mean Square	*F*	*p*	Type III Sum of Squares	Mean Square	*F*	*p*
RSS-DM	1036.85	1036.85	16.01 (1, 187)	< 0.001	603.22	201.08	3.1 (3, 187)	< 0.05
RSS-SA	237.00	237.00	10.37 (1, 187)	< 0.01	132.49	44.16	1.93 (3, 187)	0.13
RSS-GT	222.70	222.70	6.74 (1, 187)	< 0.05	502.38	167.46	5.07 (3, 187)	< 0.01

Note. RSS-DM = Reassurance Seeking Scale-Decision Making; RSS-SA = Reassurance Seeking Scale- Social Attachment; RSS-GT = Reassurance Seeking Scale-General Threat.

Table 5
Combined Hierarchical and Forward Regression using Residual Gain Scores of RSS Dimensions.

Diagnostic Group	Dependent Variable	Step	Predictor	B	*t*	*p*	R^2	Δ R^2	$p_{\Delta R2}$
PD/A	PDSS-T2	1	PDSS-T1	0.27	0.72	0.48	0.16		
			BDI-II	0.06	0.25	0.81			
		2	PDSS-T1	0.12	0.35	0.73		0.22	0.03
			BDI-II	0.12	0.57	0.57			
			RSS-GT_RG	2.74	2.37	0.03			
SAD	SIAS-T2	1	SIAS-T1	0.59	5.33	< 0.001	0.31		
			BDI-II	0.05	0.40	0.69			
		2	SIAS-T1	0.58	5.87	< 0.001		0.15	< 0.001
			BDI-II	−0.03	0.22	0.83			
			RSS-SA_RG	5.66	4.48	< 0.001			
GAD	PSWQ-T2	1	PSWQ-T1	0.04	0.24	0.82	0.24		
			BDI-II	0.46	3.38	< 0.01			
		2	PSWQ-T1	0.15	0.96	0.34		0.26	< 0.001
			BDI-II	0.36	3.13	< 0.01			
			RSS-GT_ RG	4.64	4.79	< 0.001			
OCD	YBOCS-T2	1	YBOCS-T1	0.62	2.86	< 0.01	0.34		
			BDI-II	0.02	0.15	0.88			
		2	YBOCS-T1	0.93	5.71	< 0.001		0.35	< 0.001
			BDI-II	−0.20	−2.06	0.05			
			RSS-GT_ RG	4.22	5.36	< 0.001			

Note. All RSS entries in the table represent residual gain scores. T1 = pre-treatment measurement; T2 = post-treatment measurement; RSS-DM_ RG = Reassurance Seeking Scale- Decision Making; RSS-SA_ RG = Reassurance Seeking Scale- Social Attachment; RSS-GT_ RG = Reassurance Seeking Scale- General Threat; PD/A = Panic Disorder with or without Agoraphobia; PDSS = Panic Disorder Severity Scale; SAD = Social Anxiety Disorder; SIAS = Social Interaction Anxiety Scale; GAD = Generalized Anxiety Disorder; PSWQ = Penn State Worry Questonnaire; OCD = Obsessive Compulsive Disorder; YBOCS = Yale-Brown Obsessive Compulsive Scale; BDI-II = Beck Depression Inventory II.

uncertainty (Halldorsson & Salkovskis, 2017). The present findings further demonstrated in the context of OCD treatment, that change in ERS related to general threat significantly predicted group CBT treatment outcome. While decision-making ERS may be related to symptoms cross-sectionally, treatment outcome in CBT appears to be more contingent on reducing ERS related to general threats.

Those with GAD reported significantly greater ERS across all dimensions of the RSS compared to at least one or more of the other disorders in the cross-sectional analysis. Within GAD, higher symptom severity was associated with ERS related to social affiliation after controlling for depressive symptoms whereas in the treatment analysis, changes in ERS related to general threat predicted GAD treatment outcome even when controlling for baseline depression. These findings expand on those of Cougle et al. (2012), who found that ERS related to general threats predicted worry prospectively in a nonclinical sample.

Finally, individuals with PD/A did not demonstrate significantly higher levels of ERS compared to those with other disorders. Symptoms of PD/A were also not significantly correlated with any of the RSS dimensions after controlling for depressive symptoms. However, ERS related to general threats significantly predicted PD/A treatment outcome. Therefore, while reduction of ERS in PD/A does seem to be related to outcome, ERS does not seem to have as strong associations with PD/A compared to the other disorders. These results are not inconsistent with the findings of Kobori and Salkovskis (2013) who found that elements of ERS were lower in PD/A compared to OCD.

Of note, changes in ERS related to decision-making were not associated with symptom outcome in any of the four diagnostic groups under study. The lack of significant findings regarding changes in decision-making ERS could be partly due to the method of regression analyses used, forward-entry, in which the variable that leads to the best fitting model is added. Or, alternatively, it may be that RSS-DM, while associated related cross-sectionally with symptom severity in different disorders, is not a potent predictor of group CBT treatment response.

In addition to providing support for the validity and sensitivity of the RSS, the findings of the present study have important clinical implications for CBT for anxiety disorders. Since ERS is used to decrease anxiety in the short term but may result in a resurgence over the long term, it can be conceptualized as a safety behaviour that might impede the effects of CBT for anxiety (Garcia-Palacios & Botella, 2003; Kim, 2005; Morgan & Raffle, 1999; Wells et al., 1995). On the other hand, safety behaviours have also been posited to potentially facilitate treatment (Hood, Antony, Koerner, & Monson, 2010; Rachman et al., 2008). As decrease in ERS predicted a lower post-treatment symptom severity across the anxiety disorders, the present study provides some additional support for the contention that reducing safety behaviours leads to better treatment outcome. Clients may therefore further benefit by the inclusion of additional strategies to CBT and/or transdiagnostic protocols that specifically focus on ERS reduction, or the replacement of maladaptive ERS with a more helpful strategy, such as emotional support seeking (Halldorsson, Salkovskis, Kobori, & Pagdin, 2016).

Study limitations include the measurement schedule of the RSS and symptom severity measures over the course of treatment. Because each was only measured at pre- and post-treatment intervals, the temporal precedence of symptom severity and RSS change cannot be determined, nor can mediation analyses be conducted. Equally, the analyses did not control for possible secondary diagnoses which could have influenced the results. By not controlling for secondary diagnoses, the present study nevertheless demonstrated that primary diagnoses can have significant associations with different RSS subscales regardless of comorbidities, thus increasing the generalizability of the findings to a general clinical population in which comorbidity tends to be high. Future research should examine potential effects of secondary diagnoses on the associations between RSS subscales and diagnostic groups. The present study also did not include inter-rater reliability measurement for the SCID assessments. However, the SCID administrators underwent extensive training and were closely supervised by a registered psychologist in order to ensure accurate diagnoses. Further, the study did not include a control condition. Despite this omission, the excellent test-retest reliability of the RSS suggests that changes in RSS over the course of treatment could potentially be due to therapeutic factors rather than the passage of time alone, though future research can include a control group in order to verify these findings. Future research may focus on the relationship between the RSS and specific CBT

interventions, such as exposure or behavioural experiments. As well, future validation studies may focus on the relationship between the RSS and reports on ERS by significant others associated with the participant. Finally, future research can compare the RSS to other questionnaires that measure different aspects of ERS and conduct convergent and divergent validity analysis.

Notwithstanding these limitations, the results of this study suggest that ERS is multidimensional and contributes to the maintenance of anxiety and obsessive-compulsive cycles as demonstrated through its cross-sectional associations with general and disorder-specific symptom severity, but is also malleable with treatment. Finally, the reduction of ERS appears to contribute to improved group CBT response status at post-treatment in OCD, GAD, PD/A and SAD and so future research may focus on whether enhanced, more explicit targeting of ERS in these disorders may lead to still greater clinical outcomes and improvement in quality of life.

References

Abramowitz, J. S., & Moore, E. L. (2007). An experimental analysis of hypochondriasis. *Behaviour Research and Therapy, 45*, 413–424. https://doi.org/10.1016/j.brat.2006.04.005.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Baer, L., Brown-Beasley, M. W., Sorce, J., & Henriques, A. (1993). Computer-assisted telephone administration of a structured interview for obsessive-compulsive disorder. *The American Journal of Psychiatry, 150*, 1737–1738. https://doi.org/10.1176/ajp.150.11.1737.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893–897. https://doi.org/10.1037/0022-006X.56.6.893.

Beck, A. T., & Steer, R. A. (1993). *Beck anxiety inventory manual.* San Antonio, Texas: Psychological Corporation.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck depression inventory manual* (2nd ed.). San Antonio, TX: Psychological Corporation.

Beesdo-Baum, K., Jenjahn, E., Höfler, M., Lueken, U., Becker, E. S., & Hoyer, J. (2012). Avoidance, safety behavior, and reassurance seeking in generalized anxiety disorder. *Depression and Anxiety, 29*, 948–957. https://doi.org/10.1002/da.21955.

Bentler, P. M. (2007). On tests and indices for evaluating structural models. *Personality and Individual Differences, 42*, 825–829. https://doi.org/10.1016/j.paid.2006.09.024.

de Beurs, E., Wilson, K. A., Chambless, D. L., Goldstein, A. J., & Feske, U. (1997). Convergent and divergent validity of the Beck Anxiety Inventory for patients with panic disorder and agoraphobia. *Depression and Anxiety, 6*, 140–146. https://doi.org/10.1002/(sici)1520-6394(1997)6:4<140::aid-da2>3.0.co;2-g.

Brown, T. A., Antony, M. M., & Barlow, D. H. (1992). Psychometric properties of the Penn State Worry Questionnaire in a clinical anxiety disorders sample. *Behaviour Research and Therapy, 30*, 33–37. https://doi.org/10.1016/0005-7967(92)90093-v.

Carter, M. M., Hollon, S. D., Carson, R., & Shelton, R. C. (1995). Effects of a safe person on induced distress following a biological challenge in panic disorder with agoraphobia. *Journal of Abnormal Psychology, 104*, 156–163. https://doi.org/10.1037//0021-843X.104.1.156.

Cassano, G. B., Banti, S., Mauri, M., Dell'Osso, L., Miniati, M., Maser, J. D., ... Rucci, P. (1999). Internal consistency and discriminant validity of the Structured Clinical Interview for Panic Agoraphobic Spectrum (SCI-PAS). *International Journal of Methods in Psychiatric Research, 8*, 138–145. https://doi.org/10.1002/mpr.64.

Cassano, G. B., Michelini, S., Shear, M. K., Coli, E., Maser, J. D., & Frank, E. (1997). The panic-agoraphobic spectrum: A descriptive approach to the assessment and treatment of subtle symptoms. *Journal of Psychiatry, 154*(6), 27–38. https://doi.org/10.1176/ajp.154.6.27.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233–255. https://doi.org/10.1207/s15328007sem0902_5.

Clark, D. A. (2007). *Cognitive-behavioral therapy for OCD.* New York; London: Guilford Press.

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, D. A. Hope, & F. R. Schneier (Eds.). *Social phobia: Diagnosis, assessment, and treatment* (pp. 69–93). New York, NY: Guilford Press.

Cougle, J. R., Fitch, K. E., Fincham, F. D., Riccardi, C. J., Keough, M. E., & Timpano, K. R. (2012). Excessive reassurance seeking and anxiety pathology: Tests of incremental associations and directionality. *Journal of Anxiety Disorders, 26*, 117–125. https://doi.org/10.1016/j.janxdis.2011.10.001.

Craske, M. G., & Barlow, D. H. (2006). *Mastery of your anxiety and worry.* New York; Oxford: Oxford University Press.

Craske, M. G., Barlow, D. H., & Meadows, E. A. (2000). *Mastery of your anxiety and panic: MAP-3: Therapist guide for anxiety, panic, and agoraphobia.* New York: Oxford University Press.

Cuming, S., Rapee, R. M., Kemp, N., Abbott, M. J., Peters, L., & Gaston, J. E. (2009). A self-report measure of subtle avoidance and safety behaviors relevant to social anxiety: Development and psychometric properties. *Journal of Anxiety Disorders, 23*, 879–883. https://doi.org/10.1016/j.janxdis.2009.05.002.

Deacon, B. J., Sy, J. T., Lickel, J. J., & Nelson, E. A. (2010). Does the judicious use of safety behaviors improve the efficacy and acceptability of exposure therapy for claustrophobic fear? *Journal of Behavior Therapy and Experimental Psychiatry, 41*, 71–80. https://doi.org/10.1016/j.jbtep.2009.10.004.

Desnoyers, A. J., Kocovski, N. L., Fleming, J. E., & Antony, M. M. (2017). Self-focused attention and safety behaviors across group therapies for social anxiety disorder. *Anxiety, Stress, and Coping, 30*, 441–455. https://doi.org/10.1080/10615806.2016.1239083.

Dozois, D. J. A., & Dobson, K. S. (2002). Depression. In M. M. Antony, & D. H. Barlow (Eds.). *Handbook of assessment and treatment planning for psychological disorders* (pp. 259–299). New York, NY: Guilford Press.

Dugas, M. J., Gagnon, F., Ladouceur, R., & Freeston, M. H. (1998). Generalized anxiety disorder: A preliminary test of a conceptual model. *Behaviour Research and Therapy, 36*, 215–226. https://doi.org/10.1016/S0005-7967(97)00070-3.

Dugas, M. J., & Robichaud, M. (2007). *Cognitive-behavioral treatment for generalized anxiety disorder: From science to practice.* New York: Routledge.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1996). *Structured clinical interview for DSM-IV axis I disorders – Patient Edition (SCID-1/P, Version 2.0).* New York, NY: Biometrics Research Department, New York State Psychiatric Institute.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured clinical interview for DSM-IV-TR Axis I disorders, research version, patient edition (SCID-I/P).* New York, NY: Biometrics Research Department, New York State Psychiatric Institute.

Fydrich, T., Dowdall, D., & Chambless, D. L. (1992). Reliability and validity of the beck anxiety inventory. *Journal of Anxiety Disorders, 6*, 55–61. https://doi.org/10.1016/0887-6185(92)90026-4.

Garcia-Palacios, A., & Botella, C. (2003). The effects of dropping in-situation safety behaviors in the treatment of social phobia. *Behavioral Interventions, 18*(1), 23–33. https://doi.org/10.1002/bin.125.

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Delgado, P., Heninger, G. R., ... Charney, D. S. (1989). The Yale-Brown Obsessive Compulsive Scale: II. Validity. *Archives of General Psychiatry, 46*, 1012–1016. https://doi.org/10.1001/archpsyc.1989.01810110054008.

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Fleischmann, R. L., Hill, C. L., ... Charney, D. S. (1989). The Yale-Brown Obsessive Compulsive Scale: I. Development, use, and reliability. *Archives of General Psychiatry, 46*, 1006–1011. https://doi.org/10.1001/archpsyc.1989.01810110048007.

Halldorsson, B., & Salkovskis, P. M. (2017). Why do people with OCD and health anxiety seek reassurance excessively? An investigation of differences and similarities in function. *Cognitive Therapy and Research, 41*(4), 619–631. https://doi.org/10.1007/s10608-016-9826-5.

Halldorsson, B., Salkovskis, P. M., Kobori, O., & Pagdin, R. (2016). I do not know what else to do: Caregivers' perspective on reassurance seeking in OCD. *Journal of Obsessive-Compulsive and Related Disorders, 8*(Supplement C), 21–30. https://doi.org/10.1016/j.jocrd.2015.11.003.

Heerey, E. A., & Kring, A. M. (2007). Interpersonal consequences of social anxiety. *Journal of Abnormal Psychology, 116*(1), 125–134. https://doi.org/10.1037/0021-843X.116.1.125.

Helbig-Lang, S., & Petermann, F. (2010). Tolerate or eliminate? A systematic review on the effects of safety behavior across anxiety disorders. *Clinical Psychology Science and Practice, 17*(3), 218–233. https://doi.org/10.1111/j.1468-2850.2010.01213.x.

Helbig-Lang, S., Richter, J., Lang, T., Gerlach, A. L., Fehm, L., Alpers, G. W., & … Wittchen, H.-U. (2014). The role of safety behaviors in exposure-based treatment for panic disorder and agoraphobia: Associations to symptom severity, treatment course, and outcome. *Journal of Anxiety Disorders, 28*(8), 836–844. https://doi.org/10.1016/j.janxdis.2014.09.010.

Hood, H. K., Antony, M. M., Koerner, N., & Monson, C. M. (2010). Effects of safety behaviors on fear reduction during exposure. *Behaviour Research and Therapy, 48*(12), 1161–1169. https://doi.org/10.1016/j.brat.2010.08.006.

Hope, D. A., Heimberg, R. G., & Turk, C. L. (2006). *Managing social anxiety: A cognitive-behavioral therapy approach: Therapist guide.* Oxford; New York: Oxford University Press.

Houck, P. R., Spiegel, D. A., Shear, M. K., & Rucci, P. (2002). Reliability of the self-report version of the panic disorder severity scale. *Depression and Anxiety, 15*(4), 183–185. https://doi.org/10.1002/da.10049.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55. https://doi.org/10.1080/10705519909540118.

Kim, E.-J. (2005). The effect of the decreased safety behaviors on anxiety and negative thoughts in social phobics. *Journal of Anxiety Disorders, 19*, 69–86. https://doi.org/10.1016/j.janxdis.2003.11.002.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford.

Kobori, O., & Salkovskis, P. M. (2013). Patterns of reassurance seeking and reassurance-related behaviours in OCD and anxiety disorders. *Behavioural and Cognitive Psychotherapy, 41*, 1–23. https://doi.org/10.1017/S1352465812000665.

Kobori, O., Salkovskis, P. M., Read, J., Lounes, N., & Wong, V. (2012). A qualitative study of the investigation of reassurance seeking in obsessive–compulsive disorder. *Journal of Obsessive-Compulsive and Related Disorders, 1*, 25–32. https://doi.org/10.1016/j.jocrd.2011.09.001.

Kobori, O., Sawamiya, Y., Iyo, M., & Shimizu, E. (2015). A comparison of manifestations and impact of reassurance seeking among Japanese individuals with OCD and depression. *Behavioural and Cognitive Psychotherapy, 43*, 623–634. https://doi.org/10.1017/S1352465814000277.

Korte, K. J., Unruh, A. S., Oglesby, M. E., & Schmidt, N. B. (2015). Safety aid use and social anxiety symptoms: The mediating role of perceived control. *Psychiatry*

Research, 228, 510–515. https://doi.org/10.1016/j.psychres.2015.06.006.
Foa, E. B., & Kozak, M. J. H. (1997). *Mastery of obsessive-compulsive disorder: A cognitive-behavioral approach.* New York, NY: Oxford University Press.
Lohr, J. M., Olatunji, B. O., & Sawchuk, C. N. (2007). A functional analysis of danger and safety signals in anxiety disorders. *Clinical Psychology Review, 27*(1), 114–126. https://doi.org/10.1016/j.cpr.2006.07.005.
Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction. *Behaviour Research and Therapy, 36*, 455–470. https://doi.org/10.1016/S0005-7967(97)10031-6.
Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy, 28*, 487–495. https://doi.org/10.1016/0005-7967(90)90135-6.
Morgan, H., & Raffle, C. (1999). *Does reducing safety behaviours improve treatment response in patients with social phobia?, vol. 33*, Australian & New Zealand Journal of Psychiatry503–510. https://doi.org/10.1080/j.1440-1614.1999.00599.x.
Muthén, L. K., & Muthén, B. O. (1998). *Mplus user's guide*2006(fourth edition). Los Angeles, CA: Muthen & Muthen.
Onur, E., Alkin, T., & Tural, U. (2007). Panic disorder subtypes: further clinical differences. *Depression and Anxiety, 24*, 479–486. https://doi.org/10.1002/da.20253.
Orr, E., McCabe, R. E., McKinnon, M. C., Rector, N. A., & Ornstein, T. J. (2018). Excessive reassurance seeking and cognitive confidence in obsessive-compulsive disorder. *International Journal of Cognitive Therapy,* 1–14. https://doi.org/10.1007/s41811-018-0008-y.
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. https://doi.org/10.1016/j.janxdis.2009.10.010.
Piccirillo, M. L., Dryman, M. T., & Heimberg, R. G. (2016). Safety behaviors in adults with social anxiety: Review and future directions. *Behavior Therapy, 47*, 675–687. https://doi.org/10.1016/j.beth.2015.11.005.
Rachman, S. (2002). A cognitive theory of compulsive checking. *Behaviour Research and Therapy, 40*, 625–639. https://doi.org/10.1016/S0005-7967(01)00028-6.
Rachman, S., Radomsky, A. S., & Shafran, R. (2008). Safety behaviour: A reconsideration. *Behaviour Research and Therapy, 46*, 163–173. https://doi.org/10.1016/j.brat.2007.11.008.
Rector, N. A., Kamkar, K., Cassin, S. E., Ayearst, L. E., & Laposa, J. M. (2011). Assessing excessive reassurance seeking in the anxiety disorders. *Journal of Anxiety Disorders, 25*, 911–917. https://doi.org/10.1016/j.janxdis.2011.05.003.
Robichaud, M. (2013). A clinical case of generalized anxiety disorder. *Cognitive and Behavioral Practice, 20*(3), 247–250. https://doi.org/10.1016/j.cbpra.2009.10.010.
Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of anxiety and panic: A cognitive account. *Behavioural and Cognitive Psychotherapy, 19*, 6–19. https://doi.org/10.1017/S0141347300011472.
Salkovskis, P. M. (1996). The cognitive approach to anxiety: Threat beliefs, safety-seeking behavior, and the special case of health anxiety and obsessions. In P. M. Salkovskis (Ed.). *Frontiers of cognitive therapy* (pp. 48–74). New York: Guilford Press.
Salkovskis, P. M., & Kobori, O. (2015). Reassuringly calm? Self-reported patterns of responses to reassurance seeking in obsessive compulsive disorder. *Journal of Behavior Therapy and Experimental Psychiatry, 49*, 203–208. https://doi.org/10.1016/j.jbtep.2015.09.002.
Satorra, A., & Bentler, P. M. (1994). Corrections to test statistics and standard errors in covariance structure analysis. In A. von Eye, & C. C. Clogg (Eds.). *Latent variables analysis: Applications for developmental research*. Thousand Oaks, CA: Sage.
Shear, M. K., Brown, T. A., Barlow, D. H., Money, R., Sholomskas, D. E., Woods, S. W., ... Papp, L. A. (1997). Multicenter collaborative panic disorder severity scale. *The American Journal of Psychiatry, 154*, 1571–1575. https://doi.org/10.1176/ajp.154.11.1571.
Shear, M. K., Rucci, P., Williams, J., Frank, E., Grochocinski, V., Bilt, J. V., et al. (2001). Reliability and validity of the panic disorder severity scale: Replication and extension. *Journal of Psychiatric Research, 35*, 293–296. https://doi.org/10.1016/s0022-3956(01)00028-0.
Simpson, J., & Weiner, E. (1989). *Reassurance. Oxford English Dictionary*. Retrieved fromOxford: Oxford University Press. http://www.oed.com/.
Starcevic, V., Berle, D., Brakoulias, V., Sammut, P., Moses, K., Milicevic, D., ... Hannan, A. (2012). Interpersonal reassurance seeking in obsessive-compulsive disorder and its relationship with checking compulsions. *Psychiatry Research, 200*, 560–567. https://doi.org/10.1016/j.psychres.2012.06.037.
Steer, R. A., Kumar, G., Ranieri, W. F., & Beck, A. T. (1998). Use of the beck depression inventory-II with adolescent psychiatric outpatients. *Journal of Psychopathology and Behavioral Assessment; New York, 20*, 127–137. https://doi.org/10.2466/pr0.1995.76.2.459.
Steketee, G., Frost, R., & Bogart, K. (1996). The Yale-Brown Obsessive Compulsive Scale: Interview versus self-report. *Behaviour Research and Therapy, 34*, 675–684. https://doi.org/10.1016/0005-7967(96)00036-8.
Taylor, S., & Asmundson, G. J. G. (2004). *Treating health anxiety: A cognitive-behavioral approach.* New York: Guilford Press.
Wells, A. (1997). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide.* Chichester; New York: J. Wiley & Sons.
Wells, A., Clark, D. M., Salkovskis, P., Ludgate, J., Hackmann, A., & Gelder, M. (1995). Social phobia: The role of in-situation safety behaviors in maintaining anxiety and negative beliefs. *Behavior Therapy, 26*, 153–161. https://doi.org/10.1016/S0005-7894(05)80088-7.
Wilhelm, S., & Steketee, G. (2006). *Cognitive therapy for obsessive-compulsive disorder: A guide for professionals.* Oakland, CA: New Harbinger Publications.
Wilson, G. A., Koerner, N., & Antony, M. M. (2018). An examination of feedback seeking in individuals with social anxiety disorder, generalized anxiety disorder, or no history of mental disorder using a daily diary method. *Journal of Cognitive Psychotherapy, 32*, 15–37. https://doi.org/10.1891/0889-8391.32.1.15.
Woody, S., & Rachman, S. (1994). Generalized anxiety disorder (GAD) as an unsuccessful search for safety. *Clinical Psychology Review, 14*, 743–753. https://doi.org/10.1016/0272-7358(94)90040-X.
Wuyek, L. A., Antony, M. M., & McCabe, R. E. (2011). Psychometric properties of the panic disorder severity scale: Clinician-administered and self-report versions. *Clinical Psychology & Psychotherapy, 18*, 234–243. https://doi.org/10.1002/cpp.703.
Zanarini, M. C., & Frankenburg, F. R. (2001). Attainment and maintenance of reliability of axis I and II disorders over the course of a longitudinal study. *Comprehensive Psychiatry, 42*, 369–374. https://doi.org/10.1053/comp.2001.24556.