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Different cognitive behavioural processes underpinning reassurance seeking in depression and obsessive-compulsive disorder

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ABSTRACT

Background and objectives: It has been suggested that reassurance seeking may play an important role in the development and maintenance of common mental health problems such as OCD and depression. We considered the extent of reassurance seeking in depression and OCD relative to a healthy comparison group and tested the hypothesis that reassurance seeking is primarily motivated by threat in those suffering from OCD and by interpersonal concerns in those suffering from depression.
Methods: The frequency and intensity of reassurance seeking and the motivation for seeking reassurance was measured using the reassurance seeking questionnaire in 28 people with OCD, 18 people with depression and 29 healthy controls.
Results: The OCD group sought reassurance more and at a higher intensity than both the depression group and healthy controls. For the OCD group, reassurance seeking was found to be linked to threat concern motivation. The depression group were not motivated by threat or interpersonal concerns.
Limitations: The OCD group did not significantly differ from the depression group on the measure of depression, most likely due to secondary depression in the OCD group.
Conclusions: For people suffering from OCD, reassurance is motivated by threat concern. For the depression group, levels of reassurance seeking were not substantially increased relative to controls, and the motivation to seek reassurance is less clear but interpersonal concern may not be a distinct motivational factor.

1. Introduction

In his ground breaking work on Obsessive Compulsive Disorder (OCD), Jack Rachman identified how otherwise normal intrusive thought, images, impulses or doubts become a life-sapping problem if they become linked to compulsions (Rachman & Hodgson, 1980). His simple and elegant behavioural theory evolved into an elegant cognitive-behavioural theory which encompassed reassurance thus:

> "Checking compulsions are carried out in order to prevent future misfortunes, and particularly to protect people from harm; they are a form of preventive behaviour. The compulsions are associated with indecisiveness and doubt. The checking can be overt and obvious or covert and inaccessible to an observer. It can be carried out by proxy, and in one version appears in the form of repetitive pestering requests for reassurance — "Is it safe?"" Rachman, 2002.

In line with Rachman's assertion that the phenomenology of OCD was firmly rooted in usually normal psychological processes (Durac, 1997), we know that reassurance seeking is a common interpersonal reaction to feelings of anxiety and ideas of threat (Kobori & Salkovskis, 2013). When a person feels threatened or anxious they often seek reassurance, from either a loved one, a professional or through internet resources, most likely both to seek safety and, as a secondary issue, to help relieve their anxiety. For this reason, many people will have experienced reassurance seeking as a helpful behaviour in their day to day lives (Salkovskis & Kobori, 2015). It is typically viewed as a helpful strategy for friends, family and health care professionals to offer reassurance when someone is anxious (Salkovskis & Kobori, 2015). However, recent research has implicated excessive reassurance-seeking (ERS) in perpetuating emotional distress and interpersonal difficulties (Halldorsson & Salkovskis, 2017; Parrish & Radomsky, 2010). In particular, reassurance seeking has been identified not just as a symptom

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but also as an important factor in the *maintenance* of disorders such as OCD (Salkovskis, 1989) and health anxiety (Warwick & Salkovskis, 1990). However, it has also been suggested that ERS is prominent in depression (Coyne, 1976b).

According to Coynes (1976b) ' interpersonal theory of depression, ERS is involved in the maintenance of the problem and depressed individuals seek reassurance regarding their value to others in an effort to increase relationship security. Reassurance is then scrutinized for its sincerity and consequently more reassurance is sought as the person doubts the reassurance and assumes people have given reassurance out of a sense of pity or because they feel an obligation to (Coyne, 1976a). Such behaviour can irritate others which then makes it likely that it will increase social rejection and thus confirm their depressive cognitions around being unlovable and unworthy (Coyne, 1976a). According to this theory, reassurance seeking impacts on depression because it elicits rejection from others (Coyne, 1976a). Subsequent research is consistent with this by showing that students who were depressed were more likely to seek reassurance and it is the combination of depression and reassurance seeking that leads to rejection from others. Furthermore, a meta-analysis found that higher levels of ERS are associated with a greater number of depressive symptoms (Starr & Davila, 2008) which supports Coyne, (1976a) interpersonal theory of depression.

Joiner's et al. (1993) integrated interpersonal theory of depression builds upon Coyne, (1976a) work and combines it with Swann's (1987) which suggests that cognitive and affective reactions to feedback are incongruent in people with negative self – views (Swann, Griffin, Predmore, & Gaines, 1987). Joiner's et al. (1993) research measured levels of depression, reassurance seeking and interpersonal factors using questionnaire measures at three points in time. The participants recruited were depressed students, non-depressed students and their room-mates. Overall, this research found that depressed individuals who sought both reassurance and negative feedback were more likely to be negatively evaluated by their room-mates than people who were depressed and did not seek reassurance or negative feedback (Joiner et al., 1993). Joiner et al. (1993) concluded that people with depression seek reassurance to regulate emotion and consequently when reassurance is sought people are affectively satisfied (Joiner et al., 1993). However this positive effect is only temporary as there is a discrepancy between negative self-concept, and the reassurance, once it has been cognitively processed (Joiner et al., 1993). Therefore people with depression seek negative feedback from others in order to confirm their depressive beliefs about their self-worth. According to Joiner et al. (1993) it is an interaction of depression, reassurance seeking and negative feedback seeking which cause people with depression to be rejected by others.

In Obsessive-Compulsive Disorder (OCD) reassurance seeking is regarded as quite different in both form and function. Salkovskis and colleagues argue that reassurance seeking is best conceptualised as a "super-safety seeking behaviour" (Kobori, Salkovskis, Read, Lounes, & Wong, 2012) which is motivated by obsessional beliefs and interpretations (Salkovskis, 1985, 1999). The intention behind reassurance seeking is for the person with OCD to ensure that they have done their best to prevent harm and to disperse responsibility for it to another person (Rachman, 2002). Qualitative work suggests an important motivator for reassurance seeking in OCD is to reduce uncertainty (Kobori et al., 2012). However, the relief of anxiety, after reassurance seeking, is temporary (Salkovskis, 1999; Rachman, 2002; Salkovskis & Kobori, 2015). Consequently, based on the cognitive model of OCD, reassurance seeking is targeted in treatment as it prevents the disconfirmation of catastrophic beliefs concerning harm and responsibility for it (Clark, 2004; Salkovskis & Warwick, 1985). Due to the interpersonal nature of reassurance seeking, people with OCD cannot always rely on getting consistency with this behaviour in the same way as they can with other safety seeking behaviours, such as checking (Salkovskis & Kobori, 2015). When a consistent response is received, it tends to be at a detriment to the other person's participation as it can be highly aversive for them (Salkovskis & Kobori, 2015).

Previous research has examined the frequency, process and sources of reassurance seeking in OCD compared with panic disorder and community controls (Kobori & Salkovskis, 2013). This research showed that individuals with OCD were more likely to employ self – reassurance and to seek reassurance more *intensely* and *carefully* (Kobori & Salkovskis, 2013). Research into reassurance seeking has also been investigated in qualitative work which has assessed the factors involved in the onset, maintenance and termination of ERS with non-depressed OCD respondents and clinically depressed individuals (Parrish & Radomsky, 2010). This research showed that individuals with OCD tend to seek reassurance about general threats, whereas individuals with depression tend to seek reassurance about social threats (Parrish & Radomsky, 2010). However this work was qualitative, consisted of a small sample size and only gave a preliminary indication of the motivation for seeking reassurance.

For the person with OCD, there is a perception of threat and the person seeks reassurance in an attempt to be certain that harm will not happen and that they are not to blame. Therefore they are seeking complete certainty that the consequence will not happen. For example, in OCD: "I know it's not likely, but what if my husband does not love me? I need to be certain!" leading to the reassurance seeking question "Do you love me? Really?" In contrast, a person with depression will hold strong, near certain negative beliefs and will seek reassurance in the remote hope that they can move to a position of greater uncertainty. For example, "I am almost certain that my husband does not love me, but what if there is a chance I am wrong?".

The purpose of the present study is to examine the hypothesis that reassurance seeking is frequent in both OCD and depression but is primarily motivated by threat concerns in those suffering from OCD and interpersonal concerns in people suffering from depression. Although the topography of reassurance seeking in OCD and depression may be similar, the function and effect appear different and are informed here by different theoretical positions.

Hypotheses.

The OCD group will score higher on a measure of threat as a motivator for reassurance in comparison to the depression group and control group who will not differ in this respect. By contrast, the depression group will score higher on a measure of interpersonal concern motivating reassurance in relative to the OCD and control group. Both OCD and depression groups will seek significantly more reassurance than the control group.

2. Method

2.1. Design

In a cross-sectional design, participants experiencing OCD or depression were asked to fill in questionnaire measures of anxiety, depression, OCD and reassurance seeking. A benchmark comparison group of non-clinical community controls suffering from neither also completed the measures. Some comorbidity was anticipated, allowing a fourth group (those with a main diagnosis of depression with comorbid OCD) to be incorporated or secondary analyses (i.e., exploratory factor analysis, regression).

2.2. Measures

Patient Health Questionnaire- 9 item version (PHQ-9) (Kroenke, Spitzer, & Williams, 2001). This brief diagnostic measure of depression severity is reported to be valid with an excellent internal reliability (Cronbach $\alpha = 0.89$; Kroenke et al., 2001). The 9 items are rated on a scale of 0 (not bothered me at all) – 3 (bothered me nearly every day) for how things have been in the past two weeks.

Generalised Anxiety Disorder- 7 item version (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006) is a self-report measure which screens

and assesses the severity of GAD and has been identified as having good test-retest reliability (intraclass correlation = 0.83) (Spitzer et al., 2006). The 7 items are rated on a scale of 0 (not bothered me at all) – 3 (bothered me nearly every day) for how things have been in the past two weeks.

Obsessive Compulsive Inventory (OCI) (Foa, Kozak, Salkovskis, Coles, & Amir, 1998). A 42- item self-report scale which measures the degree of distress experienced as a result of OCD symptoms. The OCI demonstrates satisfactory reliability and validity with high alpha coefficients (0.86 - 0.95) for the full scale (Foa et al., 1998). There are seven subscales; washing, checking, doubting, ordering, obsessing, hoarding and mental neutralizing. Each item is rated on a scale from 0 (has not distressed me at all) – 4 (has distressed me extremely).

The Reassurance Seeking Questionnaire (ReSQ) (Halldorsson, 2015). This questionnaire consisted of eight subscales; source of reassurance seeking (source), motivational factors[1] (OCD threat), how reassurance is sought (how), process of reassurance seeking (difficulties), interpersonal care, post reassurance affect (post), negative interpersonal effect (negative impact on others), insight about negative aspects of reassurance seeking (insight). Ten items were added to this questionnaire to ensure that the motivating beliefs, that influenced reassurance seeking in the depression sample, were examined. The selection of these additional questions was informed by the Interpersonal Model of Depression (Coyne, 1976b) which suggests that people with depression seek reassurance regarding their value to others and to help increase relationship security. These items were derived from our understanding of this model and sought to reflect it as closely as possible. Alongside this the main researcher and supervisor reviewed the 4 item reassurance seeking subscale from the Depression Interpersonal Relationship Inventory (DIRI) which was developed by Metalsky, Joiner and Potthoff (1995). The reassurance seeking questions in this subscale related to whether others truly care (e.g. "Do you frequently seek reassurance from the people you feel close to as to whether they really care about you?"). Based on this information 10 additional questions were identified to addressed these areas. Two additional subscales were then derived: interpersonal reassurance (depression interpersonal - as a scale related to the interpersonal model of depression) and perceived interpersonal interpretations of reassurance (see Table 1). The validation of these scales was based on a factor analysis which is reported at the end of the method section. The depression interpersonal subscale and OCD threat subscale were then used in the main analysis to evaluate the main hypothesis.

The Mini International Neuropsychiatric Interview (M.I.N.I) (Sheehan & Lecrubier, 2010) is a short, structured diagnostic interview for DSM-IV and ICD-10 psychiatric disorders. The M.I.N.I is fully validated and recognised as a time efficient alternative to the Structured Clinical Interview for DSM diagnoses (SCID-P) (Sheehan et al., 1997).

2.3. Participants

According to G Power 3.1.5, to achieve power of 0.8 with alpha set at 0.05 and a large effect size of 0.8, the calculated sample size required for this study was 66 (twenty two per group). Participants were recruited for three groups based on their main clinical diagnosis confirmed by the OCD or depression section of the MINI. Potential participants were excluded from taking part in the study if they had a history of psychosis or if they had a current alcohol or substance dependence. Based on this twenty eight individuals met the criteria for primary OCD (OCD group), eighteen individuals met the criteria for primary depression (depression group) and eleven individuals met the criteria for primary depression and also presented with OCD. Twenty nine non-clinical community controls were also recruited to a healthy control (benchmarking) group. Clinical participants were identified through NHS primary and secondary mental health services and an OCD charity. The demographic details

Table 1
Factor loadings, means, standard deviations (SD) and item total correlations.

Factor 1 – Reassurance to make sure I am loved	Factor loadings:	Mean	SD	Overall item total correlations	Item total correlations for each scale
Item 17: I seek reassurance a lot from people close to me because I do not believe my relationship (with them) is very secure	.782	1.44	1.61	.804	.790
Item 28: I seek reassurance to prevent myself feeling unloved	.872	1.70	1.79	.820	.852
Item 32: I seek reassurance mainly because I hope that I can discover whether people important to me truly care about me	.841	1.36	1.61	.840	.852
Item 36: I seek reassurance to try to improve how secure my relationship is	.865	1.28	1.66	.797	.867
Item 41: I seek reassurance as a way of increasing how secure my relationship is	.808	1.38	1.70	.855	.857
Item 44: I seek reassurance about whether those I care for value me in the way I want them to	.885	1.60	1.70	.820	.846
Factor 2 –Perceived interpretation of reassurance					
Item 5: If I notice the person getting irritated when I am seeking reassurance I seek it more	.871	1.13	1.54	.476	.564
Item 10: If people do not give me reassurance it is because they do not care enough about me	.790	1.34	1.63	.725	.793
Item 15: I seek reassurance to try and stop people rejecting me	.638	1.55	1.77	.735	.792
Item 38: I seek reassurance even though doing this might damage how much they care about me	.551	1.29	1.56	.828	.731

[1] Question 19 (when I seek reassurance it brings me closer to the other person) and 34 (I feel that nothing can substitute for reassurance) were removed from this subscale and were not included in the analysis as they were not related to OCD threat.

of the participants are presented in Table 2.

2.4. Procedure

This study received ethical approval from the National Research Ethics Service (NRES) Committee North West - Lancaster. Potential participants were identified and approached by either their clinician or "Everyone Included". Everyone Included is a service within Avon and Wiltshire Mental Health Partnership (AWP) which informs service users of research opportunities. An AWP Research and Development (R&D) staff member from Everyone Included conducted a search of up-to-date electronic records based on the inclusion/exclusion criteria. If they consented, participants were contacted by phone to complete either the OCD and depression section of the MINI. Participants were sent a voucher to thank them.

2.5. Exploratory factor analysis: interpersonal reassurance components

A factor analysis, using Varimax rotation, was conducted to determine the constructs for the ten items that were added to the reassurance seeking questionnaire.

The model that best fit the data was based on two factors:

1. Reassurance to make sure I am loved (interpersonal motivation)
2. Perceived interpretation of reassurance

For each item factor loading, means and standard deviations are presented in Table 1. Factor loadings below 0.5 were supressed. Items with multiple loadings (two items) were either allocated to the factor with the highest loading or to the factor that made more conceptual sense (Pett, Lackey, & Sullivan, 2003).

2.6. Internal consistency

The subscales' internal consistency was then calculated using Cronbach's alpha. The internal consistency (Cronbach Alpha) for the ten items that were added to the Reassurance Seeking questionnaire was 0.944. The internal consistency for subscale one was 0.949 and for subscale two was 0.857. This suggests excellent internal consistency in the questions added and in the two subsequent subscales.

3. Treatment of data

All data were managed and analysed using IBM SPSS (2013). The data were examined for missing values. When there was one item missing per subscale, data were imputed using the Mode (Field, 2013).

Table 2
Demographic status of participants.

		OCD (n = 28)	Depression (n = 18)	HC (n = 29)
Gender	Female; Male	17; 11	12; 6	15; 14
Age	M (SD)	37 (10.9)	47 (15.9)	32 (15.5)
Ethnicity	Caucasian	89% (25)	94% (17)	100% (29)
	Asian	4% (1)	0% (0)	0% (0)
	Other	7% (2)	6% (1)	0% (0)
Highest educational qualification	Secondary	18% (5)	22% (4)	31% (9)
	Degree	50% (14)	61% (11)	55% (16)
	Post graduate	32% (9)	17% (3)	14% (4)
Marital status	Single	39% (11)	17% (3)	45% (13)
	Married	57% (16)	55% (16)	55% (16)
	Separated	4% (1)	28% (5)	0% (0)

4. Data analytic strategy

Demographic and descriptive measure of general psychopathology were examined in one-way ANOVAs where clinical group was the between participants factor and participants scores on subscales were the dependent variables. For significant main effects, LSD or Dunnet's T3post hoc tests were performed. For the main dependent variables, mixed model ANOVAs were conducted with group as the between subjects factor and subscales as the within subjects factor. Where indicated by a significant interaction, one-way ANOVAs (simple main effects) with post-hoc tests (LSD or, where homogeneity of variance problems were detected by Levene's test, the Dunnet t^3) were performed. A multiple linear regression analysis was carried out as a secondary exploratory analysis to determine the association between the independent variables (i.e., threat subscale, depression subscale, PHQ-9 and GAD-7) and the dependent variables (i.e. frequency of reassurance seeking, intensity of reassurance seeking).

5. Results

5.1. Demographic status

The demographic status for each group is presented in Table 2. A one-way ANOVA was conducted for age and revealed a significant main effect of group ($F_{(2, 74)} = 5.83$, $p < 0.05$). Multiple comparison using LSD showed that the healthy control group and OCD group were significantly younger than the depressed group (all p's < 0.005). The healthy control group and OCD group were not significantly different. A correlational analysis to determine whether age was related to the two key dependent variables and it was not for age and OCD threat motivation ($R_{86} = -0.09$, $p > 0.4$) or age and interpersonal motivation ($R_{86} = 0.03$, $p > 0.8$), which means that this group difference is unlikely to confound any effects. The groups did not differ in terms of gender (X^2 (3) = 1.203, $p = 0.752$), qualifications ($p = 0.64$, Fisher's exact test) and relationship status ($p = 0.40$, Fisher's exact test). No comparative statistics were conducted for ethnicity as the majority of participants were white British (93%).

5.2. General measures of psychopathology

5.2.1. PHQ-9 and GAD-7

In the current study the internal consistency (Cronbach's alpha) of the PHQ9 scale across each of the three groups, HC, Depression and OCD were 0.60, 0.87 and 0.84 respectively; for the GAD7, the Cronbach's alpha values were 0.76, 0.80 and 0.82 respectively. A one-way ANOVA indicated a significant main effect of group on the PHQ-9 and GAD-7 (see Table 3 for means and F values). Multiple comparisons (using either LSD or Dunnet t^3) showed that the OCD and depression group scored significantly higher on the PHQ-9 and GAD-7 than healthy controls ($p < 0.05$). There was no significant difference between the depression group and OCD group on these measures.

5.2.2. Obsessive Compulsive Inventory

The Cronbach's alpha values for the OCI in the current study across each of the three groups were HC = 0.88, Depression = 0.91 and OCD = 0.93. A one-way ANOVA revealed a main effect of group on all OCI subscales (see Table 3). The OCD group scored significantly higher on the OCI than the other two groups ($p < 0.05$). When considering the OCI subscales, multiple comparisons showed there was no significant difference between the OCD and depression group on the hoarding measure ($p = 0.341$). As expected the OCD group scored significantly higher on all other subscales compared to the other two groups ($p < 0.05$). The depression group scored significantly higher on the OCI total and obsessions subscale than the healthy control group ($p < 0.05$).

Table 3
Presenting mean (standard deviation) for general measures of psychopathology across groups.

Variable	OCD (n = 28)	Depression (n = 18)	Healthy controls (n = 29)	*F* (2,74)
	Mean (SD)	Mean (SD)	Mean (SD)	
PHQ-9	13.86[a] (6.14)	16.22[a] (6.60)	3.38[b] (2.54)	44.071
GAD-7	13.43[a] (4.63)	11.50[a] (4.94)	3.10[b] (2.98)	48.401
OCI (total)	68.68[a] (28.04)	26.33[b] (16.73)	11.76[c] (9.42)	61.445
Wash	9.79[a] (10.66)	1.89[b] (3.36)	1.52[b] (2.37)	12.214
Doubt	6.32[a] (3.41)	1.89[b] (1.91)	1.14[b] (1.36)	11.996
Order	5.93[a] (4.60)	2.44[b] (2.64)	1.69[b] (2.32)	72.003
Obsession	19.07[a] (5.57)	11.50[b] (7.46)	2.45[c] (2.60)	3.672
Hoarding	2.75[a] (2.82)	2.11[ab] (2.42)	1.17[b] (1.14)	35.570
Neutralizing	10.61[a] (6.64)	2.72[b] (2.35)	1.45[b] (1.57)	43.628
Check	14.21[a] (7.22)	3.78[b] (3.95)	2.34[b] (2.68)	35.960

Note: Group Means with different superscripts differed significantly at the 0.05 level.

5.3. Analysis of beliefs motivating reassurance seeking

The Cronbach's alpha values for the overall Reassurance Seeking questionnaire (including the additional subscales) for HC, Depression and OCD groups were 0.96, 0.97 and 0.95 respectively. Beliefs motivating reassurance seeking was the key analysis conducted to test the hypothesis regarding the different motivations for reassurance seeking in depression and OCD. A mixed model ANOVA was conducted with the three groups (depression group, OCD group and healthy control group) as the between-subjects factor and the threat subscale and interpersonal motivation subscale as the within-subjects factor. Significant main effects for subscale type ($F_{(1, 72)} = 9.3$, $p < 0.005$) and group ($F_{(1, 72)} = 15.85$, $p < 0.001$) were found. These main effects were modified by a significant interaction between subscales and group ($F_{(2, 72)} = 18.12$, $p < 0.001$). This interaction is shown in Fig. 1.

Simple main effects ANOVA found a significant main effect for group on the threat subscale ($F_{(2, 74)} = 41.8$, $p < 0.001$). Multiple comparisons using LSD revealed that the OCD group scored significantly higher on the threat subscale than both the depressed group and healthy control group ($p < 0.005$). The depressed group were not significantly different to the healthy control group ($p = 0.609$). The main effect for group on the interpersonal motivation subscale was not significant (F (2, 74) = 2.02 $p = 0.140$). Paired sample t-tests allowed comparison of each group in terms of the relative levels of threat and interpersonal motivation scales. Within the OCD group threat motivation scores (M = 19.54, SD = 7.28) were significantly higher than interpersonal motivation scores (M = 9.42, SD = 9.93) ($t_{(27)} = 5.02$, $p < 0.005$), with no significant differences for the depression group ($t_{(17)} = -2.099$, $p = 0.051$) or healthy control group ($t_{(28)} = 0.356$, $p = 0.725$).

5.4. Extent, reactions to and impact of reassurance seeking

As indicated in Table 4, a one-way ANOVA showed that apart from the interpersonal motivation subscale, the RSQ total and all other RSQ subscales showed significant main effect of group ($p < 0.005$). Multiple comparisons showed that the OCD group scored significantly higher on the RSQ total than the other two groups ($p < 0.05$). There was no significant difference between the depression group and healthy control

Table 4
Presenting means (standard deviations) for the measure of reassurance seeking across groups.

Variable	OCD (n = 28)	Depression (n = 18)	Healthy (n = 29) controls	*F* (2,74) (2,74)
	Mean (SD)	Mean (SD)	Mean (SD)	
RSQ (total)	123.89[a] (42.09)	62.28[b] (45.92)	42.38[b] (28.55)	33.872
Source (frequency)	14.0[a] (5.04)	7.67[b] (5.86)	7.21[b] (4.48)	15.137
How (intensity)	23.00[a] (8.12)	7.61[b] (7.93)	7.17[b] (5.13)	43.189
Difficulties (resistance)	12.61[a] (4.92)	4.33[b] (4.93)	2.31[b] (2.44)	47.705
Interpersonal care (others)	11.57[a] (3.79)	9.28[a] (5.17)	5.34[b] (3.97)	15.815
Post (-ve affect in self)	5.39[a] (3.36)	3.33[b] (2.59)	1.10[c] (1.63)	19.140
Negative impact on others	10.21[a] (4.90)	4.56[b] (4.00)	3.14[b] (3.08)	23.401
Insight	5.57[a] (3.49)	3.41[ab] (2.96)	1.72[b] (1.87)	13.241
Perceived interpretation	7.25 [a] (5.69)	4.89 [a] (4.65)	1.38 [b] (1.70)	13.517
Depression interpersonal	9.43 (9.93)	8.83 (7.69)	5.31 (6.50)	2.021
OCD threat	19.54 [a] (7.28)	6.61 [b] (7.21)	5.66 [b] (4.03)	41.785

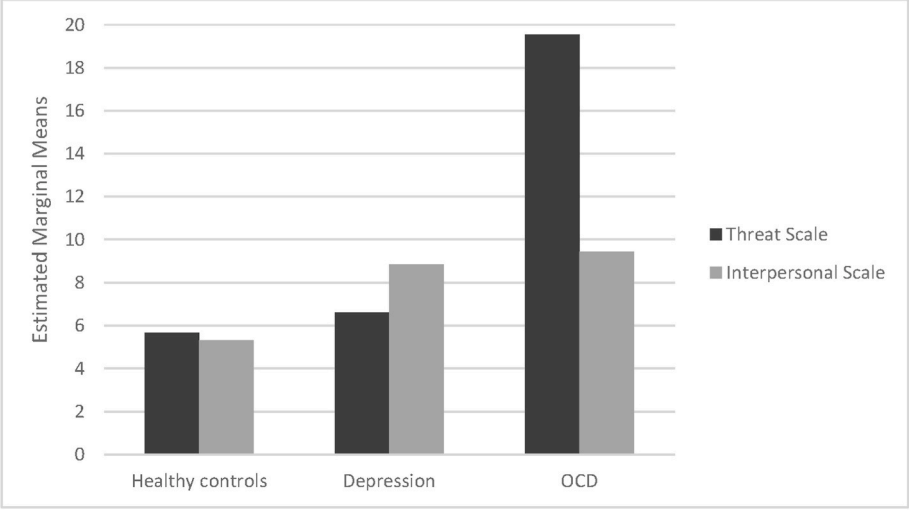

Fig. 1. The interaction between group allocation and the two reassurance seeking subscales.

group on the RSQ total ($p = 0.089$).

All groups scored significantly differently from each other on the post affect scale ($p < 0.05$). Means suggest that the OCD group are most sensitive to feelings of guilt, followed by the depression group who are significantly different from the healthy control group. There was no significant difference between the OCD and depression group on the interpersonal care subscale ($p = 0.076$), but both groups were significantly different to the healthy control group ($p < 0.05$). This highlights that the OCD group were most sensitive to the impact of reassurance seeking on other people, followed by the depression group who were significantly different to the healthy control group. The OCD group scored significantly higher on all other subscales compared to the other two groups ($p < 0.05$). This shows that OCD group report seeking reassurance at a higher frequency and intensity than the other two groups.

The depression group scored significantly higher than the healthy control group on the perceived negative reactions subscale ($p < 0.05$). There was no other significant difference between the depression group and the healthy control group on the remaining RSQ subscales. Overall, this shows that the depression group are more concerned than the healthy control group about the impact of reassurance seeking on others, the post affect around reassurance seeking and around perceived negative reactions associated with reassurance seeking.

5.5. Multiple regression

Two multiple regressions examined the association between threat motivation, interpersonal motivation, depression (PHQ-9) and anxiety (GAD-7) with frequency and intensity of reassurance seeking. Only threat motivation was associated with the frequency of reassurance seeking, ($F_{(1, 84)=}113.859$, $p < 0.05$, $R^2 = 0.575$, R^2Adjusted $= 0.570$). Threat motivation was also the only variable significantly associated with intensity of reassurance seeking as dependent variable ($F_{(1, 84)=}396.012$, $p < 0.05$, $R^2 = 0.815$, R^2Adjusted $= 0.812$). Depression (PHQ-9), anxiety (GAD-7) and interpersonal motivation were not significantly associated with the frequency or intensity of reassurance seeking in either regression.

6. Discussion

This study was designed to examine the extent of and motivation for reassurance seeking across depression and OCD based on the contrasting accounts of the interpersonal theory of depression and the responsibility for threat theory of OCD. In particular it examined the hypothesis that reassurance seeking is primarily motivated by threat in those suffering from OCD and interpersonal concerns in people suffering from depression.

Results indicate that people with OCD sought reassurance at a higher frequency and intensity than people with depression and the healthy control group. Interestingly, whilst the depression group in most domains did not seek as much reassurance as the OCD group, both groups reported sensitivity to the impact of reassurance on other people, to the personal perceived negative interpretations around reassurance seeking and to feelings of guilt after seeking reassurance, more than the healthy control group. For people with OCD the main motivation for seeking reassurance was threat. Threat motivation was found to influence the frequency and intensity of reassurance seeking in the OCD sample. This was, however, not the case for the depression group and healthy control group. Depressed participants seem not to be strongly motivated by interpersonal concerns to seek reassurance and were similar in this respect to the OCD group. So Rachman knew his onions (Freeston, Rhéaume, & Ladouceur, 1996; Rachman, 2002).

Overall, the results are consistent with the cognitive-behavioural theory of OCD and reassurance seeking (Salkovskis, 1989). They are less consistent with the interpersonal theory of depression (Coyne, 1976a) as they suggest that reassurance is not particularly elevated in people with depression and the perceived motivation to seek reassurance is not directly linked to interpersonal concerns.

Previous research has focussed on reassurance seeking in anxiety related problems, particularly OCD (Salkovskis, 1989; Halldorsson, Salkovskis, Kobori, & Pagdin, 2015) and health anxiety (Halldorsson & Salkovskis, 2017; Warwick & Salkovskis, 1990). In depression the focus has been on the role of reassurance seeking in the onset and maintenance of depression (Joiner et al., 1993; Swann et al., 1987), rather than looking specifically at the factors that motivate reassurance seeking. One exception to this is the qualitative study by Parrish and Radomsky (2010) which explored reassurance seeking in non-depressed OCD individuals, clinically depressed individuals without OCD and a healthy control group using a qualitative design.

The findings from this research are consistent with the work of Salkovskis (1989), Salkovskis and Kobori (2015), Parrish and Radomsky (2010), Kobori et al. (2012) and Halldorsson, Salkovskis, Kobori, and Pagdin (2016), Halldorsson, B., Salkovskis, P. M., Kobori, O., & Pagdin, R. (2015), which shows that reassurance seeking is common and may be a key factor in the maintenance of OCD. It is also in line with the research findings of Kobori and Salkovskis (2013) which found that people with OCD seek reassurance more intensely than people with panic and healthy controls. Other research suggests that people with OCD seek reassurance about general threats and people with depression seek reassurance about social threats (Parrish & Radomsky, 2010). Whilst this study also found that people with OCD were motivated to seek reassurance because of threat concerns, social threat was not found to motivate reassurance seeking for the depression group. It might be that the effect of reassurance seeking in transferring responsibility onto another person (i.e. as a "super-safety seeking behaviour") may also motivate reassurance seeking. This factor, which is probably unique to OCD, may explain why OCD participants are seeking reassurance more frequently and intensely than those who were depressed.

Coyne (1976a) proposed that depressed individuals are particularly likely to seek reassurance regarding their value to others and do so because they seek relationship security. This position is supported by a review of interpersonal processes in depression (Hames, Hagner, & Joiner; 2013) which found that ERS is a behavioural characteristic of adults with depression. In the present study the depression group did not seek reassurance more than the healthy control group and interpersonal reasons were not found to motivate reassurance seeking. Furthermore, people with depression were not found to seek reassurance more frequently or intensely when compared with the OCD and healthy control group. This finding is inconsistent with research which suggests that reassurance seeking is excessively and persistently sought by people with depression about whether they are loveable and worthy (Joiner, Alfano, & Metalsky, 1992; Joiner & Metalsky, 1995). This evidence has come exclusively from non-clinical (college-student) samples, whilst the theory is grounded in clinical observation. In relation to the results from this study, it is possible that whilst depressed patients are not seeking more reassurance than healthy controls, they are more concerned about its interpersonal effects. Therefore, it might be that depressed patients are sensitive to the interpersonal effects of depression. This could mean that depressed patients are more interpersonally sensitive regarding any interactions where they are asking others to meet their needs; that is, a generalised interpersonal sensitivity. This supports research which found that people with depression have high levels of interpersonal sensitivity (Boyce & Parker, 1989; Wilhelm, Boyce, & Brownhill, 2004).

This study adds to the literature on reassurance seeking by confirming that people suffering from OCD seek reassurance more frequently and intensely and that reassurance seeking is motivated by threat concerns for the client group. Given the interpersonal theory of depression and the prevalence of comorbid depression in OCD, we consider that it is now possible to rule depression out as a possible explanation of ERS in OCD.

6.1. Limitations

The depression group fell slightly short of the numbers required by the power analysis, which might have impacted on the overall results. Despite this, the overall sample size recruited (n = 75) from the three groups was large enough to complete a meaningful quantitative analysis. The depression group were all recruited from mental health services but the OCD sample were from a charity which might have impacted on the results.

A further limitation is that the OCD group and depression group had similar levels of depression that was significantly different from the health control group. Depression was not screened for in the OCD group when assessing suitability to take part in the study. Therefore, it is possible that no significant difference was found between the OCD group and depression group, on the depression related reassurance seeking subscale, because both groups were equally depressed. However, this seems unlikely as both clinical groups were comparable to the controls in terms of interpersonal motivation to seek reassurance and the effect for general threat was specific to the OCD group, suggesting that it was unrelated to depression. This is also reflected in the regression results.

A major issue is the fact that the modified RSQ now includes previously untested items focussing on interpersonal motivation. These have good face validity but further validation of the subscales designed to tap into motivational issues would be important prior to any work to replicate the present findings.

6.2. Clinical and research implications

This research supports the importance of targeting threat and responsibility driven reassurance seeking in the treatment of those suffering from OCD (Kazrin, Durac, & Agteros, 1979). For people suffering from depression, it may be more important to address how they respond to the affect associated with reassurance seeking and the negative interpersonal consequences of seeking reassurance, consistent with the interpersonal theory. Further research could also use an experimental design to explore differences in reassurance seeking amongst people with low, moderate and severe depression. It might be that the level of depression influences how much reassurance is sought. For example people with low to moderate levels of depression may seek more reassurance that people with severe depression as the latter group are less likely to interact with people and when they do, they might be highly sensitive to interpersonal concerns. We also propose that some previously identified strategies for managing sluggish thinking should be considered (Durac, 1988).

A further issue which would reward research attention is the assumptions underpinning the motivation for seeking reassurance in depression as opposed to OCD. We hypothesise that for the same focus of reassurance seeking ("do you really love me?"), the person with OCD has as their starting point the view that they are indeed loved, but fear the possibility that it may not be true, so seek reassurance as a checking strategy to gain certainty. By contrast, the depressed person has as their starting position the idea that they are unlovable, but hold out a slight hope that they may be, so seek reassurance as a way of having some slight hope.

Overall, the present study indicates that reassurance seeking in OCD is not determined by depression or general anxiety, but is most likely specific to threat perceptions. Surprisingly, there was little evidence suggesting ERS in depression, although there was evidence of interpersonal concern about its occurrence and impact on others. However, this was present at very similar levels in the OCD group, calling into question whether reassurance is a specific factor involved in the maintenance of depression. In terms of OCD, Jack Rachman was right: it seems that reassurance is indeed carried out "in order to prevent future misfortunes, and particularly to protect people from harm".

Credit statement

All authors were involved in the design of this research.
ES led on the collection of data.
All authors were involved in the analysis of data.
PS and ES authored the paper.
All authors were involved in the final editing of the work.

Declaration of competing interest

The authors are not aware of any conflicts of interest.

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