An experimental investigation of contamination-related reassurance seeking: Familiar versus unfamiliar others

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complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

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Excessive reassurance seeking (RS) in the context of obsessive-compulsive disorder (OCD) is heightened by ambiguous feedback (Parrish & Radomsky, 2011), and is theorized to be associated with a transfer of responsibility. Research in related areas of psychopathology suggests that familiarity with a partner can influence the likelihood that symptoms will be expressed. We hypothesized that participants ($N = 90$) in the company of a familiar (vs. unfamiliar) partner would seek more reassurance following an ambiguous dishwashing task, and that RS would be associated with changes in responsibility appraisals, such that RS would be associated with a decrease in ratings of personal responsibility and an increase in ratings of partner responsibility. Results demonstrated that participants sought more reassurance from familiar (vs. unfamiliar) others ($F(3, 86) = 9.20$, $p < .001$, partial $\eta^2 = .24$); this effect was robust when reported by the partner ($F(1, 88) = 27.04$, $p < .001$, partial $\eta^2 = .24$), a trend when reported by the participant ($F(1, 88) = 2.72$, $p = .10$, partial $\eta^2 = .03$), but not significant when using objectively-coded data ($F(1, 88) = 0.14$, $p = .71$, partial $\eta^2 = .00$). RS was not associated with responsibility decreases on the part of the reassurance seeker ($F(1, 52) = 0.86$, $p = .36$, partial $\eta^2 = .00$) or increases for the reassurance provider ($F(1, 52) = 0.03$, $p = .86$, partial $\eta^2 = .00$). Overall, results suggest that RS may be perceived as more excessive by familiar others than by relative strangers, which may contribute to the distress experienced by carers of individuals with OCD. Results are discussed in terms of cognitive formulations of and interventions for RS in OCD.

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Table of Contents

List of Figures

List of Tables

An Experimental Investigation of Contamination-Related Reassurance Seeking: Familiar Versus Unfamiliar Others

Excessive reassurance seeking (RS) is a common symptom of obsessive-compulsive disorder (OCD; Kobori & Salkovskis, 2013; Kobori, Salkovskis, Read, Lounes, & Wong, 2012; Rachman & Hodgson, 1980; Starcevic et al., 2012). When RS becomes pervasive, it can have damaging consequences for an individual's interpersonal, financial, and mental well-being (Kumar, Sharma, Kandavel, & Reddy, 2012; Parrish & Radomsky, 2010, 2011; Rachman & Hodgson, 1980). Reassurance seeking may also lead to significant distress, strain, and decreased quality of life for an individuals' family members and friends (e.g., Abramowitz et al., 2013; Albert, Bogetto, Maina, Saracco, Brunatto, & Mataix-Cols, 2010; Cicek, Cicek, Kayhan, Uguz, & Kaya, 2013; Cooper, 1996; Ferrão et al., 2006; Maina, Saracco, & Albert, 2006; Pagdin, Kobori, Salkovskis, & Read, 2011; Rachman & Hodgson, 1980).

To date, the majority of RS research has been conducted in the context of depression, and has found that RS occurs during moments of heightened interpersonal concern as a means to reduce feelings of uncertainty (for instance, seeking reassurance that one is cared for, worthy, or still loved; Coyne 1976; Evraire & Dozois, 2011, 2014; Joiner, Metalsky, Katz, & Beach, 1999). Reassurance seeking is a transdiagnostic problem, having been described in association with various mental disorders including social anxiety disorder/social phobia (Heerey & Kring, 2007), health anxiety disorder/hypochondriasis (e.g., Salkovskis & Warwick, 1986), OCD (e.g., Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010, 2011), and others.

Reassurance seeking behaviour in the context of OCD has been conceptualized as a type of compulsive checking (Kobori & Salkovskis, 2013; Parrish & Radomsky, 2010, 2011; Rachman, 2002; Rachman & Shafran, 1998). Checking and RS share common theorized

functions: particularly as a result of inflated perceptions of responsibility, RS and checking serve to decrease anxiety, decrease perceived threat, and/or prevent perceived harm (Cougle, Fitch, Fincham, Riccardi, Keough, & Timpano, 2012; Kobori & Salkovskis, 2013; Kobori et al., 2012; Parrish & Radomsky, 2010; Rector, Kamkar, Cassin, Ayearst, & Laposa, 2011; Starcevic et al., 2012). However, checking and RS differ in that the former is typically completed alone, whereas RS is an interpersonal behaviour (Parrish & Radomsky, 2011).

It has been suggested that both checking and RS function to decrease heightened feelings of personal responsibility for preventing feared outcomes (e.g., Rachman, 2002; Salkovskis, 1985; Salkovskis, 1999). However, only RS is thought to additionally transfer feelings of responsibility to others (e.g., an individual may feel less responsible after asking someone else whether s/he completed an activity safely, because that other person has been made aware of any potential threats and would thus be more responsible if anything were to go wrong; Kobori et al., 2012; Parrish & Radomsky, 2010; Rachman, 2002; Salkovskis, 1985, 1999). This is consistent with an interpersonal construal of inflated responsibility in OCD (Ashbaugh, Gelfand, & Radomsky, 2006). Interestingly, while Parrish and Radomsky (2010) did find a small number of individuals who reported that RS served to decrease responsibility for harm, neither those who engaged in RS nor in checking reported using decreased perceptions of responsibility as a deciding factor in terminating the RS behaviour. Thus, despite the prevailing *theory* that RS serves to attenuate responsibility appraisals, empirical evidence has yet to back this assertion.

On the other hand, researchers have successfully identified other factors which increase the incidence of RS in OCD. Specifically, Parrish and Radomsky (2010) employed a qualitative interview with a sample of individuals with OCD, who said that their RS was triggered by anxious mood and doubts regarding the removal of general threats. In a subsequent experiment,

Parrish and Radomsky (2011) found that ambiguous feedback led to higher urges to seek reassurance, which suggests that the content of an interaction can influence RS. In an attempt to further our understanding of the role that RS plays within pairs of individuals, we sought to ascertain whether certain characteristics of the 'reassurer', such as the level of familiarity with the person seeking reassurance, would affect the nature and degree of reassurance sought from them.

Research in other areas of mental health has shown that being in the company of a familiar person can impact the likelihood that problematic symptomatology will be evidenced. For instance, in his seminal book on behaviour therapy, Wolpe related a case of a woman with claustrophobia whose phobic reactions were stronger when the people present were "more strange", and whose reactions were weaker if she was in the presence of "protective persons – husband, mother, or close friend (in descending order of effectiveness)" (Wolpe, 1969, p. 149). Similarly, individuals with panic disorder who underwent a carbon dioxide inhalation task panicked less when in the company of a "safe" person than when they were alone (Carter, Hollon, Carson, & Shelton, 1995). Moreover, during social interactions, individuals with social anxiety experienced higher levels of negative affect and distress when interacting with a stranger versus a familiar person (Vittengl & Holt, 1998). Nevertheless, there is a lack of empirical evidence regarding whether the familiarity of an interactional partner also influences the likelihood that OCD symptomatology, namely RS, would be shown.

We aimed to examine whether familiarity with a partner impacts the likelihood that an individual will seek reassurance in a contamination-related situation, and whether RS is associated with changes in responsibility attributions. Based on the evidence presented, we hypothesized that individuals would seek more reassurance from partners with whom they were

familiar than from relative strangers. We also hypothesized that individuals who sought reassurance would subsequently report lower perceptions of personal responsibility, and that they would increase responsibility ratings for those from whom the reassurance was sought; that is, a transfer of responsibility would occur.

Method

Participants

Ninety volunteer undergraduate students participated in this study. Participants' mean age was 21.69 (*SD* = 4.22, range = 18 – 43) years, and 89.90% of participants were female. Participants received course credit or were entered into a cash draw for their participation. As described below, participants were asked to bring someone they knew with them to the study; 68.89% of these familiar others were female. Familiar others were either given course credit or entered into a cash draw for their participation in the study. To be eligible to participate, participants (and their accompanying others) were required to be able to understand, read, and communicate in English.

Measures

Demographics. Participants were asked to provide information about their age, sex, ethnicity, language, and educational attainment.

The Reassurance Seeking Checklist (RSC). The RSC is a 5-item measure, developed for this study, to assess how many times the participant sought reassurance about various aspects of the dishwashing task (e.g., the instructions, the garbage can, germs) during the conversation they had with their familiar other or the confederate following the completion of the task (see Procedures below). Both the participant and assigned partner completed the measure (i.e., the participant self-reported RS behaviour, and the partner provided a collateral report of the

participant's RS). When completed by the participant the RSC had questionable internal consistency (α = .65), but the partner version of the measure had good internal consistency (α = .84). Please refer to Appendix A for the RSC and other measures.

The Network of Relationships Inventory – Social Provisions Version (NRI-SPV; Furman & Buhrmester, 1985). The NRI-SPV is a 30-item, Likert-type scale which assesses a person's relationships in terms of Support, Negative Interaction, and Relative Power dimensions. The scales of the NRI-SPV have good internal consistency (mean α = .80) and acceptable retest reliability (r = .66 - .70; Furman, 1996). Only the Support dimension of the NRI-SPV was used for the present study, as closeness to the partner was the relationship element of interest. Internal reliability of the Support dimension in the current sample was excellent (α = .99). Please see Table 1 for mean ratings by condition.

Rating of familiarity. The rating of familiarity was developed for this study to assess how familiar and close participants were with their assigned partner (see Procedures below). The two-item rating was composed of one question assessing familiarity with, and one question assessing trust in, the interactional partner prior to the study session. The items were rated on a nine point, Likert-type scale, with higher scores indicating greater familiarity/trust. Both the participant and assigned partner completed the measure. Internal consistency of the familiarity rating was excellent when completed by both the participant and assigned partner (α = .91 and α = .98, respectively). Please see Table 1 for mean ratings by condition, and Appendix A for measures.

Rating of responsibility. The rating of responsibility was developed for this study to assess responsibility appraisals before and after an opportunity to seek reassurance (see Procedures below). Participants rated on a two-item scale from 0 to 100 how responsible they

perceived themselves and their partner to be for the safety of the dishes, with higher ratings indicating greater perceived responsibility (see Procedures below). Please see Appendix A for measures.

Credibility rating. The credibility rating was developed for this study to assess how believable two key aspects of the study were. Participants and familiar others (for those in the familiar condition) rated on a scale on a scale from 0 to 100 how much they believed that the garbage can was contaminated and how dirty they felt the plates were after being submersed in the garbage, with higher ratings indicating greater credibility (see Procedures below). The internal consistency of the two items was good when rated both by the participant (α = .86), and by the familiar partner (α = .88). Please refer to Appendix A for measures.

Materials

Equipment for dishwashing task. Participants were provided the following: a dish rack, draining board, two dish soap options (one was yellow, one was green), two sponge options (one had a handle, the other did not), a set of measuring spoons on a wire ring, and a drain stopper. Participants were also given four plates to wash.

Pictorial instructions for dishwashing task. To complete the dishwashing task (see Procedures below), participants followed a set of 27 pictorial instructions that were created for this study (see Appendix B). The instructions were created by first taking photos of a person's hands completing the steps of the task, and then using software to convert the photos to appear as coloured drawings. Clip art and numbers were added to some images to give further detail to the instruction being shown (e.g., arrows added to show which direction to turn the taps on/off, and numbers added to show in which sequence the taps should be used). Certain instruction images were made to be ambiguous (e.g., a picture showing one hand holding a plate above the water

and the other hand holding a sponge, with a "x2" and down arrow running the length of the plate beside the sponge), so as to enhance (the possibility of) doubt upon completion of the task, without making it obvious that the instructions were made to elicit uncertainty.

Mock contaminant: garbage can. In order to increase the perceived dirtiness of the plates (see Procedures below), the experimenter immersed the plates into a supposed contaminant – a garbage can filled with seemingly dirty objects, including tissues described as having been used by someone with a cold, an old dish rag, an old styrofoam lunch container, a bed pan, and used paper towels. (In reality, the garbage can was filled with clean objects that were made to appear dirty.)

Procedures

Participants were asked to bring another person (e.g., a friend, significant other, classmate, or relative) with them to the study session. The experimenter remained blind to condition assignment until participants and their familiar others had provided informed consent. Participants were then randomly assigned to conditions, such that half completed the study session with their familiar other (familiar condition) and the other half with a well-trained confederate posing as another undergraduate student (unfamiliar condition).

Participants (and familiar others, for those in the familiar condition) were provided a false description of the study's purpose. Specifically, they were told that the aim was to collect normative information about how individuals follow instructions to complete a structured task, such that this information could be used to improve psychoeducation components of treatments for OCD.

After being brought into the laboratory's kitchen, the participant and their assigned partner were each given a set of pictorial instructions (see Materials above; see Appendix B).

The participant was (falsely) told that s/he should follow the instructions as closely as possible and not deviate from them, as the instructions had been approved by the university's ethics "health board"; so, the plates should be clean at the end of the task if the instructions were followed properly. The assigned partner was asked to observe the participant during the task and to follow along with the instructions, but to not say anything or use any body language to indicate his/her thoughts about the participant's performance on the dishwashing task. The participant and assigned partner were informed that this task was being video recorded.

Once the task was complete, the experimenter supposedly reviewed the video while the participant and partner completed questionnaires (including the responsibility and familiarity ratings) in separate rooms. After an amount of time which roughly corresponded to the time taken by the participant to finish the dishwashing task, the experimenter brought the assigned partner back to kitchen, where the participant was completing questionnaires. The experimenter informed both parties that there had been a problem with the video, meaning the experimenter could not see what the participant was doing. Thus, the experimenter could not be certain that the instructions were followed correctly or that the dishes were clean. The experimenter informed both parties that this was a problem, because the next step in the study was supposed to be for the participant, assigned partner, or the experimenter to be randomly assigned to eat off of one of the plates. This served as a threat induction.

The experimenter apologized and asked the participant if s/he would mind speaking into an audio recorder to resolve any questions that s/he may have had while completing the dishwashing task, and to also make a decision as to whether s/he thought the dishes were safe enough for someone to eat from them. The participant and partner were also told that the experimenter would listen to the audio recorder and decide whether or not they could go ahead

with the next part of the study. The experimenter specified that the participant could either speak aloud to him/herself, or talk with the assigned partner who had been observing the dishwashing task; the experimenter also said that the participant could take as much time as s/he needed. The experimenter then left the two parties to complete the audio recording. The audio recording of this crucial exchange was later coded for the number of times reassurance was sought, to provide an objective measure of *in vivo* RS.

For the conversation, confederates were trained to respond to any questions posed to them in a way that used factual information (to make the responses credible and realistic) but which was also inconclusive (e.g., "I definitely saw you pick up that plate… but from where I was standing it was hard to see exactly what you were doing once it was in the sink"). The confederates were also trained to appear somewhat friendly but neither overly warm nor distant.

Once the conversation/consultation was over, participants and assigned partners completed the responsibility rating for a second time to assess whether perceptions of responsibility had changed as a result of the conversation, and also completed the RSC. Finally, both participants and their accompanying familiar others were fully debriefed.

Results

Data screening revealed four univariate outliers on dependent variables of interest. Each outlying score was replaced with the next highest score within 3.29 *SD* of the mean for the given variable (Tabachnick and Fidell, 2007). One participant and the assigned partner had missing data for one variable of the RSC; the totals for this participant and partner were calculated from the available data. One participant was also found to have missing data on the NRI-SPV; no substitutions were made for this missing data. The data were then assessed for normality, and were found to have acceptable skewness and kurtosis (using the guidelines suggested by Kline,

2009) on variables of interest save for age, which was positively skewed (3.14, *SE* = 0.25) and leptokurtic (12.27, *SE* = 0.50).

Demographics. There was a significant difference between conditions with regard to age ($t(57.95) = 2.14$, $p = .04$), such that participants in the unfamiliar condition tended to be slightly older ($M = 22.62$ years, $SD = 5.42$ years) than participants in the familiar condition ($M = 20.76$ years, $SD = 2.19$ years). Participants in the two conditions did not significantly vary with regard to sex ($\chi^2 (1, N = 90) = .45$, $p = .50$), ethnicity ($\chi^2 (7, N = 89) = 7.08$, $p = .42$), or educational attainment ($\chi^2 (5, N = 90) = 4.03$, $p = .55$).

Manipulation checks. To assess differences in partner familiarity between conditions, independent samples *t*-tests were conducted using the familiarity rating and NRI-SPV Support scale as dependent variables. Average values by condition on each of the familiarity measures are shown in Table 1. Results confirmed that there were significant differences on familiarity ratings between the conditions when rated by the participant ($t(88) = -13.71$, $p < .001$) and by the partner ($t(87) = -20.16$, $p < .001$), such that those in the familiar condition rated themselves as knowing and trusting their partner more than those in the unfamiliar condition; there was also a significant condition difference when examining the participants' NRI-SPV Support scale scores ($t(87) = -10.62$, $p < .001$), as well as the partners' NRI-SPV Support scale scores ($t(87) = -13.02$, $p < .001$), such that those in the familiar condition rated their partners as being more supportive than did those in the unfamiliar condition.

Credibility checks. Overall, participants rated the garbage can as being moderately contaminated ($M = 64.09$, $SD = 31.39$), and the plates as being dirty ($M = 72.68$, $SD = 29.41$). A series of one-way ANOVAs were conducted to determine whether there were significant condition differences in credibility ratings; no significant differences between conditions were

found (F's < 0.49, p's > .49). One participant discontinued the study due to contamination fear when he saw that the plates were being submerged into the garbage and when he was denied a request to use gloves to protect himself from having direct contact with the plates. Additionally, several participants moved away from the garbage can while the plates were being submerged; one participant repetitively said, "this is so bad" while the contents of the garbage were being described to her, while also wringing her hands and covering her mouth with her scarf; further, two participants made references to feeling as though they would vomit while the plates were being submerged in the garbage can (e.g., "I think I'm going to puke").

Reassurance seeking. To test the first hypothesis examining whether RS behaviour would differ between participants in the familiar versus unfamiliar condition, a multivariate analysis of variance (MANOVA) was conducted with condition as the between-participants variable and with participant-reported, partner-reported, and objectively-coded RS behaviour as the multivariate dependent variables (referred hereto forth as 'RS behaviour', for the sake of clarity).

There was a statistically significant difference between experimental conditions on RS ($F(3, 86) = 9.20$, $p < .001$, partial $\eta^2 = .24$), such that those in the familiar condition sought more reassurance than those in the unfamiliar condition. As Box's Test of Equality of Covariance Matrices was significant, Pillai's trace was interpreted, and indicated that 24.3% of the variance in the composite was explained by the model. Examination of the results of the univariate analyses of variance (ANOVAs) revealed that there was a significant difference between conditions in RS behaviour as reported by the partner ($F(1, 88) = 27.04$, $p < .001$, partial $\eta^2 = .24$), indicating that partners in the familiar condition reported greater RS than did those in the unfamiliar condition. Additionally, there was a trend toward a condition difference in RS

behaviour when reported by the participant ($F(1, 88) = 2.72$, $p = .10$, partial $\eta^2 = .03$), such that participants in the familiar condition tended to report greater RS than did those in the unfamiliar condition. When objectively-coded RS behaviour was used as the criterion however, there was no difference between conditions in RS behaviour, $F(1, 88) = 0.14$, $p = .71$, partial $\eta^2 = .00$. Please refer to Figure 1 for the RS means for each measure, by condition.

Responsibility. To test the second hypothesis examining whether RS was associated with changes in responsibility, two separate 2x2 repeated-measures ANOVAs were conducted to examine the effects of time and condition on participants' own responsibility appraisals, as well as participants' ratings of their partners' responsibility. Only those participants who sought reassurance were included, which yielded a sample size of 54 participants. There was no interaction between time and condition on participants' ratings of personal responsibility ($F(1, 52) = 0.86$, $p = .36$, partial $\eta^2 = .02$), nor were there main effects of time ($F(1, 52) = 0.83$, $p = .37$, partial $\eta^2 = .02$) nor condition ($F(1, 52) = 0.78$, $p = .38$, partial $\eta^2 = .02$). There was no interaction between time and condition on participants' ratings of their partners' responsibility ($F(1, 52) = 0.03$, $p = .86$, partial $\eta^2 = .00$) nor a main effect of time ($F(1, 52) = .28$, $p = .60$, partial $\eta^2 = .01$); however, there was a main effect of condition ($F(1, 52) = 4.14$, $p = .05$, partial $\eta^2 = .07$), such that participants in the unfamiliar condition tended to attribute more responsibility to their partners than did participants in the familiar condition. Please refer to Figures 2a and 2b for participants' mean ratings of personal and partner responsibility, respectively, by condition and time.

Discussion

Results of this study suggest that when participants interacted with a familiar partner, they sought more reassurance than they did when they interacted with an unfamiliar partner. This

effect was robust when reported by the partner and a trend when reported by the participant, but interestingly was not significant when objectively-coded data were examined. Thus, the primary hypothesis of this study was supported via informant report, and to some degree, self-report of RS. Results of this study did not support the second hypothesis, however, as participants' responsibility appraisals did not decrease appreciably following RS, nor did their appraisals of their partners' responsibility increase following reassurance provision.

The results pertaining to the effect of a familiar partner on RS behaviour are consistent with previous research in claustrophobia (Wolpe, 1969), panic disorder (Carter et al., 1995), and social phobia (Heerey & Kring, 2007) showing that being with a familiar person can impact the likelihood that problematic aspects of the disorder would be expressed. Results are also consistent with the suggestion by Kobori and Salkovskis (2013) that it is "typical [for individuals] to turn to friends or family members for reassurance" (p. 3).

Contrary to prior research in other areas of mental health, however, being in the presence of a familiar person *increased* the amount of RS, whereas being with a familiar person in the aforementioned studies tended to decrease the likelihood of symptom expression. The fact that the association between familiarity and RS was only statistically significant when using informant-reported RS is intriguing, as it suggests that perceptions of RS vary between the person seeking RS and the person providing it. In particular, participants self-reported more attempts at RS than their partners reported. Moreover, familiar partners seemingly perceived far greater attempts at RS than did unfamiliar partners. That is, if the partners were strangers, they perceived far fewer attempts at RS than did those who were self-reporting their RS behaviour. These results suggest that familiar others may be more sensitive to RS attempts than relative strangers.

The finding that RS was not associated with changes in responsibility is in some ways consistent with the finding by Parrish and Radomsky (2011) that high (versus low) responsibility was not significantly associated with urges to seek reassurance. Still, both findings are in contrast with both cognitive theory and anecdotal reports by patients/clients (e.g., a client seeking help for their RS and other OCD symptoms, said, "If I'm reassured by someone, it's like they've taken some responsibility for keeping things safe"), and therefore warrant further investigation.

Nevertheless, aspects of the study limit our ability to draw firm conclusions from these findings. For instance, the reliability of the RSC was lower than would be hoped, particularly when completed by the participant. The reliability of the partner version of the RSC was higher, potentially because of a floor effect wherein partners in the unfamiliar condition (i.e., confederates) reported very little reassurance. To clarify the findings, future researchers may wish to examine differences in RS in the company of familiar and unfamiliar others without the use of confederates. Though the confederates were trained to respond in a standardized style which was modelled after interactions between participants and familiar others during the piloting stage, their interactions with participants may have been different from natural interactions. Furthermore, participants were permitted to bring anyone with whom they were familiar to the study, which resulted in a range of familiarity levels between participants and their partners in the familiar condition. Future researchers may wish to constrain the familiarity of the partners who participants brought to the study to limit this variability.

The finding that there was a main effect of condition on responsibility ratings (i.e., participants in the unfamiliar condition attributed greater responsibility to their partner relative to those in the familiar condition, particularly after the audio recorded task) was unexpected. It may be the case that participants felt responsible for bringing their familiar other to the study, and

thus took more personal responsibility for protecting their partner from potential harm than did those in the unfamiliar condition, who were told they were participating with another individual who had voluntarily signed up for the study. However, further research would be required to clarify this finding.

The finding that responsibility appraisals did not change over time may also relate to study limitations. Responsibility was not manipulated in this study. Despite the threat induction prior to the potential conversation, participants and their partners may have felt less personally responsible for the safety of the plates than would be felt in a natural setting for two reasons: they may have felt that the ultimate responsibility for preventing harm lay with the researcher rather than themselves or their partner (e.g., Rachman and Hodgson, 1980); alternatively, due to the intentionally ambiguous nature of some of the pictorial task instructions, participants may have felt that the researcher was to blame for not providing clear instructions, and therefore did not feel personally responsible. Furthermore, responsibility appraisals were measured using single-item prompts, which may not have sufficiently tapped into individuals' experiences appraisals. Indeed, responsibility can be challenging to measure and to manipulate (Ladouceur et al., 1995; Lopatka & Rachman, 1995; Menzies, Harris, Cumming, Einstein, 2000; Shafran, 1997).

Still, the absence of a responsibility transfer finding is perplexing when considering anecdotal evidence that the threat induction had profound effects on certain participants' responsibility appraisals. For instance, one participant was excluded from the study because she decided to re-wash the plates during the audio-recorded portion of the study despite being told that she should not, and another participant repeatedly asked the experimenter when she could re-wash the dishes before they were [supposedly going to be] used.

Despite these limitations, this study has a number of clinical and research implications, particularly if future researchers using clinical samples were able to replicate these findings. Specifically, these results suggest that carers may be more aware of, and (negatively) affected by, RS behaviour than are relative strangers (Pagdin et al., 2011). Hence, it may be wise for interventions to have an adjunct component aimed at decreasing significant others' sensitivity to perceived RS attempts, in order to lessen their subjective distress. Alternatively, given that reassurance seekers tended to report greater RS attempts than did their partners in either condition (see Figure 1), it may be the case that those who are seeking reassurance are over-sensitive to how often they engage in the behaviour. If this were the case, it may be prudent to address this discrepancy during interventions to help clients to develop a more realistic awareness of their RS (e.g., via monitoring, behavioural observations, collateral- and self-reports).

In this study, participants and their assigned partners were not asked to report overt and covert RS separately (see Parrish & Radomsky, 2010). In future research it would be intriguing to see if participants', familiar partners', and/or unfamiliar partners' reports of overt and covert RS behaviour related differently to objective data regarding how many times RS attempts were made. Such findings could elucidate whether significant others in the lives of individuals with OCD are indeed more sensitive to subtle RS behaviour than those who are unfamiliar with the reassurance seeker. If partners were also asked to report the amount of distress and/or negative affect (e.g., frustration, anger) that they felt, such a study could clarify whether inflated perceptions of overt vs. covert RS differentially relate to significant others' quality of life, which is commonly impaired when a family member suffers from OCD (e.g., Cicek et al., 2013). Furthermore, such data could help to hone partner-based interventions (e.g., Abramowitz et al.,

2013) by providing useful information that clinicians could use to make decisions regarding which types of RS, or perceptions thereof, would be most beneficial to target. Given that treatment improvements tend to be lacking for social domains in comparison with other areas of functioning (Hofmann, Wu, & Boettcher, 2014), it would be pertinent to devote further research attention towards how best to improve CBT interventions, so as to better help OCD sufferers and those closest to them.

Table 1

Mean Ratings on Familiarity Measures by Condition

	Condition	
Measure	Familiar	Unfamiliar
	M (*SD*)	*M* (*SD*)
NRI-SPV Support scale***	2.98 (0.96)	1.24 (0.51)
Familiarity rating***	6.09 (1.47)	1.59 (1.64)

*** $p < .001$.

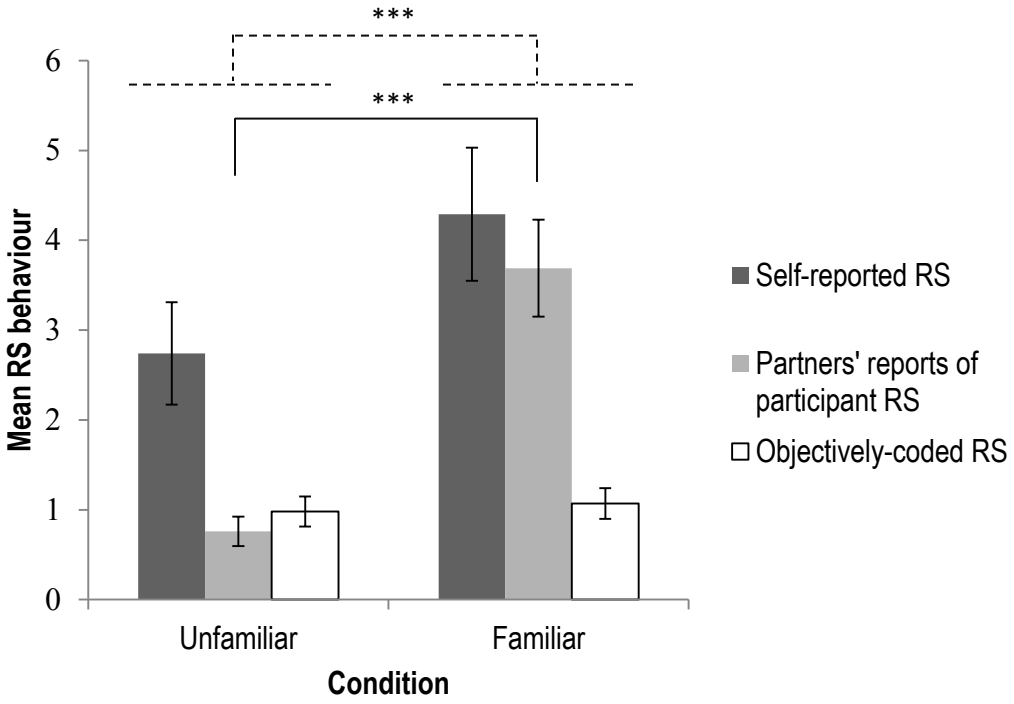


Figure 1. Mean RS behaviour by condition and information source.

Dotted line indicates the multivariate effect; solid line indicates the univariate effect.

*** $p < .001$.

Data are shown with standard error bars.

2a

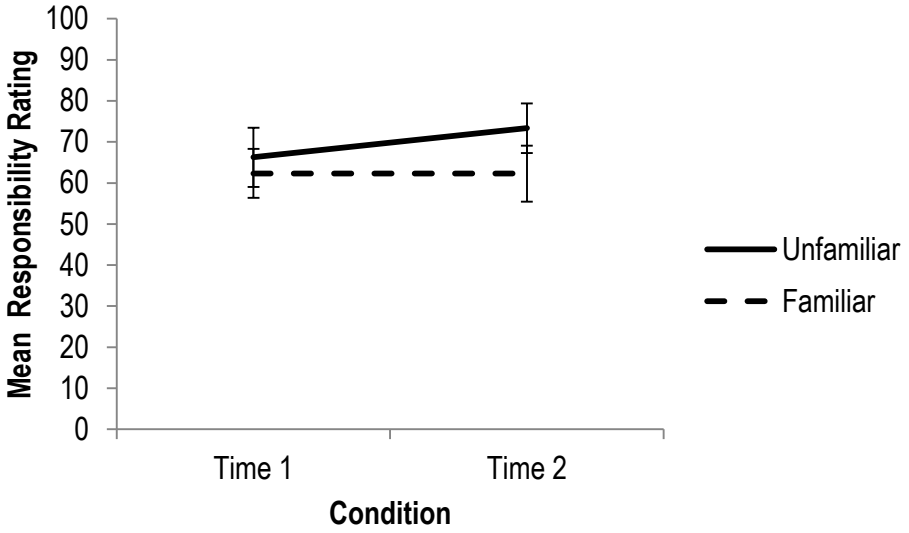


Figure 2a. Participants' ratings of personal responsibility across time, by condition.

Data are shown with standard error bars.

2b

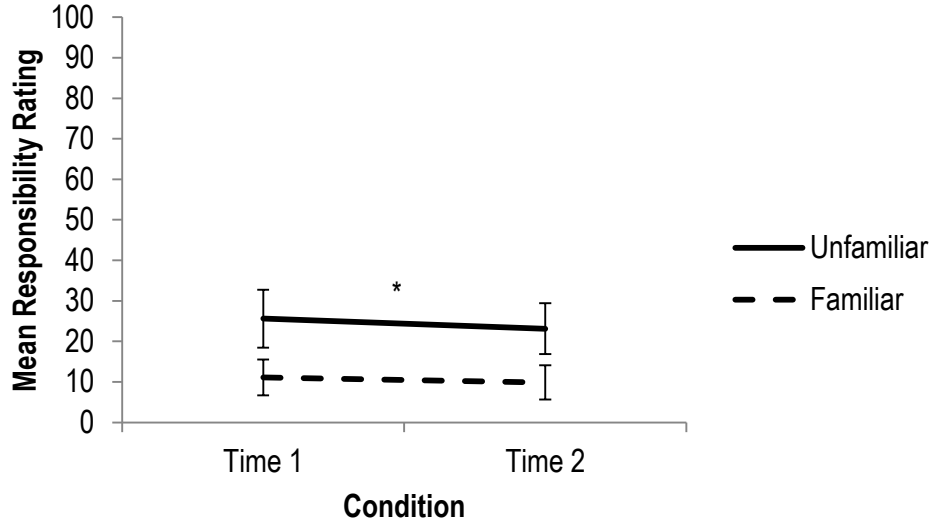


Figure 2b. Participants' ratings of their partners' responsibility across time, by condition.

Data are shown with standard error bars.

* p = .05, main effect of condition.

References

Abramowitz, J. S., Baucom, D. H., Wheaton, M. G., Boeding, S., Fabricant, L. E., Paprocki, C., & Fischer, M. S. (2013). Enhancing exposure and response prevention for OCD: A couple-based approach. *Behavior Modification, 37,* 189-210. doi:10.1016/j.beth.2013.02.005

Albert, U., Bogetto, F., Maina, G., Saracco, P., Brunatto, C., & Mataix-Cols, D. (2010). Family accommodation in obsessive–compulsive disorder: Relation to symptom dimensions, clinical and family characteristics. *Psychiatry Research, 179*, 204-211. doi:10.1016/j.psychres.2009.06.008

Ashbaugh, A. R., Gelfand, L. A., & Radomsky, A. S. (2006). Interpersonal aspects of responsibility and obsessive compulsive symptoms. *Behavioural and Cognitive Psychotherapy*, *34*, 151-163. doi:10.1017/S1352465805002699

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. doi:10.1037/0021-843X.104.1.156

Cicek, E., Cicek, I. E., Kayhan, F., Uguz, F., & Kaya, N. (2013). Quality of life, family burden and associated factors in relatives with obsessive-compulsive disorder. *General Hospital Psychiatry, 35*, 253-258. doi:10.1016/j.genhosppsych.2013.01.004

Cooper, M. (1996). Obsessive-compulsive disorder: Effects on family members. *The American Journal of Orthopsychiatry, 66*, 296-304. doi:10.1037/h0080180

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. doi:10.1016/j.janxdis.2011.10.001

Coyne, J. C. (1976). Toward an interactional description of depression. *Psychiatry, 39*, 28–40.

Evraire, L. E., & Dozois, D. J. A. (2011). An integrative model of excessive reassurance seeking and negative feedback seeking in the development and maintenance of depression. *Clinical Psychology Review, 31*, 1291-1303. doi:10.1016/j.cpr.2011.07.014

Evraire, L. E., & Dozois, D. J. A. (2014). If it be love indeed tell me how much: Early core beliefs associated with excessive reassurance seeking in depression. *Canadian Journal of Behavioural Science, 46*, 1-8. doi:10.1037/a0033486

Ferrão, Y. A., Shavitt, R. G., Bedin, N. R., de Mathis, M. E., Lopes, A. C., Fontenelle, L. F., … Miguel, E. C. (2006). Clinical features of refractory obsessive-compulsive disorder. *Journal of Affective Disorders, 94*, 199-209. doi:10.1016/j.jad.2006.04.019

Furman, W. (1996). The measurement of children and adolescents' perceptions of friendships: Conceptual and methodological issues. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendships in childhood and adolescence* (p. 41-65). Cambridge, MA: Cambridge University Press.

Furman, W. & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21*, 1016-1022. doi:10.1037/0012-1649.21.6.1016

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

Hofmann, S. G., Wu, J. Q., & Boettcher, H. (2014, January 20). Effect of Cognitive-Behavioral Therapy for Anxiety Disorders on Quality of Life: A Meta-Analysis. *Journal of Consulting and Clinical Psychology*. Advance online publication. doi: 10.1037/a0035491

Joiner, T. E., Jr., Metalsky, G. I., Katz, J., & Beach, S. R. H. (1999). Depression and excessive reassurance-seeking. *Psychological Inquiry, 10*, 269-278.

Kline, R, B. (2009). *Becoming a behavioral science researcher: A guide to producing research that matters*. New York: Guilford Press.

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. doi: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. doi.org/10.1016/j.jocrd.2011.09.001

Kumar, A., Sharma, M. P., Kandavel, T., & Reddy, Y. C. J. (2012). Cognitive appraisals and quality of life in patients with obsessive compulsive disorder. *Journal of Obsessive-Compulsive and Related Disorders, 1*, 301-305. doi.org/10.1016/j.jocrd.2012.08.003

Ladouceur, R., Rhéaume, J., Freeston, M. H., Aublet, F., Jean, K., Lachance, S., …de Pokomandy-Morin, K. (1995). Experimental manipulations of responsibility: An analogue test for models of Obsessive-Compulsive Disorder. *Behaviour Research and Therapy, 33*, 937-946. doi:10.1016/0005-7967(95)00024-R

Lopatka, C., & Rachman, S. (1995). Perceived responsibility and compulsive checking: An experimental analysis. *Behaviour Research and Therapy, 33*, 673-684. doi:10.1016/0005-7967(94)00089-3

Maina, G., Saracco, P., & Albert, U. (2006). Family-focused treatments for obsessive-compulsive disorder. *Clinical Neuropsychiatry, 3*, 382-390.

Menzies, R. G., Harris, L. M., Cumming, S. R. and Einstein, D. A. (2000). The relationship between inflated personal responsibility and exaggerated danger expectancies in obsessive-compulsive concerns. *Behaviour Research and Therapy*, *38*, 1029–1037. doi:10.1016/S0005-7967(99)00149-7

Pagdin, R., Kobori, O., Salkovskis, P. M., & Read, J. (2011, September). Cognitive Behavioural Treatment for Obsessive Compulsive Disorder: developments and enhancements. *Carer's perception of and reaction to reassurance seeking in OCD*. Symposium conducted at the meeting of The European Association for Behavioural and Cognitive Therapies, Reykjavík, Iceland.

Parrish, C. L., & Radomsky, A. S. (2010). Why do people seek reassurance and check repeatedly? An investigation of factors involved in compulsive behaviour in OCD and depression. *Journal of Anxiety Disorders, 24*, 211-222. doi:10.1016/j.janxdis.2009.10.010

Parrish, C. L., & Radomsky, A. S. (2011). An experimental investigation of factors involved in excessive reassurance seeking: The effects of perceived threat, responsibility and ambiguity on compulsive urges and anxiety. *Journal of Experimental Psychopathology, 2*, 44-62. doi:10.5127/jep.011110

Rachman, S. (2002). A cognitive theory of compulsive checking. *Behaviour and Research Therapy, 40*, 625-639. doi:10.1016/S0005-7967(01)00028-6

Rachman, S., & Hodgson, R. (1980). *Obsessions and compulsions*. Hillsdale, NJ: Prentice-Hall.

Rachman, S. & Shafran, R. (1998). Cognitive and behavioral features of obsessive-compulsive disorder. In R. P. Swinson, M. M. Antony, S. Rachman, M. A. Richter (Eds.). *Obsessive-compulsive disorder: Theory, research, and treatment* (p. 51-78). New York, NY: Guilford Press.

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. doi:10.1016/j.janxdis.2011.05.003

Salkovskis, P. M. (1985). Obsessional-compulsive problems: A cognitive-behavioural analysis. *Behaviour Research and Therapy, 23*, 571-583. doi:10.1016/0005-7967(85)90105-6

Salkovskis, P. M. (1999). Understanding and treating obsessive-compulsive disorder. *Behaviour Research and Therapy, 37*, S29-S52. doi:10.1016/S0005-7967(99)00049-2

Salkovskis, P. M., & Warwick, H. M. C. (1986). Morbid preoccupations, health anxiety and reassurance: A cognitive-behavioural approach to hypochondriasis. *Behaviour Research and Therapy, 24*, 597-602. doi:10.1016/0005-7967(86)90041-0

Shafran, R. (1997). The manipulation of responsibility in obsessive-compulsive disorder. *British Journal of Clinical Psychology, 36*, 397-407. doi:10.1111/j.2044-8260.1997.tb01247.x

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. doi:10.1016/j.psychres.2012.06.037

Tabachnick, B. G., & Fidell L. S. (2007). *Using multivariate statistics* (5th Ed.). Boston, MA: Allyn and Bacon.

Vittengl, J. R., & Holt, C. S., (1998). Positive and negative affect in social interactions as a function of partner familiarity, quality of communication, and social anxiety. *Journal of Social and Clinical Psychology, 17*, 196-208. doi:10.1521/jscp.1998.17.2.196

Wolpe, Joseph. The Practice of Behavior Therapy. Pergamon Press, 1969.

Appendix A

Questionnaires:

RSC – Participant

RSC – Partner

Responsibility Rating

Familiar Rating

RSC - Participant

How many times did you talk about each of the following topics? Please provide the number of times you spoke aloud about each topic to yourself without discussing it with your partner or asking your partner questions about it in the first column, and the number of times you discussed the topic with your partner in the second column.

Item	Number of times you talked yourself through the topic (e.g., "thinking aloud", statements that did not invite a response from your partner)	Number of times topic was discussed with partner (e.g., questions that you asked your partner, statements that invited a response from your partner or that you wanted your partner to respond to; do not include things that you simply mentioned aloud)
a. the garbage can		
b. amount of time spent washing dishes		
c. germs		
d. the instructions		
e. the cleanliness of the plate(s)		

To what degree do you think the plate is safe? (0 = not safe at all, 100 = completely safe)

Rating: _____

RSC – Partner

How many times did you talk about each of the following topics with your partner? Please provide the number of times your partner spoke aloud about each topic to him/herself without discussing it with you or asking you questions about it in the first column, and the number of times your partner discussed the topic with you in the second column.

Item	Number of times your partner talked him/herself through the topic (e.g., "thinking aloud", statements from your partner that did not invite a response from you)	Number of times topic was discussed with partner (e.g., by answering questions; statements by your partner that invited a response from you or that your partner wanted you to respond to; do not include things that were simply mentioned aloud)
a. the garbage can		
b. amount of time spent washing dishes		
c. germs		
d. the instructions		
e. the cleanliness of the plate(s)		

To what degree do you think the plate is safe? (0 = not safe at all, 100 = completely safe)

Rating: _____

Responsibility rating

How responsible do you feel for the safety of the dishes? (0 = not at all, 100 = completely)

Rating: _____

How responsible do you feel your partner is for the safety of the dishes? (0 = not at all, 100 = completely)

Rating: _____

Familiarity rating

Please rate how familiar you were with your partner *before* you came in for the study today by circling a number below, where 0 = "I didn't know this person at all before the study" and where 8 = "I knew this person better than any other person".

0 1 2 3 4 5 6 7 8

Please rate how much you trusted your partner *before* you came in for the study today by circling a number below, where 0 = "I didn't trust this person at all before the study" and where 8 = "I trusted this person more than any other person".

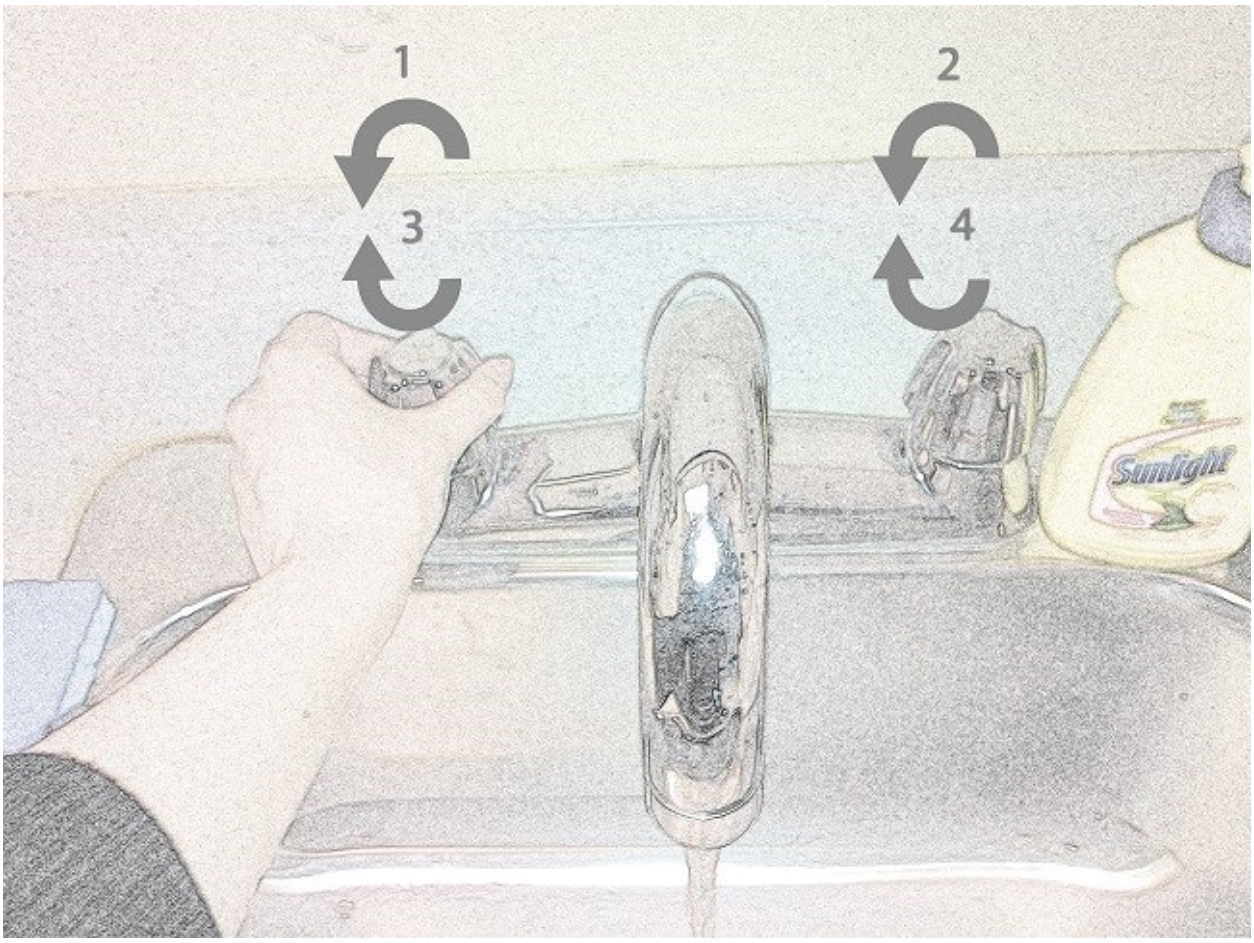
0 1 2 3 4 5 6 7 8

Appendix B

Pictorial Instructions


Sunlight
Palmolive


Sunlight


1
2
3
4
Sunlight


Sunlight


x 2


Palmolive

Plate 1, Step 1 of 4

Plate 1, Step 2 of 4

Plate 1, Step 3 of 4

Plate 1, Step 4 of 4

Plate 2, Step 1 of 4

Plate 2, Step 2 of 4

Plate 2, Step 3 of 4

Plate 2, Step 4 of 4

Plate 3, Step 1 of 4

Plate 3, Step 2 of 4

Plate 3, Step 3 of 4

Plate 3, Step 4 of 4

Plate 4, Step 1 of 4

Plate 4, Step 2 of 4

Plate 4, Step 3 of 4

Plate 4, Step 4 of 4