



## Obsessing about intimate-relationships: Testing the double relationship-vulnerability hypothesis



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### ABSTRACT

**Background and Objectives:** Obsessive preoccupation and doubts centering on one's intimate relationship may have a negative impact on the romantic dyad and lead to significant distress. In this research we investigated whether the co-occurrence of attachment anxiety and overreliance on intimate relationships for self-worth—what we call double relationship-vulnerability—is linked with relationship-centered obsessions and obsessive-compulsive tendencies.

**Methods:** Study 1 employed a correlational design to examine the link between double relationship-vulnerability and relationship-centered obsessions. Study 2 employed an experimental design to assess response to subtle threats to the relationship self-domain among individuals with double relationship-vulnerability.

**Results:** Study 1 supported the link between double relationship-vulnerability and relationship-centered obsessions. Study 2 showed that when confronted with subtle threats to the relationship self-domain, individuals with double relationship-vulnerability are more likely to experience distress and engage in mitigating behavior in response to relationship doubts and fears.

**Limitations:** Our studies were conducted with non-clinical samples.

**Conclusions:** These findings suggest that double relationship-vulnerability may make individuals more susceptible to the development and maintenance of relationship-centered obsessions and compulsions.

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Doubts and fears regarding romantic relationships are common, especially during the initial stages of a relationship or during relational conflict. Experiencing some ambivalence—inconsistent or contradictory feelings and attitudes towards a romantic partner (Brickman, 1987)—is considered a natural feature of intimate relationships that reflects changes in interdependence and interpersonal accommodation (Thompson & Holmes, 1996). Yet, recent findings suggest that common relationship concerns may become obsessive, leading to relationship dysfunction, distress, and disability (ROCD; Doron, Derby, Szepeswol, & Talmor, 2012a, 2012b). In such cases, individuals are plagued by doubts and worries about their relationship, namely, whether it is the right relationship for them, whether they really love their partner, or whether their partner really loves them. These individuals are then driven to repeatedly check their own feelings, behaviors, and thoughts, and seek reassurance from others. Such obsessive-compulsive behaviors can be conceptualized as relationship-centered obsessive-compulsive symptoms (Doron et al., 2012a).

Although research over the last few decades has covered a variety of obsessional themes (e.g., contamination fears, harm, sexual and religious obsessions; Abramowitz, McKay, & Taylor, 2008), investigation of obsessions focusing on intimate relationships has just recently begun (e.g., Doron et al., 2012a, 2012b). This is surprising considering the increased appreciation within psychology of the fundamental importance of interpersonal relationships, particularly romantic relationships, for individuals' psychosocial functioning and well-being (e.g., Baumeister & Leary, 1995; Hendrick & Hendrick, 1992; Lopez, 2009; Ryan & Deci, 2001). We propose that common relationship concerns become obsessive in individuals with double relationship-vulnerability: strong fear of abandonment (i.e., attachment anxiety) and exaggerated reliance on intimate-relationships as a self-worth resource (Knee, Canevello, Bush, & Cook, 2008).

### 1. Relationship-centered obsessive-compulsive symptoms

Relationship-centered obsessive-compulsive phenomena are characterized by several distinctive features. First, they are experienced as especially unwanted and unacceptable by the individual. Second, relationship-centered intrusions often contradict the

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relationship experience (e.g., “I know I love her, but it doesn’t feel right/perfect”) and are therefore less self-congruent than common relationship worries. Third, relationship-centered intrusions are frequently perceived as interruption in one’s flow of thoughts and actions. Fourth, like other types of obsessions, individuals tend to judge such intrusions as exaggerated or irrational reactions to the specific triggering event. Finally, relationship-centered obsessions often result in extreme anxiety and repetitive neutralizing behaviours such as checking and reassurance seeking (Doron et al., 2012a).

Clinical experience suggests that relationship-centered obsessive-compulsive symptoms often pertain to three relational dimensions: one’s feelings towards a relationship partner (e.g., “Do I really love him?”), the partner’s feelings towards oneself (e.g., “Does she really love me?”), and the “rightness” of the relationship (e.g., “Is he the right one?”). The Relationship Obsessive-Compulsive Inventory (ROCI; Doron et al., 2012a) was specifically designed to assess such OC phenomena. Items were generated to represent obsessions (i.e., preoccupation and doubts) and neutralizing behaviors (i.e., checking and reassurance seeking) related to each of the three relational dimensions. The ROCI showed the expected positive associations with OCD, mood and relationship measures. Moreover, the ROCI significantly predicted depression and relationship satisfaction over-and-above more common OCD symptoms, relationship ambivalence and other mental health and relationship insecurity measures (Doron et al., 2012a). These findings suggest that the ROCI captures a relatively distinct theoretical construct that has unique predictive value.

## 2. Double vulnerability to relationship-centered obsessions

According to cognitive-behavioral theories of obsessions, most individuals experience a range of intrusive doubts, thoughts, urges, and images (Rachman & de Silva, 1978). The personal significance attributed to the occurrence or content of such intrusive experiences (e.g., “I am bad for having such a thought”, “I am responsible for preventing this from happening”), and their mismanagement (e.g., compulsive checking) eventually lead individuals to develop and maintain obsessions (Obsessive Compulsive Cognitions Working Group [OCCWG], 1997; Rachman, 1997; Salkovskis, 1985).

Indeed, several cognitive biases found to be associated with OCD, such as overestimation of threat, perfectionism and intolerance for uncertainty (OCCWG, 1997; 2005), were found to be linked with relationship-centered OC symptoms (Doron et al., 2012a). Such cognitive biases may lead to the misappraisals of relationship-related intrusions and the relationship experience. For instance, perfectionist tendencies may lead to extreme preoccupation with the “rightness” of the relationship (i.e., “Is this relationship the right one”). Intolerance for uncertainty (OCCWG, 2005) may increase doubts and concerns regarding one’s feelings towards the partner (e.g., “Do I really love my partner?”). Overestimation of threat may bias individuals’ interpretations of others’ feelings toward them (e.g., “Does my partner really love me?”). Like in other forms of OCD, catastrophic interpretations of relationship intrusions lead to self-reinforcing neutralizing behaviors such as checking one’s feelings towards the partner, comparing, and reassurance seeking. These behaviors may actually maintain the intrusions through increasing the salience of negative thoughts.

Recently, the transformation of common intrusive experiences into obsessions was suggested to be moderated by the extent to which such intrusions challenge core perceptions of the self (e.g., Aardema & O’Connor, 2007; Bhar & Kyrios, 2007; Clark & Purdon, 1993; García-Soriano, Clark, Belloch, del Palacio, & Castañeiras, 2012). Preexisting self-vulnerabilities were proposed to influence the specific theme of an individual’s obsession. For instance, Doron

and Kyrios (2005) proposed that thoughts or events that challenge highly valued self-domains (e.g., moral or relational self-domains) may threaten a person’s sense of self-worth in this domain, and activate cognitions and behavioral tendencies aimed at counteracting the damage and compensating for the perceived deficits (e.g., Doron, Sar-El, & Mikulincer, 2012). For some individuals, such as OCD sufferers, these responses paradoxically increase the accessibility of negative self-cognitions (e.g., “I’m immoral and unworthy”) that together with the activation of other dysfunctional beliefs associated with obsessions (e.g., inflated responsibility, threat overestimation; OCCWG, 1997) can result in the development of obsessions and compulsions. Most individuals, however, are able to adaptively protect their self-esteem from unwanted intrusions and restore emotional equanimity following challenges to sensitive self-domains. Hence, they are unlikely to be flooded by negative self-evaluations, dysfunctional beliefs, and obsessions following such challenges.

One psychological mechanism proposed to hinder such adaptive regulatory processes is attachment insecurity that may foster the activation of negative self-cognitions and a cascade of dysfunctional beliefs (Doron, Moulding, Kyrios, Nedeljkovic, & Mikulincer, 2009). According to attachment theory (Bowlby, 1973, 1982; Mikulincer & Shaver, 2007), interpersonal interactions with protective others (“attachment figures”) early in life are internalized in the form of mental representations of self and others (“internal working models”). Interactions with attachment figures that are available and supportive in times of need foster the development of both a sense of attachment security and positive internal working models of self and others. When attachment figures are rejecting or unavailable in times of need, attachment security is undermined, negative models of self and others are formed, and the likelihood of self-related doubts and emotional problems increases (Mikulincer & Shaver, 2003, 2007). Parents are often the main attachment figures during childhood. However, romantic partners often take parents’ place as main attachment figures later in life (Mikulincer & Shaver, 2007).

Attachment orientations can be organized around two orthogonal dimensions, representing the two insecure attachment patterns of anxiety and avoidance (Brennan, Clark, & Shaver, 1998; reviewed by Mikulincer & Shaver, 2007). The first dimension, attachment anxiety, reflects the degree to which an individual worries that a significant other will not be available or adequately responsive in times of need, and the extent to which the individual adopts “hyperactivating” attachment strategies (i.e., energetic, insistent attempts to obtain care, support, and love from relationship partners) as a means of regulating distress and coping with threats and stressors. The second dimension, attachment avoidance, reflects the extent to which a person distrusts a relationship partner’s good will and strives to maintain autonomy and emotional distance from him or her. An avoidantly attached individual relies on “deactivating” strategies, such as denial of attachment needs and suppression of attachment-related thoughts and emotions. Individuals who score low on both dimensions are said to hold a stable sense of attachment security (Mikulincer & Shaver, 2003).

Among individuals who have chronic or contextually heightened mental access to attachment insecurities, aversive experiences and intrusions of unwanted thoughts may result in the activation of dysfunctional distress-regulating strategies and cognitive biases, which further exacerbate anxiety and promote ineffective responses (Doron et al., 2009). Anxiously attached individuals in particular tend to react to failure by exaggerating the negative consequences of the aversive experience, ruminating on it, and experiencing increased mental activation of attachment-relevant fears and worries, such as fear of being abandoned by

one's attachment figure (e.g., relationship partner) because of one's "bad" self (Mikulincer & Shaver, 2003). Thus, in addition to disrupting functional coping with experiences that challenge sensitive self-domains, the coping strategies that characterize anxiously attached individuals may render them particularly vulnerable to relationship-centered obsessions. Indeed, attachment anxiety was found to be associated with relationship-centered obsessions (Doron et al., 2012a).

We propose that vulnerability in the relational self-domain (high dependence of self-worth on one's relationships), when accompanied by attachment anxiety, would be associated with relationship-centered obsessions. Such double relationship-vulnerability may lead to increased vigilance to relationship threats, on the one hand, and impaired capacity for adaptive coping with such challenging experiences, on the other hand.

### 3. The current research

The goal of the current research was to conduct a systematic examination of the link between attachment anxiety, relationship-contingent self-worth, and relationship-centered obsessions and obsessive-compulsive (OC) tendencies. In Study 1, we assessed the correlational links between relationship-contingent self-worth, attachment anxiety, and relationship-centered obsessive-compulsive (OC) symptoms. In Study 2, we examined whether threat to the relational self-domain would increase relationship-centered OC tendencies among individuals with relationship-contingent self-worth and attachment anxiety.

### 4. Study 1

Our hypothesis in Study 1 was that attachment anxiety would predict higher relationship-centered OC symptoms among individuals whose self-worth is strongly dependent on their relationship (relationship-contingent self-worth).

#### 4.1. Method

##### 4.1.1. Participants

The sample consisted of 171 Israelis from the general population (77 women) who were recruited via *Midgam.com*, an Israeli online survey platform. Participants' ages ranged from 19 to 64 ( $Mdn = 37$ ). All participants were in an intimate relationship at the time of the study. Median relationship length was 96 months. Participants were informed of their rights and completed an online informed consent form in accordance with university IRB standards. They completed the survey in one session (the website allows one entry per participant) and were reimbursed 20 NIS (around \$5) for their time.

##### 4.1.2. Materials and procedure

The study was administered online using the web-based survey platform *www.midgam.com*. Responses were saved anonymously on the server and downloaded for analysis. All participants completed Hebrew versions of the Relationship Obsessive-Compulsive Inventory (ROCI; Doron et al., 2012a), the Experiences in Close Relationships scale (ECR; Brennan et al., 1998), and four items assessing relationship-contingent self-worth. In addition, they completed the short form of the Obsessive Beliefs Questionnaire (OBQ-20; Moulding et al., 2011), the short form of the Depression Anxiety Stress Scales (DASS-21; Antony, Bieling, Cox, Enns, & Swinson, 1998), the Single-Item Self-Esteem Scale (SISE; Robins, Hendin, & Trzesniewski, 2001), and the Pennsylvania State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec,

1990). These measures were used as controls in our analysis. The order of the questionnaires was randomized across participants.

The Relationship Obsessive-Compulsive Inventory (ROCI; Doron et al., 2012a) is a self-report measure of obsessions and compulsions centered on one's romantic relationship. The scale includes 12 items loading on three relational dimensions: feelings towards one's partner (e.g., "I continuously reassess whether I really love my partner"), perception of one's partner's feelings (e.g., "I continuously doubt my partner's love for me"), and appraisal of the "rightness" of the relationship (e.g., "I check and recheck whether my relationship feels right"). Participants rated the extent to which such thoughts and behaviors described their experiences in intimate relationships on a scale ranging from 0 (*not at all*) to 4 (*very much*). The three subscales as well as the total ROCI score have been shown to relate strongly to measures of OCD symptoms, measures of anxiety, depression and stress, and measures of relationship quality (Doron et al., 2012a). In the current study, we used the total ROCI score (Cronbach's  $\alpha = 0.93$ ) as the predicted variable in the regression analyses.

The Experiences in Close Relationships scale (ECR; Brennan et al., 1998) assesses attachment anxiety and avoidance. It includes 36 items, 18 assessing attachment anxiety (e.g., "my desire to be very close sometimes scares people away") and 18 assessing attachment avoidance (e.g., "I want to get close to my partner, but I keep pulling away"). Participants rated the extent to which each item was self-descriptive of their thoughts, feelings, and behaviors in romantic relationships on a scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Cronbach's alphas in our sample were 0.81 for avoidance and 0.90 for anxiety.

Relationship-contingent self-worth was assessed through four items written specifically for the current study ("Knowing that I have a romantic partner who cares about me is important to my self-worth", "Knowing that my romantic partner loves me makes me feel good about myself", "When my romantic partner is proud of me, my sense of self-worth increases", and "My self-worth is not influenced by the quality of my relationship with my romantic partner" – reversed scale). These items were based on the Contingencies of Self-Worth Scale (Crocker, Luhtanen, Cooper, & Bouvrette, 2003) and reflect the extent to which respondents consider the intimate-relationship domain relevant to their self-worth. Items were rated on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Principal components analysis on the four items yielded a single factor explaining 59.5% of the variance (Cronbach's  $\alpha = 0.70$ ).

The short form of the Obsessive Beliefs Questionnaire (Moulding et al., 2011) is an abbreviated version of the 44-item Obsessive Beliefs Questionnaire-Revised (OCCWG, 2005). The 20-item OBQ covers four belief domains represented by 5 items each: (1) Inflated responsibility ("If I don't act when I foresee danger, then I am to blame for consequences"); (2) Threat Overestimation ("Even when I am careful, I often think bad things will happen"); (3) Perfectionism/uncertainty ("For me, things are not right if they are not perfect"); and (4) Importance/Control of thoughts ("Having bad thoughts means I am weird or abnormal"). Participants rated all items on a scale ranging from 1 (*disagree very much*) to 7 (*agree very much*). In this study we used the total OBQ score (average of all items, Cronbach's  $\alpha = 0.91$ ).

The short version of the Depression Anxiety Stress Scales (DASS, Antony et al., 1998) is a self-report questionnaire listing negative emotional symptoms. The scale is divided into three subscales: depression, anxiety, and stress. Participants rated how often a particular symptom was experienced in the past week. Ratings were made on a scale ranging from 1 (*did not apply to me at all*) to 4 (*applied to me most of the time*). As the three scales were highly correlated in our sample, we used only the depression scale (Cronbach's  $\alpha = 0.89$ ).

The Single-Item Self-Esteem Scale (SISE; Robins et al., 2001) required participants to rate the extent to which the sentence “I have a high self-esteem” was descriptive of them on a 9-point scale. The SISE has been found to have high test–retest reliability and strong criterion validity (Robins et al., 2001).

The Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) is a 16-item self-report scale (e.g., “My worries overwhelm me”, “Many situations make me worry”) that assesses pathological worry. Participants rated the degree to which each item is typical of them on a scale ranging from 1 (*not at all typical of me*) to 5 (*very typical of me*). In the current sample, Cronbach’s  $\alpha$  was 0.92 for the entire scale.

## 5. Results and discussion

Preliminary analysis showed that attachment anxiety was positively correlated with relationship-contingent self-worth,  $r = 0.24$ ,  $p < 0.001$ . However, the modest size of this correlation suggests that attachment anxiety does not necessarily involve high relationship-contingent self-worth. It is possible that while anxiously attached individuals are vulnerable to relationship difficulties, they find it harder to use the relationship as a positive self-worth resource. Preliminary analysis also showed that ROCI total scores were not correlated with age or gender ( $r_s < 0.03$ , *ns*). Importantly, only a small correlation was found between the ROCI and the PSWQ, further supporting the differentiation between relationship-centered OC phenomena and general worries (see Table 1).

In order to examine our hypothesis that attachment anxiety would predict more relationship-centered OC symptoms among individuals whose self-worth is strongly contingent on their relationship, we conducted a hierarchical regression analysis with the total ROCI score as the predicted variable. The predictors were attachment anxiety, relationship-contingent self-worth, and their interaction. In addition, we controlled for attachment avoidance, depression, obsessive beliefs, general self-esteem, and pathological worries. This model explained 35% of the variance in the total ROCI score,  $F(8, 162) = 11.00$ ,  $p < 0.001$ .

Attachment anxiety had a significant main effect on relationship-centered OC symptoms. However, this main effect was qualified by a significant interaction between attachment anxiety and relationship-contingent self-worth (see Table 1). Simple slopes analysis indicated that, as expected, the positive association between attachment anxiety and relationship-centered OC symptoms became stronger as relationship-contingent self-worth became higher (see Fig. 1). Among individuals with highly relationship-contingent self-worth (+1 SD), the association between attachment anxiety and the ROCI score was strong and

significant,  $b = 0.40$ ,  $p < 0.001$ . In contrast, among individuals whose self-worth was less contingent on their relationship (–1 SD), the association between attachment anxiety and the ROCI score was weaker and failed to reach significance,  $b = 0.18$ . In addition, the association between relationship-contingent self-worth and the ROCI score tended to be positive among individuals high in attachment anxiety (+1 SD;  $b = 0.12$ ), and negative among individuals low in attachment anxiety (+1 SD;  $b = -0.10$ ).

These findings support our hypothesis that attachment anxiety is a significant predictor of relationship-centered OC symptoms, especially when accompanied by strong dependence of self-worth on the relational domain. This remained true after controlling for obsessive-compulsive beliefs, general worry, depression, and self-esteem, suggesting a unique contribution of such double relationship vulnerability to relationship-centered obsessional concerns. Interestingly, relationship-contingent self-worth alone was not related to relationship-centered OC symptoms. It seems that among individuals who feel secure in their relationship, as individuals low in attachment anxiety usually do, reliance on intimate relationships as a source of self-esteem does not promote vulnerability to obsessive doubts and worries concerning relationships. In contrast, among individuals who ascribe high importance to relationships while feeling anxious about their own relationships, relationship-centered OC symptoms seem more likely to emerge.

Study 1’s findings implicate both self and attachment vulnerabilities in the maintenance of relationship-centered obsessions. On this basis, one can hypothesize that events challenging the relational self-domain would increase relationship-centered obsessions and compulsions only among individuals with such double vulnerability. In study 2 we tested the causal role of threats to the relational self-domain among individuals with self and attachment vulnerabilities.

## 6. Study 2

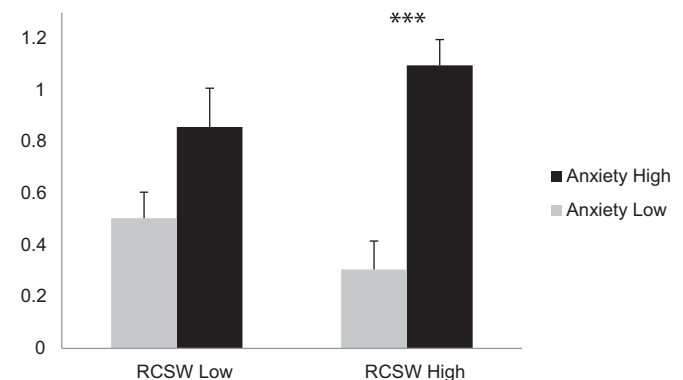
In Study 2, participants were assigned to either a mildly positive feedback condition (i.e., control condition) or a mildly-negative feedback condition following a bogus task that was alleged to assess competence in the maintenance of intimate relationships. Then, relationship-centered OC tendencies were assessed. Previous research has showed that even subtle suggestions of incompetence in sensitive self-domains may lead to heightened obsessive-compulsive behavioral tendencies (Doron et al., 2012). We therefore hypothesized that mild suggestions of incompetence in the relationship domain would lead to higher relationship-centered OC tendencies, particularly among individuals showing high attachment anxiety and relationship-contingent self-worth.

**Table 1**  
Regression and correlation coefficients Study 1.

|                | <i>r</i> | <i>b</i> | <i>t</i> |
|----------------|----------|----------|----------|
| Depression     | 0.38***  | 0.14     | 2.15*    |
| SISE           | –0.21**  | –0.04    | –0.67    |
| PSWQ           | 0.21**   | –0.09    | –1.38    |
| OBQ            | 0.40***  | 0.17     | 2.65**   |
| Avoidance      | 0.18*    | 0.03     | 0.47     |
| Anxiety        | 0.53***  | 0.29     | 4.07***  |
| RCSW           | 0.09     | 0.01     | 0.17     |
| Anxiety × RCSW |          | 0.11     | 2.01*    |

Note. *t* values are provided for the regression coefficients (*bs*). Dependent variable: Relationship Obsessive-Compulsive Inventory total score; Anxiety = ECR anxiety subscale; Avoidance = ECR avoidance subscale; RCSW = Relationship-contingent self-worth; Depression = DASS depression scale; SISE = Single-Item Self-Esteem Scale; PSWQ = Penn State Worry Questionnaire; OBQ = Obsessive Beliefs Questionnaire.

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .



**Fig. 1.** Estimated values of ROCI total scores (on the y axis) as a function of relationship-contingent self-worth (RCSW) and attachment anxiety (high = +1 SD; Low = –1 SD). Error bars represent standard errors. \*\*\* $p < 0.001$ .



## 6.1. Method

### 6.1.1. Participants

The sample consisted of 80 Israeli undergraduates (46 women) ranging in age from 20 to 29 ( $Mdn = 24$ ) who participated in the study for academic credit. All participants were in an intimate relationship at the time of the study. Median relationship length was 18 months. Participants were informed of their rights and completed an informed consent form in accordance with university IRB standards.

### 6.1.2. Materials and procedure

Participants were invited to the lab and told that they would participate in a study examining the link between personality and performance. They first completed a battery of questionnaires, including the Experiences in Close Relationships scale tapping attachment anxiety and avoidance, the four items assessing relationship-contingent self-worth that were described in Study 1, and the Depression scale from the short form of the Depression, Anxiety and Stress Scales. Cronbach's alphas in the current sample were high ( $\alpha_s = 0.96, 0.95, 0.91,$  and  $0.77$  for attachment anxiety, attachment avoidance, relationship-contingent self-worth, and depression, respectively).

Upon completing the questionnaires, participants performed a bogus Single Category Implicit Association Task (SC-IAT; Karpinski & Steinman, 2006). This task is a modified version of the IAT (Greenwald, McGhee, & Schwartz, 1998) and assesses the strength of evaluative associations with a single attitude object (romantic relationships, in our case). The task included two blocks of 36 trials each, presented in random order. Within each block, participants were asked to correctly categorize (i.e., press the correct response key) positive, negative, or relationship words presented in random order.

At the beginning of the task, participants were randomly divided into two conditions. In the experimental condition ( $N = 39$ ), participants received a mildly-negative automated feedback upon completing the task. The message informed the participants that, based on a statistical model, their performance on the task suggested that their capacity for maintaining a long-term relationship is "somewhat below average". In the mild positive condition ( $N = 41$ ), participants received a mildly-positive automated feedback upon completing the task.<sup>1</sup> The message informed the participant that, based on a statistical model, their performance on the task suggested that their capacity for maintaining a long-term relationship is "somewhat above average". This manipulation was piloted on 15 undergraduate participants. During debriefing all reported believing that the task evaluated relationship-related variables and confirmed that the manipulation challenged their relational self-views.

Following the computerized task, participants were asked to imagine themselves in 12 hypothetical scenarios depicting actual relationship-centered OC concerns (e.g., "After a phone conversation with your partner, you begin to doubt your relationship"; "You are about to meet with your partner for lunch, suddenly the thought that you don't really love your partner pops up"; "You are at home with your partner and feel the need to check whether your partner really loves you"; see Menzies, Harris, Cumming, & Einstein, 2000; Moulding, Doron, Kyrios, & Nedeljkovic, 2008; Doron et al., 2012 for similar methodologies) and answered three questions about each scenario, assessing distress ("to what extent do you feel discomfort in this situation?"), urge to act ("To what extent do you feel an urge to do something about your concerns in this

situation?") and the likelihood of acting ("How likely are you to take action to prevent the negative consequences of this situation from occurring?"). Participants were then debriefed regarding the goal of the study and the random nature of the feedback.

Ratings of the hypothetical scenarios were made on a scale ranging from 1 (*not at all*) to 9 (*very much*). In the current sample, discomfort, urge-to-act, and likelihood-of-acting items were highly correlated ( $r_s$  ranging from 0.62 to 0.82). Moreover, discomfort, urge-to-act, and likelihood-of-acting scores loaded onto a single factor in a principal components analysis (82.35% explained variance). Hence, we averaged all items to create a total score (Cronbach's  $\alpha = 0.97$ ) that we named *relationship OC tendencies*.

## 7. Results and discussion

Preliminary analysis showed that the correlation between attachment anxiety and relationship-contingent self-worth in Study 2,  $r = 0.51, p < 0.001$ , was larger than the same correlation in Study 1. Yet, this correlation was still low enough to suggest that attachment anxiety and relationship-contingent self-worth constitute separate risk factors for relationship-centered obsessions. Preliminary analysis also showed that Relationship OC tendencies were not correlated with age or gender ( $r_s < 0.12, ns$ ).

In order to examine our hypothesis that threatening one's sense of relational competence would induce more relationship OC tendencies among individuals high in attachment anxiety and relationship-contingent self-worth, we conducted a hierarchical regression analysis. The predicted variable was the total score of relationship OC tendencies, and the predictors were feedback type (a dummy variable contrasting mildly negative, 1, to mildly positive,  $-1$ ), attachment anxiety, relationship-contingent self-worth, and their two-way and three-way interactions. In addition, we controlled for attachment avoidance, depression, and relationship length. This model explained 53.34% of the variance,  $F(10,69) = 7.89, p < 0.001$ .

The regression revealed a significant feedback  $\times$  relationship-contingent self-worth interaction, but this effect was qualified by a significant three-way interaction for feedback, attachment anxiety, and relationship-contingent self-worth (see Table 2). Simple slopes analysis indicated that, as expected, mild negative feedback about relational competence increased relationship OC tendencies, but only among individuals high in both attachment anxiety and relationship-contingent self-worth ( $+1$  SD;  $b = 1.38, p < 0.001$ ). Other slopes were not significant (see Fig. 2).

Study 2 represents a replication and extension of Study 1's findings. In Study 1 we found that high attachment anxiety together with overreliance on relationships as a self-worth

**Table 2**  
Regression and correlation coefficients Study 2.

|  | <i>r</i> | <i>b</i> | <i>t</i> |
|--|----------|----------|----------|
| R. Length                                | -0.02    | -0.15    | -1.05    |
| Depression                               | 0.08     | -0.12    | -0.80    |
| Avoidance                                | -0.25*   | -0.31    | -1.69    |
| Anxiety                                  | -0.12    | 0.04     | 0.17     |
| Condition                                | 0.19     | 0.01     | 0.05     |
| RCSW                                     | 0.07     | 0.17     | 0.94     |
| Condition $\times$ RCSW                  |          | 0.36     | 2.04*    |
| Condition $\times$ Anxiety               |          | 0.31     | 1.47     |
| Anxiety $\times$ RCSW                    |          | 0.01     | 0.05     |
| Condition $\times$ Anxiety $\times$ RCSW |          | 0.71     | 3.95***  |

Note. *t* values are provided for regression coefficients (*bs*). Dependent variable: Relationship OC tendencies total score; Anxiety = ECR anxiety subscale; Avoidance = ECR avoidance subscale; RCSW = Relationship-contingent self-worth; Depression = DASS depression scale; R. Length = Relationship length in months. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

<sup>1</sup> Consistent with self-enhancement bias (Taylor & Brown, 1988), mildly-positive feedback was used as the control group.

resource predisposes individuals to relationship-centered OC symptoms. Study 2 revealed that such double relationship-vulnerability predisposes individuals to stronger reactivity to threats to the relationship self-domain, as manifested in relationship OC tendencies.

## 8. General discussion

One of the main resources for individuals' resilience and well-being is satisfactory intimate-relationships. Obsessing about one's feelings towards one's partner, the partner feelings towards one-self, and the "rightness" of the relationship may seriously hinder relationship satisfaction and relationship-maintenance capacities (Doron et al., 2012a). Consistent with the double relationship-vulnerability hypothesis, our findings showed that when self-vulnerability in the relational domain coincides with attachment anxiety, individuals become more susceptible to relationship-related obsessive doubts and worries. In Study 1 attachment anxiety was linked with higher relationship-centered OC symptoms among individuals whose self-worth was strongly dependent on their relationship. Study 2 showed that a subtle hint of incompetence in the relational self-domain can increase relationship-centered OC tendencies among individuals high in both attachment anxiety and relationship-contingent self-worth.

These findings are consistent with research and theory linking attachment insecurities and self-vulnerabilities to OC symptoms, cognitions, and behavioral tendencies (e.g., Aardema & O'Connor, 2007; Aardema, Moulding, Radomsky, Doron & Allamby, in press; Doron et al., 2012; García-Soriano et al., 2012; Myhr, Sookman & Pinard, 2004; Rowa, Purdon, Summerfeldt, & Antony, 2005). In particular, these findings are consistent with previous accounts of OCD development and maintenance proposing that thoughts or events that threaten perceptions of competence in OCD relevant self-domains (e.g., morality) may threaten self-worth, activate attempts at compensating for the perceived deficits, and lead to the development of neutralizing behaviors (Doron & Kyrios, 2005; Doron et al., 2012). Indeed, prior findings suggest that when self-worth is contingent on a particular domain, success or failure in this domain, even if only hinted of, may result in emotional ups and downs and extreme instabilities in self-esteem that "spill" to evaluations of the self as "good" or "bad" (Crocker & Wolfe, 2001; Knee et al., 2008). Our findings, however, while concentrating on a particular category of obsessions, take an extra step in providing correlational and experimental evidence identifying which individuals may be more vulnerable to the development of such

obsessions. By emphasizing the combined role of inherent self-sensitivity and dysfunctional coping, our double relationship-vulnerability model can potentially be translated to account for other obsessional themes.

Our results point to the involvement of several factors, some specific to relationship-centered OC symptoms (i.e., relationship-contingent self-worth) and some common with other OC dimensions (i.e., attachment anxiety) in the development of risk for this particular theme of obsessive-compulsive (OC) symptoms. Additional relationship-related cognitive biases that may play an important role in development and maintenance of relationship-centered OC symptoms are the tendency to "catastrophize" the consequences of leaving an existing relationship (e.g., "separation from my partner would lead to irreversible damage") or of remaining in a less than perfect relationship (e.g., "if I stay in a relationship that I am not sure about, I will be miserable forever"). Indeed, relationship self-sensitivity and relationship-related cognitive biases may underlie relationship-related OC symptoms, but not other OC dimensions. In this context, however, it should be noted that we have found moderate correlations between relationship-contingent self-worth and attachment anxiety, which indicates that while distinct, these two risk factors are not entirely independent. Attention should be paid to the dependence between risk factors when examining the double relationship-vulnerability model in future studies or when considering additional factors or biases that might promote relationship-related OC phenomena.

Although our findings were overall consistent with the proposed model, some limitations of the current studies should be addressed. One limitation is the use of nonclinical cohorts. Nonclinical participants experience OC-related beliefs and symptoms (Haslam, Williams, Kyrios, McKay, & Taylor, 2005). However, they may differ from clinical patients in the type and severity of OCD symptoms, as well as in symptom-related impairment. Future research would benefit from examining the proposed links in participants presenting with OCD symptoms centered on relationship themes. Future studies on clinical samples would also benefit from assessing the links between general worries, social anxiety symptoms, and relationship-centered OC phenomena.

The distinction between relationship-centered OC symptoms and worries may be of special interest in future research, as these two constructs can easily be conflated, especially when assessed in nonclinical samples. The current study was not designed to assess the discriminant validity of the ROCD construct. Yet, when considering the moderate correlation ( $r = 0.45$ ) that was found in the past in a nonclinical sample between relationship-centered OC symptoms and OCD symptoms (Doron et al., 2012a), the more modest correlation between relationship-centered OC symptoms and general worry that was found in study 1 lend some support to our view that relationship-centered OC symptoms share more features with OCD than with general worry. Indeed, clinical experience suggests that relationship-centered OC symptoms, like other OCD symptoms, are more unacceptable, unwanted, egodystonic and intrusive than general worries. More targeted research is needed, however, to tease apart these two constructs. Such research may focus on the distinctive features of relationship-centered OC symptoms (e.g., unacceptability, egodystonicity) in relation to regular relationship worries.

In the current studies we did not control for more common OCD symptoms (e.g., fear of contamination). The relationship between common OCD symptoms and relationship-centered OC symptoms was previously found to be moderate. Moreover, relationship-centered OC symptoms were found to predict depression and relationship satisfaction over and above common OCD symptom (Doron et al., 2012a). Future studies, however, may consider replicating our findings while controlling for OCD symptoms.

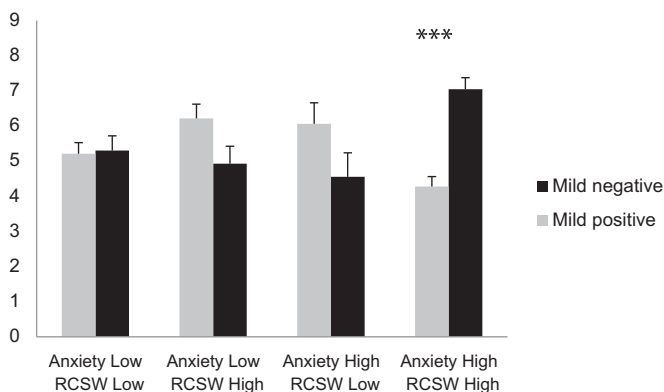


Fig. 2. Estimated values of ROCD scenario scores as a function of feedback type (mild negative vs. mild positive), relationship-contingent self worth (RCSW) and attachment anxiety (high = +1 SD; Low = -1 SD). Error bars represent standard errors. \*\*\* $p < 0.001$ .

It is also noteworthy that our samples included only participants that were in intimate-relationships at the time. We chose participants in ongoing relationships to minimize biases associated with retrospective reports and allow for a clear reference point during the task. Future studies, however, may benefit from examining the prevalence of double relationship-vulnerability among individuals avoiding romantic relationships, possibly due to negative past relationship experiences.

Finally, the ROCI assesses obsessive-compulsive symptoms related to one's romantic relationship. However, such obsessive doubts and worries are likely to occur in other types of close relationships such as child-parent relationships. Indeed, attachment representations are typically founded on interactions with primary caregivers during childhood (Mikulincer & Shaver, 2007). Researchers may consider adapting the ROCI to assess obsessive-compulsive symptoms revolving around one's relationship with their parent or child.

Research has only begun to explore relationship-centered OC symptoms. One important direction for future investigations may be whether relationship-centered symptoms are better conceptualized as an additional dimension of OCD or a new subtype. Indeed, recent taxometric analyses show that OC symptoms are best conceptualized in terms of dimensions rather than categories (e.g., Haslam et al., 2005). This dimensional account is somewhat supported by the correlation between relationship-centered symptoms and other OCD symptoms that was found in previous studies (Doron et al., 2012a).

Despite the potential limitations and pending replication of the results with a clinical cohort, our findings have important theoretical and clinical implications. To our knowledge, these are the first studies exploring the interaction between self-vulnerabilities and attachment insecurities in the prediction of relationship-centered OC symptoms. These are also the first studies assessing the role of double-relationship vulnerability using an experimental design. Such investigations of the role of self-vulnerabilities and attachment insecurities may enhance awareness of, and clinical attention to, such vulnerabilities when dealing with relationship-related obsessions.

Evidence based OCD treatment consists of cognitive and behavioral components. Similarly, OCD with relational themes (ROCD) would benefit from such interventions adapted to the relationship context. Examples may include increasing relationship related tolerance of uncertainty (e.g., accepting one cannot know how the relationship will be like in many years to come) and importance and control of thoughts beliefs (e.g., negative thoughts about the partner necessarily imply the relationship has to be reconsidered). Behavioral experiments may include exposure and response prevention for checking of the partner behaviors, monitoring of one's own emotions, or reassurance seeking.

Our findings suggest that when treating relationship-centered symptoms particular emphasis should be given to restructuring of attachment insecurities (e.g., fear of abandonment, distrust), self-contingencies and maladaptive relationship dynamics (see Doron & Moulding, 2009 for description of Attachment-based CBT). Helpful strategies may include challenging the link between OCD related beliefs and abandonment fears (e.g., over-vigilant will decrease the likelihood of being abandoned), using behavioral experiments to increase tolerance for abandonment related fears (e.g., writing/thinking "does my partner really love me" without asking the partner for reassurance) and addressing beliefs associating abandonment with low perceptions of self-worth (e.g., I am not worth anything and will therefore be abandoned). Relationship contingency of self-worth should be explicitly explored, such that the client understands the links between distress and perceptions of failure in this self-

domain. Effort should be given to identify and expand the rules of competency and boundaries of this self-domain. Indeed, treatments focusing on overvaluation of particular aspects of the self (e.g., shape and weight) have been useful in the treatment of other OC related disorders – eating disorders (Wilson, Grilo, & Vitousek, 2007).

In conclusion, this research is the first systematic attempt to assess the double relationship-vulnerability hypothesis as a significant vulnerability factor in the development of relationship-related OC phenomena.

### Authors' contributions

G.D. developed the study concept and design. Data collection was performed by E.K. and N.G., while data analysis and interpretation was performed by G.D. and O.S. The paper was drafted by all authors. All authors approved the final version of the paper for submission.

### Declaration of conflicting interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

### References

- Aardema, F., Moulding, R., Radomsky, A. S., Doron, G., & Allamby, J. Fear of self and obsessional: development and validation of the fear of self questionnaire. *Journal of Obsessive-Compulsive and Related Disorders*, in press.
- Aardema, F., & O'Connor, K. (2007). The menace within: obsessions and the self. *Journal of Cognitive Psychotherapy*, 21, 182–197.
- Abramowitz, J. S., McKay, D., & Taylor, S. (2008). *Obsessive-compulsive disorder: Subtypes and spectrum conditions*. Amsterdam: Elsevier.
- Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment*, 10, 176–181.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497–529.
- Bhar, S., & Kyrios, M. (2007). An investigation of self-ambivalence in obsessive-compulsive disorder. *Behaviour Research and Therapy*, 45, 1845–1857.
- Bowlby, J. (1973). *Attachment and loss*. In *Separation: Anxiety and anger*, Vol. 2. New York: Basic Books.
- Bowlby, J. (1982). *Attachment and loss* (2nd ed.). In *Attachment*, Vol. 1 New York: Basic Books. Original ed. 1969.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment. In J. A. Simpson, & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford Press.
- Brickman, P. (1987). *Commitment, conflict, and caring*. Englewoods Cliffs, NJ: Prentice-Hall.
- Clark, D. A., & Purdon, C. (1993). New perspectives for a cognitive theory of obsessions. *Australian Psychologist*, 28, 161–167.
- Crocker, J., Luhtanen, R. K., Cooper, M. L., & Bouvrette, S. (2003). Contingencies of self-worth in college students: theory and measurement. *Journal of Personality and Social Psychology*, 85, 894–908.
- Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review*, 108, 593–611.
- Doron, G., Derby, D., Szepsenwol, O., & Talmor, D. (2012a). Tainted love: exploring relationship-centered obsessive compulsive symptoms in two non-clinical cohorts. *Journal of Obsessive-compulsive and Related Disorders*, 1, 16–24.
- Doron, G., Derby, D., Szepsenwol, O., & Talmor, D. (2012b). Flaws and all: exploring partner-focused obsessive-compulsive symptoms. *Journal of Obsessive-Compulsive and Related Disorders*, 1, 234–243.
- Doron, G., & Kyrios, M. (2005). Obsessive compulsive disorder: a review of possible specific internal representations within a broader cognitive theory. *Clinical Psychology Review*, 25, 415–432.
- Doron, G., & Moulding, R. (2009). Cognitive behavioral treatment of obsessive compulsive disorder: a broader framework. *The Israel Journal of Psychiatry and Related Sciences*, 46, 257–263.
- Doron, G., Moulding, R., Kyrios, M., Nedeljkovic, M., & Mikulincer, M. (2009). Adult attachment insecurities are related to obsessive compulsive phenomena. *Journal of Social and Clinical Psychology*, 28, 1022–1049.
- Doron, G., Sar-El, D., & Mikulincer, M. (2012). Threats to moral self-perceptions trigger obsessive compulsive contamination-related behavioral tendencies. *Journal of Behavior Therapy and Experimental Psychiatry*, 43, 884–890.

- García-Soriano, G., Clark, D. A., Belloch, A., del Palacio, A., & Castañeiras, C. (2012). Self-worth contingencies and obsessionality: a promising approach to vulnerability? *Journal of Obsessive-compulsive and Related Disorders*, 1, 196–202.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: the implicit association test. *Journal of Personality and Social Psychology*, 74, 1464–1480.
- Haslam, N., Williams, B. J., Kyrios, M., McKay, D., & Taylor, S. (2005). Subtyping obsessive-compulsive disorder: a taxometric analysis. *Behavior Therapy*, 36, 381–391.
- Hendrick, S. S., & Hendrick, C. (1992). *Romantic love*. Newbury Park, CA: Sage.
- Karpinski, A., & Steinman, R. B. (2006). The single category implicit association test (SC-IAT) as a measure of implicit social cognition. *Journal of Personality and Social Psychology*, 91, 16–32.
- Knee, C. R., Canevello, A., Bush, A. L., & Cook, A. (2008). Relationship-contingent self-esteem and the ups and downs of romantic relationships. *Journal of Personality and Social Psychology*, 95, 608–627.
- Lopez, F. G. (2009). Adult attachment security: the relational scaffolding of positive psychology. In S. J. Lopez, & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (2nd ed.). (pp. 405–415) New York: Oxford University Press.
- Menzies, R. G., Harris, L. M., Cumming, S. R., & 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.
- 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.
- Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: activation, psychodynamics, and interpersonal processes. In M. P. Zanna (Ed.), *Advances in experimental social psychology*, Vol. 35 (pp. 53–152). New York: Academic Press.
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford Press.
- Moulding, R., Anglim, J., Nedeljkovic, M., Doron, G., Kyrios, M., & Ayalon, A. (2011). The Obsessive Beliefs Questionnaire (OBQ): examination in non-clinical samples and development of a short version. *Assessment*, 18, 357–374.
- Moulding, R., Doron, G., Kyrios, M., & Nedeljkovic, M. (2008). Desire for control, sense of control and obsessive-compulsive checking: an extension to clinical samples. *Journal of Anxiety Disorders*, 22(8), 1472.
- Myhr, G., Sookman, D., & Pinard, G. (2004). Attachment security and parental bonding in adults with obsessive-compulsive disorder: a comparison with depressed out-patients and healthy controls. *Acta Psychiatrica Scandinavica*, 109, 447–456.
- Obsessive Compulsive Cognitions Working Group. (1997). Cognitive assessment of obsessive-compulsive disorder. *Behaviour Research and Therapy*, 35, 667–681.
- Obsessive Compulsive Cognitions Working Group. (2005). Psychometric validation of the Obsessive Beliefs Questionnaire: factor analyses and testing of a brief version. *Behaviour Research and Therapy*, 43, 1527–1542.
- Rachman, S. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy*, 35, 793–802.
- Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy*, 16, 233–248.
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin*, 27, 151–161.
- Rowa, K., Purdon, C., Summerfeldt, L. J., & Antony, M. (2005). Why are some obsessions more upsetting than others? *Behaviour Research and Therapy*, 43, 1453–1465.
- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: a review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52, 141–166.
- Salkovskis, P. M. (1985). Obsessional-compulsive problems: a cognitive-behavioural analysis. *Behaviour Research and Therapy*, 23, 571–583.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: a social psychological perspective on mental health. *Psychological Bulletin*, 103, 193–210.
- Thompson, M. M., & Holmes, J. G. (1996). Ambivalence in close relationships: conflicted cognitions as a catalyst for change. In (Series Ed.) & R. M. Sorrentino, & E. T. Higgins (Vol. Eds.), *The interpersonal context: Vol. 3. Handbook of motivation and cognition* (pp. 497–530). New York: Guilford Press.
- Wilson, G. T., Grilo, C. M., & Vitousek, K. M. (2007). Psychological treatment of eating disorders. *American Psychologist*, 62, 199–216.