

Experimentally-Enhanced Attachment Security Influences Obsessive Compulsive Related Washing Tendencies in a Non-Clinical Sample

Guy Doron (gdoron@idc.ac.il)

School of Psychology, Interdisciplinary Center (IDC) Herzliya
P.O.Box 167, Herzliya, 46150, Israel

Dar Sar-El (darsarel@gmail.com)

School of Psychology, Interdisciplinary Center (IDC) Herzliya
P.O.Box 167, Herzliya, 46150, Israel

Mario Mikulincer (Mario@idc.ac.il)

School of Psychology, Interdisciplinary Center (IDC) Herzliya
P.O.Box 167, Herzliya, 46150, Israel

Dahlia Talmor (dalia_talmor@yahoo.com)

School of Psychology, Interdisciplinary Center (IDC) Herzliya
P.O.Box 167, Herzliya, 46150, Israel

Abstract

In recent years, attachment insecurities in the form of anxiety and avoidance have been found to be associated with Obsessive Compulsive (OC) symptoms and cognitions. The hypothesized buffering role of attachment security on OC-related processes, however, has yet to be assessed. In the current study, we examined the effects of experimentally-enhanced attachment security ("security priming") on OC-related washing tendencies in a non-clinical sample ($N = 85$). As compared to a neutral priming, security priming reduced OC-related washing tendencies among participants scoring relatively high on attachment anxiety or avoidance. However, security priming led to higher OC-related washing tendencies than neutral priming among more securely attached participants (low scores on attachment anxiety or avoidance). Implications for theory and treatment are discussed.

Keywords: *Cognitive Theory; Attachment Theory, Obsessive Compulsive Disorder; Cognition; Contamination fears.*

Introduction

Obsessive compulsive disorder (OCD) has been rated as a leading cause of disability by the World Health Organization (1996). OCD is characterized by the occurrence of unwanted and disturbing intrusive thoughts, images or impulses (obsessions) and/or compulsive acts/rituals aimed at reducing distress or preventing feared events from occurring (American Psychiatric Association, 2000). Recently, attachment insecurities in adulthood have been found to be positively associated with OCD symptoms and cognitions (e.g., Doron & Kyrios, 2005;; Myhr,

Sookman, & Pinard, 2004). Following these correlational findings, we examine in the current study the hypothesis that an experimental manipulation of the sense of attachment security can reduce OCD-related behavioral tendencies.

Cognitive Models of OCD

According to cognitive-behavioural theories of OCD, most of us experience a range of intrusive phenomena that are similar in form and content to clinical obsessions (Rachman & de Silva, 1978), but individuals with OCD misinterpret such intrusions based on dysfunctional beliefs (e.g., inflated responsibility, perfectionism, threat overestimation; Obsessive Compulsive Cognitions Working Group [OCCWG], 1997). Individuals with OCD tend to rely on ineffective strategies for managing intrusive thoughts and reducing anxiety (e.g., thought suppression, compulsive behavior), which paradoxically exacerbate the frequency and impact of intrusions and result in obsessions and compulsions (e.g., Clark & Beck, 2010; Salkovskis, 1985).

Cognitive model of psychopathology also propose that emotional problems are related to underlying perceptions of the self, others and the world. With regard to individuals with OCD, Doron and Kyrios (2005) proposed that thoughts or events that challenge sensitive self-domains (e.g., immoral thoughts or behaviors) damage their self-worth and activate maladaptive coping responses that can paradoxically further increase the occurrence of unwanted mental intrusions and the accessibility of "feared self" cognitions (e.g., I'm bad, I'm immoral). For such individuals, common aversive experiences may activate

overwhelmingly negative evaluations in sensitive self-domains (Doron, Kyrios & Moulding, 2007). These processes, together with the activation of other dysfunctional thoughts (e.g., an inflated sense of responsibility, threat overestimation), are self-perpetuating and can result in the development of obsessions and compulsions.

Although sensitive self-domains have been implicated in OCD (Doron, Moulding, Kyrios, & Nedeljkovic, 2008) and experimentally challenging the self-domain of morality has been found to increase obsessive compulsive (OC) behavioral tendencies (e.g., Doron, Sar-El, & Mikulincer, 2012b), it is unlikely that every person experiencing a self-domain challenge will be flooded by negative self-evaluations, dysfunctional beliefs, and obsessions. For most people, these challenges would result in the activation of distress regulation strategies that can dissipate unwanted intrusions, reaffirm the challenged self, and restore emotional composure. The main question here concerns the psychological mechanisms that interfere with this adaptive regulatory process and foster the exacerbation of “feared self” cognitions and the cascade of dysfunctional beliefs that result in OCD symptoms.

Attachment and OCD

In dealing with the above question, Doron, Moulding, Kyrios, Nedeljkovic, and Mikulincer (2009) proposed that attachment insecurities can disrupt the process of coping with self-domain challenges and then contribute to OCD. According to attachment theory (Bowlby, 1973, 1982; Mikulincer & Shaver, 2007a), interpersonal interactions with protective others (called “attachment figures” in the theory) are internalized in the form of mental representations of self and others (“internal working models”), which have an impact on close relationships, self-esteem, emotion regulation, and mental health throughout life. Interactions with attachment figures who are available and supportive in times of need foster the development of both a sense of attachment security and positive internal working models of the 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, 2007a).

Research, beginning with Ainsworth, Blehar, Waters, and Wall (1978) and continuing through recent studies by social and personality psychologists (reviewed by Mikulincer & Shaver, 2007a), indicates that attachment orientations are organized around two orthogonal dimensions, attachment-related *anxiety* and *avoidance* (Brennan, Clark, & Shaver, 1998). The first dimension, *attachment anxiety*, reflects the degree to which a person worries that a partner will not be available or adequately responsive in times of need. The second dimension, *avoidance*, reflects the extent to which he or

she distrusts relationship partners’ goodwill and strives to maintain autonomy and emotional distance from them. People who score low on both dimensions are said to hold a stable sense of attachment security.

According to attachment theory, a sense of attachment security facilitates the process of coping with, and adjustment to, life adversities as well as the restoration of emotional equanimity following aversive events (Mikulincer & Shaver, 2007a). Indeed, a dispositional sense of attachment security (indicated by relatively low scores on attachment anxiety or avoidance scales) has been found to buffer the adverse emotional effects of stressful and traumatic events (see Mikulincer & Florian, 1998; Mikulincer, Shaver, & Horesh, 2006, for reviews). Laboratory studies also indicate that experimental manipulations aimed at contextually heightening the mental accessibility of security-related representations (i.e., security priming) restore emotional equanimity after distress-eliciting events and buffer post-traumatic dysfunctional cognitions (see Mikulincer & Shaver, 2007b, for a review).

In Doron et al.’s (2009; Doron, Moulding, Nedeljkovic, Kyrios, Mikulincer, & Sar-El, 2012) view, the sense of attachment security acts, at least to some extent, as a protective shield against OC-related processes, such as the activation of feared-self cognitions and dysfunctional beliefs following events that challenge sensitive self domains. For people who have chronic or contextually heightened mental access to the sense of attachment security, these aversive experiences and the intrusion of unwanted thoughts will result in the activation of effective distress-regulation strategies that dispel the thoughts, reaffirm the challenged self, and restore well-being.

There is correlational evidence supporting the involvement of attachment anxiety and avoidance in vulnerability to OCD. First, high scores on dispositional measures of attachment insecurities have been associated with dysfunctional cognitive processes similar to those identified in current cognitive models of OCD (OCCWG, 2005). Specifically, attachment anxiety is associated with exaggerated threat appraisals (e.g., Mikulincer & Florian, 1998), difficulties in suppressing unwanted thoughts (e.g., Mikulincer, Dolev, & Shaver, 2004), and rumination on these intrusive thoughts (e.g., Birnbaum, Orr, Mikulincer, & Florian, 1997). Avoidant attachment is associated with self-criticism, maladaptive perfectionism, and intolerance of uncertainty, ambiguity, and personal weaknesses (e.g., Mikulincer, 1997; Rice & Lopez, 2004; Thompson & Zuroff, 1999). Second, high scores on dispositional measures of attachment insecurities have been associated with OCD symptoms (e.g., Doron et al., 2009; Myhr et al., 2004). For example, Doron et al. (2009) found that attachment anxiety and avoidance in a large non-clinical sample of university students were associated with OCD symptoms and that this

association was mediated by OC-related dysfunctional beliefs.

The Current Study

Although there is evidence for the involvement of attachment insecurities in OCD, the direction of influence still needs to be investigated. All the reviewed studies have been based on cross-sectional, correlational research designs and so could not test for causal effects of attachment insecurities and the hypothesized buffering role of attachment security on OC-related processes. In the laboratory experiment reported here, we fill in this empirical gap by directly examining the causal effects of experimentally-enhanced attachment security (security priming) on OC-related behavioral tendencies in a non-clinical sample of university students. Findings indicate that non-clinical participants experience similar intrusive thoughts to clinical participants, albeit with lesser frequency and resulting distress (Rachman & de Silva, 1978). Moreover, two taxometric studies (Haslam, Williams, Kyrios, McKay & Taylor, 2005; Olatunji, Williams, Haslam, Abramowitz, & Tolin, 2008) found that OC-related cognitions and behaviors are best conceptualized as dimensional rather than categorical, thereby supporting the appropriateness of studying OC-related processes in non-clinical samples.

In the current study, university students were invited individually to the laboratory, completed the Experiences in Close Relationships scale (ECR, Brennan et al., 1998), tapping dispositional attachment anxiety and avoidance, performed a cognitive task, and then were randomly assigned to one of two experimental conditions according to the mental representations that were subliminally primed during the cognitive task. In the security priming condition, we subliminally (for only 32 ms) exposed participants to the names of his or her security providers. In the neutral priming condition, we subliminally exposed participants to names of mere acquaintances. Following this manipulation, all the participants responded to hypothetical OC-relevant scenarios (Doron et al., 2012b; Menzies, Harris, Cumming, & Einstein, 2000) designed to assess OC-related behavioural tendencies – the main dependent variable in this experiment. Because mood symptoms (e.g., anxiety, depression) are associated with both attachment insecurities (e.g., Mickelson, Kessler & Shaver, 1997) and OC-related processes (e.g., Rachman, 1997), participants also completed a measure of mood symptoms. Therefore, we were able to statistically control for the contribution of mood symptoms and to examine the unique contribution of attachment insecurities to OC-related tendencies. Our predictions were:

1) Higher scores in ECR scales of attachment anxiety and avoidance would be associated with more OC-related behavioral tendencies in the hypothetical scenarios.

2) Participants in the security-priming condition will report less OC-related behavioral tendencies than participants in the neutral priming condition.

3) The association between ECR scales of attachment anxiety and avoidance and OC-related behavioral tendencies in the hypothetical scenarios would be significant in the neutral priming condition. However, security priming would dissipate such an association and reduce OC-related behavioral tendencies among dispositionally insecure participants.

4) All these associations would be significant even after controlling for variations in mood symptoms.

Method

Participants

Eighty five Israeli undergraduates from the Interdisciplinary Center (IDC) Herzliya (38 women and 47 men, ranging in age from 21 to 34 years, *Mdn* = 24) participated in the study without any monetary reward. Participants were randomly assigned to two conditions. No significant gender or age differences were found between the two conditions.

Materials and Procedure

The study was conducted on an individual basis. Participants came to the laboratory, received preliminary instructions, signed an informed consent form, and completed a battery of self-report scales that were randomly ordered across participants. Participants completed two measures, to be used in the priming task, designed to elicit names of attachment figures and acquaintances. In one measure, participants received a list of 100 first names and marked the names of people they knew. The second measure was a Hebrew version of the 6-item WHOTO scale developed by Fraley and Davis (1997). This scale asked participants to provide the first names of close relationship partners to whom they sought proximity (e.g., "Who is the person you most like to spend time with?") and who provided a safe haven (e.g., Who is the person you turn to when you are feeling down?) or secure base (e.g., "Who is the person you want to share your successes with?") for them. For each item, participants wrote the first name of the person who best served the targeted function and labeled that person's relational role (e.g., mother, father, friend).

In order to assess participants' dispositional attachment orientations, they completed the Experiences in Close Relationships scales (ECR; Brennan et al., 1998). Participants rated the extent to which each item was descriptive of their feelings and behavior in close relationships on a 7-point scale ranging from "not at all" (1) to "very much" (7). Eighteen items measured attachment anxiety (e.g. "I worry about being abandoned") and 18 items measured avoidance (e.g., "I prefer not to show a partner how I

feel deep down"). The reliability and validity of the Hebrew version of the ECR have been demonstrated in many studies (e.g., Mikulincer & Florian, 2000). In the current sample, Cronbach alphas were high for both the anxiety items (.91) and the avoidance items (.87). Scale scores were computed by averaging item ratings, and the correlation between the two scores was not significant, $r(85) = .03$. Higher scores indicate greater anxiety and avoidance.

To control for variations in mood symptoms, participants completed the 21-items *Depression Anxiety Stress Scales* (DASS, Lovibond & Lovibond, 1995). Participants were asked to rate how often a particular symptom was experienced in the past week on a 4-point scale, ranging from 0 (did not apply to me at all) to 3 (applied for me very much, most of the time). This scale has been found to be highly reliable and valid in both clinical and non-clinical samples (e.g., Clara, Cox, & Enns, 2001). In the current study, Cronbach α s were acceptable for depression, anxiety, and stress items (ranging from .79 to .88). On this basis, three total scores were computed for each participant by averaging the relevant items in each subscale. Pearson correlations revealed significant links between attachment anxiety and the DASS scales of depression, anxiety, and stress, $r_s < .29$, all $p_s < .01$. Avoidant attachment was significantly associated with depression and stress, r_s of .32 and .40, $p_s < .01$.

Before the priming manipulation, participants also completed a brief sociodemographic questionnaire and a scale tapping life habits. These scales served as filler tasks and were used to divert participants' attention away from thoughts about attachment and mood symptoms that the previously completed scales might have elicited.

Then, all participants performed a 32-trial affective priming task (Murphy & Zajonc, 1993). This task was run on a Pentium PC, with a SVGA color monitor. Brightness and contrast were set low and the prime word and target figures were displayed in black on a white background in the middle of the screen. Each trial consisted of a rapid, subliminal presentation of one of two primes (name of a security provider, known name) for 32 ms (which is not long enough to be perceived consciously) that was immediately followed by the random presentation of one of 32 Chinese ideographs (for 2000 ms). Then, participants rated the extent to which they liked the ideograph on a 7-point scale, ranging from "not at all" (1) to "very much" (7). Ratings were done by pressing a number from 1 to 7 on the keyboard number pad. Upon making a rating, the ideograph vanished and, after a 2-sec pause, the next trial began.

Participants were randomly divided into two conditions according to the type of the name that was subliminally primed (for 32 ms) in the 32 trials. In the security-priming condition ($n = 43$), the prime was the name of the person who was most frequently mentioned

as an attachment figure when the participant completed the WHOTO measure. (In cases where the top two names appeared equally often, the computer program chose one of them at random.) In the neutral priming condition, ($n = 42$), the prime was the name of a person known by the participant but not viewed as an attachment figure. No significant differences were found between these two groups in dispositional attachment anxiety and avoidances as well as mood symptoms.

Following the priming manipulation, all the participants read five hypothetical washing scenarios (Menzies et al., 2000; Moulding et al., 2007) and answered three questions 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 likelihood of acting (How likely are you to take action to prevent negative consequences from occurring?) in each of the scenarios. Ratings were made on a 9-point scale, ranging from *not at all* (1) to *very much* (9). In the current study, Cronbach α s were high for each of the three questions across the five scenarios (from .75 to .79). On this basis, we computed three scores by averaging participants' answers to each question across the five scenarios. Since these scores were highly correlated ($\alpha = .92$), we averaged them into a total score. Higher scores reflect higher levels of OC-related washing tendencies.

Results

To examine the predicted contributions of security priming and dispositional attachment orientations to OC tendencies, we conducted a 2-step hierarchical regression analysis of participants' responses to the hypothetical scenarios. In the first step, security priming (a dummy variable contrasting security priming with neutral priming) and attachment anxiety and avoidance (Z scores) were introduced as predictors. We also introduced the three DASS scores (depression, anxiety, stress) as covariates in order to control for mood symptoms while examining the effects of security priming and attachment orientations. The product terms representing the 2-way interactions between security priming and each of the attachment scores were introduced in the second step.

This regression analysis indicated that the entire model was significant, $F(8, 76) = 2.20$, $p < .05$, and explained 18.8% of the variance of OC tendencies over and above depression, anxiety, and stress symptoms. In line with our predictions, higher scores on attachment anxiety and avoidance were associated with higher OC tendencies in the hypothetical scenarios (see β s in Table 1). However, unexpectedly, the main effect for security priming was not significant. The addition of the interactions terms explained an additional 12.1% of the variance, $F_{\text{change}}(2, 76) = 5.68$, $p < .01$. As can be seen in Table 1, security priming significantly interacted

with both attachment anxiety and avoidant attachment (see β s in Table 1).

Table 1
Regression Coefficients, Standard Errors, and Significance Tests of the Contributions of Security Priming and Dispositional Attachment Scores to OC Tendencies

Effects	<i>B</i>	<i>SE</i>	β	<i>T</i>
Step 1				
Priming	0.17	.39	.05	0.45
Attachment anxiety	0.59*	.28	.37	2.15
Avoidant attachment	1.02**	.32	.56	3.16
DASS depression	0.34	.59	.10	0.57
DASS Anxiety	-0.31	.60	-.07	-0.51
DASS stress	0.27	.47	.09	0.57
Step 2				
Priming x attachment anxiety	-0.78*	.34	-.38	-2.29
Priming x avoidant attachment	-0.99*	.41	-.41	-2.41

Note. $p < .05^*$; $p < .01^{**}$

Simple slope effect tests (Aiken & West, 1991) examining the nature of the significant interaction for priming and avoidant attachment revealed the following pattern of associations: Following neutral priming, avoidant attachment was significantly associated with higher OC tendencies in the hypothetical scenarios, $\beta = .97$, $p < .01$. However, this association evaporated and was no longer significant following security priming, $\beta = .15$. Additional simple slope effect tests revealed that whereas security priming (as compared to neutral priming) significantly reduced OC tendencies when avoidant attachment was high (+1SD), $\beta = -.36$, $p < .01$, it significantly increased OC tendencies among less avoidant participants (-1SD), $\beta = .46$, $p < .01$.

A similar pattern was revealed by Simple slope effect tests examining the nature of the significant interaction between priming and attachment anxiety. Following neutral priming, attachment anxiety was significantly associated with higher OC tendencies in the hypothetical scenarios, $\beta = .75$, $p < .01$. Again, this association evaporated and was no longer significant following security priming, $\beta = -.01$. Additional simple slope effect tests revealed that whereas security priming (as compared to neutral priming) significantly reduced OC tendencies when anxious attachment was relatively high (+1SD), $\beta = -.33$, $p < .01$, it significantly increased OC tendencies among less anxious participants (-1SD), $\beta = .43$, $p < .01$.

This pattern of interactions fitted our predictions: A contextual activation of mental representations of attachment security (names of security providers) was efficient in reducing the habitual OC tendencies of highly avoidant or anxious participants (as evinced in the neutral priming condition). However, unexpectedly,

this contextual activation increased OC tendencies in more secure participants (scoring relatively low on either avoidant or anxious attachment). As predicted, all these effects were found after controlling for variations in mood symptoms.

Discussion

In a laboratory experiment we addressed several questions pertaining to links found between attachment and OCD. First, previous correlational studies had documented associations between dispositional measures of attachment insecurity and OC symptoms and related cognitions and behaviors. These studies left unanswered the important issue of causal direction, so it was unclear whether boosting attachment security actually reduces OC-related tendencies. Second, previous studies did not provide any information about the extent to which contextual augmentation of the sense of attachment security can buffer the cascade of OC-related mental events among insecurely attached people. In general, we wished to examine and understand the causal effects of what Bowlby (1982) called the attachment behavioral system on OC-related tendencies.

In line with previous correlational findings (e.g., Doron et al., 2009), our findings indicated that participants scoring higher on dispositional measures of attachment anxiety and avoidance reported more OC-related washing tendencies in response to the hypothetical scenarios. Moreover, as predicted, subliminal priming of attachment security attenuated such an association. Whereas more insecurely attached participants reported more OC-related washing tendencies in the neutral priming condition, this association was no longer significant in the security priming condition. The findings clearly indicated that the contextual activation of the sense of attachment security reduced OC-related washing tendencies among insecurely attached participants and led them to respond to the hypothetical scenarios like secure participants. In other words, brief security priming overrode the detrimental effects that dispositional attachment insecurities had on OC-related processes. Further research should examine whether this buffering effect of a contextual augmentation of attachment security can be extended to OC-related dysfunctional beliefs and OCD symptoms in both non-clinical and clinical samples.

Unexpectedly, although security priming led anxious and avoidant participants to reduce OC-related washing tendencies, it increased these tendencies among more secure participants (lower scores on attachment anxiety or avoidance). This finding is hard to explain because it is the first time that security priming led securely attached people to provide responses that resembled that of more insecure individuals. One possibility is that this unexpected finding can be related to other cognitive-affective processes rather than OCD. For

example, previous findings have shown that attachment security and contextual activation of the sense of attachment security are associated with more playful exploration, cognitive and emotional flexibility, tolerance for uncertainties and ambiguities, and openness to inner pain (e.g., Cassidy, Shaver, Mikulincer, & Lavy, 2009; Mikulincer, 1997; Mikulincer, Shaver, & Rom, in press). It is possible that security priming led dispositionally secure persons to explore more in-depth the personal meaning and implications of the hypothetical scenarios and open themselves to some kind of OC-related tendencies with the confidence that they are safe and protected while embarking in such potentially painful exploration. However, one should take into account that this is a post hoc speculation since we collected no relevant information for testing its validity. Further research should attempt to examine more systematically this unexpected effect of security priming.

Our findings are consistent with theoretical writings implicating attachment insecurities in the development and maintenance of OCD symptoms (e.g., Doron & Kyrios, 2005; Doron, Sar-el, & Mikulincer, 2012a; Doron, Derby, Szepeswol & Talmor, 2012; Guidano & Liotti, 1983). According to these writings, due to socio-cultural and developmental factors (e.g., parental conditional regard of one's competence in particular domains), specific self-domains become extremely important for defining one's sense of self-worth (what Doron and Kyrios, 2005, called "*sensitive self-domains*"). Thoughts or events that challenge these self-domains damage a person's self-worth and activate other dysfunctional beliefs (e.g., inflated responsibility, threat overestimation), which can increase distress and result in the development and maintenance of obsessions and compulsions. Our findings clearly indicated that this cascade of mental events leading to OCD is more likely to occur among insecurely attached people than among secure ones, and that even brief augmentation of the sense of attachment security seems to momentarily protect insecurely attached individuals against the development of OC-related tendencies. The mobilization of mental representations of supportive others or actual sources of support may sustain optimistic beliefs and constructive strategies of distress regulation, and maintain a stable sense of self-worth (Mikulincer & Shaver, 2007a), thereby preventing the development of OCD.

Although the current study overcame methodological limitations of previous correlational studies of the attachment-OCD link, it has limitations of its own. First, our findings were derived from a cohort of non-clinical university students. Although non-clinical participants experience OC-related beliefs and symptoms, they may differ from clinical patients in the type, severity, symptom-related impairment, and comorbidity of OCD. Future research would benefit from studying the causal effects of attachment security and

insecurities on OCD symptoms and related cognitions and behaviors among clinical participants. Second, security priming was accomplished only by subliminally exposing participants to names of their security providers. Future studies should use other subliminal priming procedures to see if the results generalize (Mikulincer & Shaver, 2007b). Moreover, it is possible that subliminal security priming operates differently from supraliminal priming (Mikulincer et al., in press). This possible difference should be examined in future studies, particularly because supraliminal methods are probably closer than subliminal ones to what happens in therapy (although the security provided by a good therapeutic alliance may operate at both conscious and unconscious levels). Third, our study did not provide information about how long the effects of security priming last. Future studies should focus on this issue (Gillath, Selcuk, & Shaver, 2008).

Despite the potential limitations of the current research and pending replication of the findings with a clinical cohort, the findings may have important implications for the treatment of OCD. Our results are consistent with previous suggestions (Doron & Moulding, 2009) that attachment security may act as protective shield against the development and maintenance of dysfunctional OCD-related beliefs. Therefore, when dealing with individuals diagnosed with OCD, therapists can take into account the role played by attachment insecurities in OCD and the potential therapeutic, healing effects of augmentation of the sense of attachment security. Identifying, elaborating, and facilitating security-enhancing experiences within both the therapeutic context and the patients' real life may decrease dysfunctional beliefs, feared cognitions, and the resulting distress. Helping clients contextualize the origins of their insecure attachment patterns within their life's narrative may enable reappraisal and a restructuring of insecure working models and facilitate the movement toward more secure and adaptive patterns of distress regulation (Bowlby, 1988, Young, & Weishaar, 2003).

In conclusion, the current study is the first systematic attempt to experimentally explore the causal effects of attachment security on OC-related behavioral tendencies. This will hopefully lead to the expansion of attachment theory into the realm of OCD and other anxiety disorders and the incorporation of attachment-related processes into theoretical and therapeutic models of OCD. In this way, we will enhance our understanding of this disabling disorder and improve its treatment outcomes.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: Assessed in the Strange Situation and at home*. Hillsdale, NJ: Erlbaum.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th edition, text revision). Washington, DC Author.
- Birnbaum, G. E., Orr, I., Mikulincer, M., & Florian, V. (1997). When marriage breaks up: Does attachment style contribute to coping and mental health? *Journal of Social and Personal Relationships*, *14*, 643-654.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York, NY: Basic Books.
- Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). New York, NY: Basic Books. (Original ed. 1969).
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London: Routledge.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York, NY: Guilford Press.
- Cassidy, J., Shaver, P. R., Mikulincer, M., & Lavy, S. (2009). Experimentally induced security influences responses to psychological pain. *Journal of Social and Clinical Psychology*, *28*, 463-478.
- Clara, I.P., Cox, B.J., & Enns, M.W. (2001). Confirmatory factor analysis of the Depression-Anxiety-Stress Scales in depressed and anxious patients. *Journal of Psychopathology and Behavioral Assessment*, *23* (1), 61-67.
- Clark, D. A., & Beck, A. T. (2010). *Cognitive therapy of anxiety disorders: Science and practice*. New York, NY: Guilford Press.
- Doron, G., Derby, D., Szepsenwol, O., & Talmor, D. (2012). Tainted Love: exploring relationship-centered obsessive compulsive symptoms

- Mikulincer, M., Dolev, T., & Shaver, P. R. (2004). Attachment-related strategies during thought suppression: Ironic rebounds and vulnerable self-representations. *Journal of Personality and Social Psychology, 87*, 940-956.
- Mikulincer, M., & Florian, V. (1998). The relationship between adult attachment styles and emotional and cognitive reactions to stressful events. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 143-165). New York, NY: Guilford Press.
- Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulate terror management mechanisms? *Journal of Personality and Social Psychology, 79*(2), 260-273.
- 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, NY: Academic Press.
- Mikulincer, M., & Shaver, P. R. (2007a). *Attachment in adulthood: Structure, dynamics, and change*. New York, NY: Guilford Press.
- Mikulincer, M., & Shaver, P. R. (2007b). Boosting attachment security to promote mental health, prosocial values, and inter-group tolerance. *Psychological Inquiry, 18*, 139-156.
- Mikulincer, M., Shaver, P. R., & Horesh, N. (2006). Attachment bases of emotion regulation and posttraumatic adjustment. In D. K. Snyder, J. A. Simpson, & J. N. Hughes (Eds.), *Emotion regulation in families: Pathways to dysfunction and health* (pp. 77-99). Washington, DC: American Psychological Association.
- Mikulincer, M., Shaver, P. R., & Rom, E. (in press). The effects of implicit and explicit security priming on creative problem solving. *Cognition and Emotion*.
- Murphy, S.T., & Zajonc, R.B. (1993). Affect, cognition, and awareness: Affective priming with optical and suboptical stimulus exposures. *Journal of Personality and Social Psychology, 64*, 723-739.
- Myhr, G., Sookman, D., & Pinard, G. (2004). Attachment security and parental bonding in adults with obsessive-compulsive disorder: A comparison with depressed outpatients and healthy controls. *Acta Psychiatrica Scandinavica, 109* (6), 447-456.
- Obsessive Compulsive Cognitions Working Group. (1997). Cognitive assessment of obsessive-compulsive disorder. *Behavior Research and Therapy, 35*, 667-681.
- Olatunji, B. O., Williams, B. J., Haslam, N., Abramowitz, J. S., & Tolin, D. F. (2008). The latent structure of obsessive-compulsive symptoms: A taxometric study. *Depression and Anxiety, 25*, 956-968.
- Rachman, S. (1997). A cognitive theory of obsessions. *Behavior Research and Therapy, 35*, 793-802.
- Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behavior Research and Therapy, 16*, 233-248.
- Rice, K. G., & Lopez, F. G. (2004). Maladaptive perfectionism, adult attachment, and self-esteem in college students. *Journal of College Counseling, 7*, 118-128.
- Salkovskis, P. M. (1985). Obsessional-compulsive problems: A cognitive-behavioral analysis. *Behavior Research and Therapy, 23*, 571-583.
- Thompson, R., & Zuroff, D. C. (1999). Development of self-criticism in adolescent girls: Roles of maternal dissatisfaction, maternal coldness, and insecure attachment. *Journal of Youth and Adolescence, 28*, 197-210.
- World Health Organization (1996). *Global burden of disease: A comprehensive assessment and morbidity from disease, injuries, and risk factors in 1990 and projected to 2020*. New York, NY: Author.
- Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. New York, NY: Guilford Publication.

Correspondence to: Dr Guy Doron,
 School of Psychology, Interdisciplinary Center (IDC)
 Herzliya
 P.O.Box 167, Herzliya, 46150, Israel
 Tel: + 972 9 960 2850
 Email: gddoron@idc.ac.il