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Disentangling the Relationship Between Implicit Aggressiveness and Counterproductive Work Behaviors: The Role of Job Attitudes

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ABSTRACT

Implicit aggressiveness, measured by the Conditional Reasoning Test for Aggression (CRT-A), has been shown to be important for understanding counterproductive work behaviors (CWBs). However, it is not clear how employees justify CWBs that stem from their unconscious tendencies. We tested the idea that implicitly aggressive individuals develop negative job attitudes (JAs) to justify their CWBs. In Study 1, 333 employees completed the CRT-A, a battery of JAs, and a CWBs scale. In Study 2, another sample (n = 341) completed the CRT-A and different measures of JAs and CWBs. In both studies, implicit aggressiveness explained JAs and self-reported CWBs. Although the design did not allow establishment of exact causal sequence, both studies were more consistent with the model where CWBs mediated the CRT-A and JA relationship.

Counterproductive work behaviors (CWBs) consist of acts that harm or intend to harm other employees or the employing organization (Spector et al., 2006). CWBs range from minor misbehavior, such as wasting resources or gossiping about coworkers, to serious offenses, such as stealing from the company or sexual harassment. The research on psychological determinants of CWBs has almost exclusively relied on employees’ self-reports about their cognitions, attitudes, or behaviors related to themselves or their working situation (e.g., Colbert, Mount, Harter, Witt, & Barrick, 2004; Douglas & Martinko, 2001). However, recent developments in theory and research showed that CWBs and other types of organizational behavior are, in addition to deliberate/conscious/explicit processes, influenced by automatic/unconscious/implicit processes (George, 2009; Uhlmann et al., 2012).

Although the relationship between conscious or explicit cognitions and CWBs has been well researched and summarized in a number of meta-analyses (e.g., Berry, Ones, & Sackett, 2007; Hershcovic et al., 2007), until recently the relationship between implicit psychological processes and CWBs remained mostly unexplored. Recently, a number of assessment methods that reliably and validly measure aspects of implicit personality have been introduced (Uhlmann et al., 2012). One of the most prominent among them is the Conditional Reasoning Test for Aggression (CRT-A), which captures implicit aggressiveness and was shown to be important for understanding and predicting CWBs (Berry, Sackett, & Tobares, 2010; James & LeBreton, 2012). Although the CRT-A is important for understanding CWBs, it is still not clear how implicit aggressiveness as measured with the CRT-A fits into theoretical models that assume that CWBs should be closely related to the quality of social exchange between the employee and his or her employer (Cropanzano & Mitchell, 2005). Most puzzling seems to be the question how implicitly aggressive individuals justify their engagement in deliberate CWBs that result from aggressive inclinations of which they are not aware (i.e., those that stem from their implicit personality).
In this article, we report the results of two studies that explored the relationship among implicit aggressiveness as measured with the CRT-A, job attitudes, and CWBs. Before describing our study in more detail, we briefly review the logic behind the CRT-A, describe the validity studies that revealed its importance for understanding and predicting CWBs, and endeavor to explain the role of job attitudes in the relationship between implicit aggressiveness and CWBs.

**The CRT-A and CWBs**

The conditional reasoning approach to implicit aggressiveness measurement (James & LeBreton, 2012) follows from the idea that individuals’ reasoning is conditional on their personality and that insight into how individuals reason helps us determine their aggressiveness level. More specifically, James and LeBreton (2010, 2012) proposed that aggressive individuals use specific motive-based cognitive biases to reconcile their recurrent need to hurt others with the universal need to maintain positive self-regard. Because these biases are largely unconscious, they are considered to be part of implicit personality. For example, among the biases that characterize implicitly aggressive individuals, James and LeBreton (2012) listed derogation of target bias and victimization by powerful others bias. Aggressive individuals are inclined to see the targets of their aggression as evil, immoral, and untrustworthy (derogation of target bias) and perceive themselves as victims of exploitation by powerful others, such as supervisors, managers, or community leaders (victimization by powerful others bias). These biases help aggressive individuals see their aggressive acts as reasonable responses to the social situations they encounter.

Conditional reasoning researchers measure implicit aggressiveness by capturing these unconscious biases through performance on the CRT-A (James & McIntyre, 2000). The CRT-A is an innovative measurement instrument that is used to identify implicitly aggressive individuals by observing their performance on a set of inductive reasoning tasks in which respondents are asked to give the most logical conclusion following from a story described in the item stem. These ostensibly logical analyses of various situations reveal the existence of the biases typical of aggressive individuals, and the frequency of their occurrence in an individual’s reasoning represents an indicator of the individual’s aggressiveness level (James & LeBreton, 2012).

Meta-analytical estimates of the validity of CRT-A scores in predicting CWBs differed between sources: .44 in James et al. (2005); .16 in Berry et al. (2010); .08 in Banks, Kepes, and McDaniel (2012); and .27 in James and LeBreton (2012). However, even the authors of one of the less favorable meta-analyses agreed that “CRT-Aggression scales appear to have potential to be a useful new approach to the prediction of CWBs and are deserving of further research” (Berry et al., 2010, pp. 379–380).

**Relationship among implicit aggressiveness, job attitudes, and CWBs**

There seems to be convincing evidence that implicit aggressiveness, as measured with the CRT-A, predicts CWBs. At the same time, similar to other implicit personality measures, such as the Thematic Apperception Test (McClelland, Koestner, & Weinberger, 1989) or Implicit Association Test–based measures (Schnabel, Asendorpf, & Greenwald, 2008), CRT-A scores are almost completely independent from personality traits as measured with personality questionnaires (i.e., explicit personality). Several studies have shown that CRT-A scores are weakly or even nonsignificantly correlated with self-reported aggressiveness (James & LeBreton, 2012). Moreover, Galić (2016) recently showed that the relationship between the CRT-A and CWBs cannot be explained with the test’s overlap with the Dark Triad traits, the honesty/humility trait from the HEXACO, or the trait self-control, all important CWB predictors in the personality domain. That means that implicitly aggressive individuals do not engage in aggressive acts toward their employing organization or its members (i.e., CWBs; Spector et al., 2006) simply because they act consistent with their
self-concept captured with personality questionnaires. Here, some other psychological processes should also come into the play.

We propose that, to justify their CWBs, implicitly aggressive employees must develop negative attitudes about their relationship with the employer. Our explanations rest on social exchange theory (Cropanzano, Anthony, Daniels, & Hall, 2017; Cropanzano & Mitchell, 2005). According to that theory, the relationship between an employee and an employer is a social exchange that includes initiating actions, an estimate of the quality of social exchange and reciprocating responses. The main rule of social exchanges is the reciprocity norm that is considered a universally accepted principle (Gouldner, 1960), and negative reciprocity (i.e., the idea that people should reciprocate with retaliatory behavior to those who treated them badly) should explain the occurrence of CWBs.

Hence, unfavorable job attitudes should explain how an employee can balance CWBs that stem from his or her unconscious aggressive inclinations and satisfaction of the reciprocity norm. However, the exact causal sequence in the relationship among implicit personality, job attitudes, and CWBs is uncertain. On one hand, implicit personality might influence job attitudes that in turn determine organizational behavior (i.e., CWBs). It could be argued that unconscious cognitive biases of aggressive individuals influence job attitude formation through cognitive processes, such as selective attention, confirmatory biases, and causal inferences (James & LeBreton, 2012). When developed, negative attitudes then influence subsequent CWBs. Earlier research on the relationship among explicit personality, job attitudes, and CWBs took this theoretical position. For example, Crede, Chernyshenko, Stark, Dalal, and Bashshur (2007) showed that job satisfaction partially mediated the relation between positive emotionality and negative emotionality with CWBs. Similarly, Mount, Ilies, and Johnson (2006) reported that job satisfaction partially explained the relationship between agreeableness and CWBs. Recently, Guay et al. (2016) demonstrated that organizational commitment mediates the relationship between conscientiousness and CWBs directed toward organization and the relationship between agreeableness and CWBs directed toward coworkers.

On the other hand, literature in social psychology on attitudes development and implicit/automatic psychological processes suggests that an alternative sequence where behavior antecedes attitudes is also possible. More precisely, research on the self-perception theory (Bem, 1972) suggests that people use their behavior as the major source of self-knowledge, and the cognitive dissonance literature (Festinger, 1957) reports that individuals change their attitudes to align them with their behavior. In our case, this would mean that negative attitudes toward their job and relationship with the organization might be post hoc rationalizations developed by employees who have already engaged in CWBs. Considering that some authors suggest that automatic psychological processes lead to behavior without a prior conscious choice (e.g., Bargh & Chartrand, 1999; Becker, Cropanzano, & Sanfey, 2011; McClelland et al., 1989; Strack & Deutsch, 2004), this causal sequence might be even more plausible in the case of the relationship among implicit aggressiveness, job attitudes, and CWBs. In our study, we juxtaposed the two possible causal sequences on two data sets.

**Our research**

Little is known about psychological mechanisms through which implicit personality influences work behavior. Our research intended to add to the literature by further exploring the relationship of implicit personality with CWBs and job attitudes. Moreover, we sought to explain how implicitly aggressive individuals can engage in CWBs and still satisfy the reciprocity norm that lies in the core of social exchange theory.

In this article, we analyzed the relationship among implicit aggressiveness, CWBs, and job attitudes that were most often listed as reasons for CWBs. We selected three sets of job attitudes that should best reflect global employees’ perceptions about their relationship with the employer and might be influenced by employees’ implicit aggressiveness: justice perceptions, general quality of the social exchange between the individual and the employer, and job satisfaction. In both our studies,
we sought to control for the part of variance that implicit aggressiveness, job attitudes, and CWBs share with explicit personality (in Study 1 we controlled for positive and negative affect, and in Study 2 for aggressiveness self-reports). We advanced the following hypotheses:

**H1:** Implicit aggressiveness will be positively related to CWBs, over and above explicit personality.

**H2:** Implicit aggressiveness will be negatively related to job attitudes, over and above explicit personality.

In addition, we formulated two alternative research hypotheses (Leavitt, Mitchell, & Peterson, 2010; Platt, 1964) concerning the relationship among implicit aggressiveness, job attitudes, and CWBs. The first hypothesis follows from the research that explored the relationship among explicit personality, attitudes, and CWBs (e.g., Crede et al., 2007; Guay et al., 2016; Mount et al., 2006):

**H3a:** Job attitudes will partially mediate the relationship between implicit aggressiveness and CWBs.

However, the large literature on attitude formation (Bem, 1972; Festinger, 1957) and automatic/implicit processes from social psychology and personality literature (Bargh & Chartrand, 1999; McClelland et al., 1989; Strack & Deutsch, 2004) suggests the following alternative hypothesis:

**H3b:** CWBs will partially mediate the relationship between implicit aggressiveness and job attitudes.

The alternative research models described in the hypotheses are shown in Figures 1 and 2. In both cases, we expected partial and not full mediation because our models did not include some other variables that could explain the relationship between the implicit aggressiveness and CWBs or implicit aggressiveness and job attitudes (e.g., workplace affect; Spector, 2011).

We performed two studies that tested the research models. In these two studies, we tested our hypotheses using alternative operationalizations of the job attitudes and CWBs.

**Study 1**

In the first study, we used a well-known CWBs measure that captures interpersonal and organizational deviance behaviors (Bennett & Robinson, 2000). As a set of job attitudes that could be important for implicit aggressiveness and CWBs, we selected overall justice judgments,

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Figure 1. Job attitudes as the mediators between implicit aggressiveness and counterproductive work behaviors.

Figure 2. Counterproductive work behaviors as the mediator between implicit aggressiveness and job attitudes.
organizational cynicism, and general job satisfaction. We related both sets of constructs (i.e., CWBs and job attitudes) to implicit aggressiveness measured with the CRT-A and explicit personality captured with positive and negative trait affect scales because those two affectivity traits were shown to be important for both job attitudes and CWBs (e.g., Connolly & Viswesvaran, 2000; Hershcovis et al., 2007).

Many researchers see injustice perceptions as one of the most important reasons for engaging in CWBs (Berry et al., 2007; Cohen-Charash & Spector, 2001) and even postulate that employees engage in CWBs mainly to restore equity or fairness in the relationship with the employing organization. In this study, we focused on overall justice judgments (Ambrose & Schminke, 2009), a general sense of justice in one’s job. Organizational cynicism was used as the indicator of general quality of social exchange between an individual and his or her organization. Organizational cynicism is defined as “an employee’s negative attitude toward their organization as a whole and belief that the organization lacks integrity” (Chiaburu, Peng, Oh, Banks, & Lomeli, 2013, p. 189). Finally, job satisfaction represents a general evaluation of one’s job and central job attitude (Judge & Klinger, 2007), which was shown to be an important correlate of different types of organizational behavior, including CWBs (Crede et al., 2007; Mount et al., 2006).

Method

Procedure and participants
Participants were recruited by undergraduate psychology students (around 20 participants per student) who received extra course credit for their engagement. The only criteria for participants’ inclusion were that they had been employed at their current organization for at least 6 months and worked at least 20 hr per week. The students visited the participants—who were their relatives, friends, or acquaintances—in their homes, gave them a survey package, and instructed them to respond to the test battery honestly, without giving any information about their identity. After they completed the package, they were asked to place all the questionnaires in an envelope, seal it, and return it to the students, who then brought them to the head researcher. The students were instructed to supervise participants to ensure that they completed the CRT-A within the 25-min time limit, under the instruction that they were solving a reasoning test. Neither the student-collaborators nor the participants were aware of the CRT-A’s measurement object at the time of the data collection.

In total, 353 employees from various organizations participated in the study. Twenty participants (5.7%) had five or more illogical responses on the CRT-A and were, in accordance with the test manual (James & McIntyre, 2000), excluded from further analyses. Thus, our analyses were based on 333 participants. The average age of the participants was 41.78 years (SD = 10.71), and 61% of the participants were female. Their average tenure was 18.31 years (SD = 10.87). Regarding educational level, 46.8% of the participants were high school graduates, 12.3% were college graduates, and 39.3% had a university or graduate degree.

Instruments

CRT-A. The CRT-A consists of 25 inductive reasoning problems, 22 of which are conditional reasoning problems designed to reveal the presence of the justification mechanisms associated with aggression in a respondent’s reasoning (James & LeBreton, 2010, 2012; James & McIntyre, 2000). Each of these 22 problems has an item stem with a story designed to trigger the activation of justification mechanisms that rationalize aggressive behavior and four response options: an inductively logical aggressive response, an inductively logical response based on socially adaptive ideology and reasoning, and two illogical responses. Respondents are asked to find the most logical explanation for the information presented in the problem’s stem. Three of the test problems are “classic” inductive-reasoning problems with one right answer and are included in the test to enhance its face validity as a reasoning test. The Croatian adaptation of the test was
created after a careful adaptation process and was extensively validated to prove that it had similar psychometric characteristics to the original (Galić, Scherer, & LeBreton, 2014). The internal consistency of the CRT-A in this study was .73.¹

**Explicit personality.** We measured positive and negative affect with the International Positive and Negative Affect Schedule Short Form (Thompson, 2007), which consists of adjectives reflecting various moods. The task of the participants was to assess how they generally feel using a scale from 1 (very slightly or not at all) to 5 (extremely). Positive affect (PA) was measured with five items (e.g., “active,” “inspired”) and had an alpha reliability of .77. Negative affect (NA) was also measured with five items (e.g., “nervous,” “hostile”) and had a reliability of .78.

**Job attitudes.** **Overall justice judgments** were measured with the six-item Perceived Overall Justice Scale (Ambrose & Schminke, 2009). Sample items were “Overall, I’m treated fairly by my organization” and “Usually, the way things work in this organization are not fair” (reverse scored). Organizational cynicism was measured with four items capturing cognitive dimensions of organizational cynicism taken from Brandes, Dharwadkar, and Dean (1999), a scale that is considered to be a “representative measure of organizational cynicism” (Chiaburu et al., 2013, p. 186). Sample items included “My organization’s policies, goals, and practices seem to have little in common” and “My organization expects one thing of its employees, but rewards another.” For both scales, responses were given on a 7-point scale from 1 (completely disagree) to 7 (completely agree). The internal consistencies of overall justice judgments and organizational cynicism scales were .90 and .89, respectively. Finally, **job satisfaction** was measured with the three items proposed by Judge and Klinger (2007): “All things considered, are you satisfied with your present job?” (response options were “yes” and “no”), “How satisfied are you with your job in general?” (possible responses ranged from 1 [very dissatisfied] to 5 [very satisfied]), and “Please write down your best estimate of the percentage of time you feel satisfied about your present job on average” (response: percentage of time at work feeling satisfied). The internal consistency of the total score calculated as a mean of standardized responses to the three questions was .90.

**Counterproductive work behaviors.** CWBs were measured with the scale developed by Bennett and Robinson (2000). The task of participants was to self-report the occurrence of listed CWBs during the last year on a 7-point scale where 1 = never, and 7 = once a day. The seven interpersonal deviance items reflected CWBs targeted toward other individuals in the organization where the participants worked (sample items: “Made fun of someone at work,” “Acted rudely toward someone at work”), whereas the 12 organization deviance items measured CWBs directed toward the organization (sample items: “Took property from work without permission”, “Put little effort into your work”). Because we did not expect that implicit aggressiveness would be differently related to interpersonal deviance/organization deviance deviance factors and because recent theoretical work (Marcus, Taylor, Hastings, Sturm, & Weigelt, 2016) postulates a general CWB factor, we calculated the total score on the scale (Cronbach’s α = .84).

All the self-report instruments used throughout this article were translated to Croatian following the translation-back translation procedure.

Given that explicit personality, job attitudes and CWBs were all measured with self-reports, we conducted confirmatory factor analyses (CFA) using maximum likelihood estimation to check if common measurement method undermined the construct validity of used measures. The results of CFA showed that the model specifying separate factor for each of the measured constructs fitted data significantly better, χ²(804) = 1659.99, p < .01, comparative fit index (CFI) = .83, root mean square error of approximation (RMSEA) = .06, than the model in which all items loaded on a single factor, χ²(819) = 3638.65, p < .01, CFI = .45, RMSEA = .11; Δχ²(15) = 1978.7, p < .01, or the three-factor model in which explicit personality, job attitudes, and CWB items loaded on three separate factors, χ²(816) = 2613.03, p < .01, CFI = .65, RMSEA = .09; Δχ²(12) = 953.04, p < .01.
Results

Descriptive statistics of the study’s variables are presented in Table 1.

The CRT-A score correlated positively with CWBs (r = .31, p < .01) and had significant correlations with all three job attitudes. In accordance with our expectations, it was negatively correlated with overall justice judgment (r = −.25, p < .01) and job satisfaction (r = −.16, p < .01) and positively related to organizational cynicism (r = .22, p < .01). At the same time, the CRT-A score was almost independent from the demographic variables, PA and NA. It was significantly correlated only with age (r = −.11, p = .05), however, that correlation was well below its relationships with job attitudes and CWBs. Finally, CWBs correlated significantly with all three job attitudes. Higher levels of CWBs were correlated with lower scores on overall justice (r = −.27, p < .01) and job satisfaction (r = −.25, p < .01), and higher scores on organizational cynicism (r = .28, p < .01).

To test H1 (relationship between implicit aggressiveness and CWBs controlled for explicit personality), we conducted a hierarchical regression analysis in which the CWB score was a criterion variable. As seen in Table 2, PA (β = −.14, p = .01) and NA (β = .17, p < .01) were significant predictors of CWBs and the CRT-A entered in the model in Step 2 explained CWBs over and above PA and NA (ΔR² = .09, β = .30, p < .01). Therefore, H1 was supported.

To test H2 (regarding the relationship between the CRT-A and job attitudes), we performed three hierarchical regression analyses, one for each job attitude. In each of the analyses, the PA and NA were entered in the first step and the CRT-A scores in the second step.

The results shown in Table 3 indicate that H2 was fully supported. The CRT-A added to the explanations of overall justice judgments (ΔR² = .04, β = −.20, p < .01), organizational cynicism (ΔR² = .04, β = .19, p < .01), and job satisfaction (ΔR² = .02, β = −.13, p = .013) over and above PA and NA. Notably, except for the relationship of PA with organizational cynicism, PA and NA significantly predicted all job attitudes, and their beta coefficients remained mostly unchanged once the CRT-A score was entered into the equation.

Finally, to compare different causal sequences of the relationship of the CRT-A with job attitudes and CWBs, we conducted mediation analyses using Process (version 2.16.3) for SPSS (Hayes, 2013). Following recommendations of Wen and Fan (2015), alongside unstandardized indirect effects, in both studies we report standardized indirect effects and the ratio of the indirect effect to the total effect.

In the first set of analyses, we tested the research model in which job attitudes served as the mediators in the relationship between implicit aggressiveness and CWBs (H3a). We performed three analyses in which each of the job attitudes served as the mediator. We conducted separate analyses for each of the attitudes because in the literature they are usually considered as separate determinants of CWBs. As seen in Table 4, all the indirect effects of the CRT-A on CWBs through job attitudes were significant (i.e., the bias-corrected bootstrapped 95% confidence intervals [CIs] for the indirect

Table 1. Descriptive statistics and intercorrelations of variables in Study 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender a</td>
<td>1.62 (0.49)</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>41.78 (10.71)</td>
<td>−.06</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Education b</td>
<td>1.98 (1.02)</td>
<td>.08</td>
<td>−.06</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Positive affect</td>
<td>3.49 (0.64)</td>
<td>.04</td>
<td>−.06</td>
<td>.05</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5. Negative affect</td>
<td>2.43 (0.74)</td>
<td>.16**</td>
<td>.06</td>
<td>−.09</td>
<td>−.13*</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. CRT-A</td>
<td>4.86 (2.51)</td>
<td>−.10</td>
<td>−.11*</td>
<td>−.03</td>
<td>−.06</td>
<td>.06</td>
<td>—</td>
<td></td>
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<tr>
<td>7. CWBs</td>
<td>1.95 (0.71)</td>
<td>−17**</td>
<td>−.21**</td>
<td>−.06</td>
<td>−.16**</td>
<td>.19**</td>
<td>.31**</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Overall justice</td>
<td>4.56 (1.41)</td>
<td>−.02</td>
<td>−.05</td>
<td>.09</td>
<td>.24**</td>
<td>−.29**</td>
<td>−.25**</td>
<td>−.27**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>9. Organizational cynicism</td>
<td>3.77 (1.68)</td>
<td>.08</td>
<td>.09</td>
<td>−.04</td>
<td>−.15**</td>
<td>.29**</td>
<td>.22**</td>
<td>.28**</td>
<td>−.72**</td>
<td>—</td>
</tr>
<tr>
<td>10. Job satisfaction</td>
<td>0.00 (0.91)</td>
<td>−.08</td>
<td>.01</td>
<td>.10</td>
<td>.30**</td>
<td>−.25**</td>
<td>−.16**</td>
<td>−.25**</td>
<td>.61**</td>
<td>−.41**</td>
</tr>
</tbody>
</table>

Notes. CRT-A = Conditional Reasoning Test for Aggression; CWBs = counterproductive work behaviors.

a1 = male, 2 = female. b1 = high school graduate, 4 = graduate degree (M.A. or Ph.D.)

*p < .05. **p < .01.
effects based on 10 000 bootstrap samples were entirely above zero), ranging between .005 and .009. The indirect effects explained between 7% and 9% of the total effects of the CRT-A on CWBs. In addition, in all the analyses, the direct effect of the CRT-A on CWBs remained significant when the indirect effect was included in the model, ranging between .077 and .091.

In the second set of the mediation analyses, the order between job attitudes and CWBs in the model was reversed to test for the alternative possible causal sequence (Hayes, 2013). Consequently, we performed three mediation analyses in which each of the job attitudes served as the criterion and CWBs as the mediator (H3b). The results reported in Table 5 showed that in all three cases the indirect effect of the CRT-A on each of the job attitudes through CWBs was significant, ranging between −.016 and .041. The indirect effects explained between 25% and 35% of the total effects of implicit aggressiveness on job attitudes. The direct effect on overall justice judgments (−.089, 95% CI [−.154, −.024]), and organizational cynicism (.091, 95% CI [.013, .170]), remained significant but became nonsignificant with job satisfaction as the criterion (−.030, 95% CI [−.068, .008]).
If compared to the outcomes of the first mediation analyses that tested H3a, the indirect effects obtained under the second mediation model, which tested H3b, were larger in size. Whereas the standardized indirect effects in the first set of mediation analyses ranged between .020 and .032, the absolute values of standardized indirect effects in the second set of analyses ranged between .047 and .061. Taken together with the relative size of the indirect effects to the total effects and the finding that the CRT-A scores correlated more strongly with CWBs (.31) than with job attitudes (−.16 to −.25), the results of our analyses were more consistent with the H3b than with the H3a. Considering that these findings were based on a single source cross-sectional data and that they do not unequivocally point exact causal sequence among the variables, we conducted Study 2 that ought to be a constructive replication of Study 1 (Lykken, 1968).

Study 2

In the second study, we sought to replicate the Study 1 findings with a stronger research design and using different operationalizations of job attitudes, CWBs, and explicit personality. In addition to self-reports of CWBs, we collected two CWB ratings per participant from his or her coworkers. For all the key variables except the CRT-A (i.e., job attitudes, CWBs, and explicit personality), we used alternative operationalizations. Instead of general and direct justice perceptions, in Study 2 we used Moorman’s (1991) indirect three-component measure of organizational justice perceptions; general job satisfaction was captured with the well-known Brayfield and Rothe (1951) scale. Finally, as indicators of the quality of social exchange between employee and organization, we captured employees’ perceived organizational support by measuring its key indicators: instrumentality and organizational commitment (Eisenberger, Huntington, Hutchison, & Sowa, 1986).
Method

Procedure and participants
As in Study 1, we recruited participants with the help of undergraduate psychology students, who received extra course credit for their engagement. We instructed students to recruit participants (around 20 per student) that have worked for their current company for 1 year and at least 20 hr per week. The participants (students’ relatives, friends, or acquaintances) took the tests at their homes. All the participants created a password to enable us to match their self- and other-reports while maintaining the participants’ anonymity. After filling out the CRT-A and questionnaires, the participants returned the survey package to the psychology students in a sealed envelope. The students then brought the envelopes with the participants’ responses to the head researcher. To collect other-ratings, the students instructed the participants to give the CWB rating scale to two coworkers who collaborated with them on a daily basis. The raters sent the ratings directly to the researchers through the mail, in an envelope with prepaid postage and the researchers’ address written on it. This was done to preserve the confidentiality of the other-ratings. Although the students knew the measurement object of the CRT-A, they were instructed not to reveal it to the participants until the data collection was completed.

The Study 2 sample consisted of 363 employees from various Croatian companies. We excluded 22 (6.1%) participants from further analyses due to careless responses to the CRT-A (i.e., five or more illogical responses; James & McIntyre, 2000), leaving us with 341 participants. The participants’ average age was 37.9 years (SD = 11.65), and 49.3% of the participants were female. The average tenure of the participants was 14.4 years (SD = 11.30); 44.9% of the participants were high school graduates, 12% had a college degree, and 42.6% had a university or graduate degree.

We managed to collect both other-reports for 290 participants, which is 85% of the total sample. Among the raters, 61.9% were female and the large majority (80.3%) were participants’ peers, with 9.7% their superiors and 6.9% their subordinates. On average, they rated the quality of their insight into participants’ behavior as 5.9 on a scale from 1 (I have very poor insight) to 7 (I have very good insight).

Instruments
Implicit aggressiveness. We used the same version of the CRT-A as in Study 1, with an internal consistency of .70 in this study.

Explicit personality. In Study 2, we measured explicit aggressiveness with the Brief Aggression Questionnaire (BAQ; Webster et al., 2014), a 12-item version of the well-known Buss-Perry Aggression Questionnaire (Buss & Perry, 1992). Sample items were “Given enough provocation, I may hit another person” and “Sometimes I fly off the handle for no good reason” with a 7-point response scale from 1 (extremely uncharacteristic of me) and 7 (extremely characteristic of me). Cronbach’s alpha for the BAQ in our study was .77.

Job attitudes. As noted earlier, as a measure of organizational justice perceptions, we used Moorman’s (1991) organizational justice scale, which measures three components of organizational justice: distributive justice (five items, sample item: “To what extent are you fairly rewarded in view of the amount of experience you have?” with a response scale from 1 [very unfairly] to 5 [very fairly]), procedural justice (seven items, sample item: “To what extent has your employer developed procedures designed to collect accurate information?” with a response scale from 1 [not at all] to 7 [fully]), and interactional justice (six items, sample item: “In general, your supervisor treated you with kindness and consideration” with a response scale from 1 [strongly disagree] to 5 [strongly agree]). The three scales had high internal consistencies (Cronbach’s alphas ranged between .93 and .95) and correlated strongly (correlations ranged between .62 for the relationship between distributive and interactional justice and .72 for the relationship between distributional and interactional
justice). Because we were interested in the participants’ overall justice perceptions that should be influenced by the variance that all justice components share with implicit aggressiveness, we calculated an overall justice score as the mean of standardized scores on the three justice measures. To justify this decision, we conducted a hierarchical CFA on the 18 justice items. The hierarchical CFA with a general justice factor and the three subfactors showed acceptable model fit. More important, the standardized loading of the overall justice factor on distributive justice was .72, on procedural justice .87, and on interactional justice .91, indicating that the hierarchical measurement model was acceptable.

As a measure of perceived organizational support, we combined instrumentality and group commitment perceptions scales developed by Colquitt (2001). The Instrumentality scale captures the extent to which employees perceive that in their organization high-task performance is linked to valued outcomes (e.g., raises, promotions). The scale consists of two items (“If I perform well for my organization, I am usually rewarded” and “I see a clear linkage between my performance and the rewards I receive”) but had high internal consistency (α = .89). The Group Commitment scale measures the organization members’ acceptance of organization goals and identification with the organization. It consists of three items: “I really feel this organization’s goals are my own,” “I feel emotionally attached to this organization,” and “I feel a sense of belonging to this organization,” with an internal consistency coefficient of .85. Both scales had a 5-point response scale from 1 (strongly disagree) to 5 (strongly agree). Similarly to the justice scales, we combined the scores on these two scales into one score representing perceived organizational support. Although the two scales correlated moderately (r = .37), a hierarchical CFA with one general factor and two subfactors had acceptable fit and showed that standardized loadings of the two latent factors representing instrumentality and group commitment with the higher order factor were .54 and .69, respectively. Thus, in Study 2 analyses, we used an organizational support score, which we calculated as the mean of standardized total scores on the instrumentality and group commitment scales.

Finally, in Study 2 we measured job satisfaction with Brayfield and Rothe’s (1951) scale consisting of five items. A sample item is “I feel fairly satisfied with my present job”. Responses were given on a scale from 1 = strongly disagree to 5 = strongly agree. The scale reliability was .87.

Counterproductive Work Behavior Checklist (CWB-C). We used the short version of the CWB Checklist (Spector et al., 2006) to measure CWBs in Study 2. This scale has 32 items measuring five domains of CWB (abuse, production deviance, sabotage, theft, and withdrawal). We collected both self- and other-reports, asking the participants and their raters to report how often the participants had engaged in CWBs in the past year, using a scale from 1 (never) to 5 (every day). Sample items are “Purposely did your work incorrectly” and “Made fun of someone’s personal life.” Alpha reliability for self-reports was .91 and for averaged other-reports was .94.

As in Study 1, to ensure that the common method bias did not affect the construct validity of self-reported measures, we conducted CFAs using maximum likelihood estimation. Again, the model specifying a separate factor for each of the measured constructs fitted data significantly better, χ²(2456) = 6047.96, p < .01, CFI = .77, RMSEA = .07, than the one-factor model, χ²(2484) = 13099.19, p < .01, CFI = .32, RMSEA = .12; Δχ²(28) = 7051.2, p < .01, or the three-factor model in which explicit personality, job attitudes, and CWB items loaded on three separate factors, χ²(2481) = 8741.81, p < .01, CFI = .60, RMSEA = .09; Δχ²(25) = 2693.8, p < .01.

Results

Descriptive statistics of the Study 2 variables are presented in Table 6.

The CRT-A scores correlated positively with CWB self-reports (r = .23, p < .01) and negatively with all three job attitudes (−.14 to −.19), thus replicating the Study 1 findings. However, the
correlation between the CRT-A and other-reports of CWBs was not significant ($r = .08$, $p > .05$). Moreover, implicit aggressiveness correlated positively but weakly with explicit aggressiveness ($r = .16$, $p < .01$). Finally, self-reports of CWBs correlated significantly with all the job attitudes. That is, higher self-reported CWBs were related to lower scores on overall justice ($r = −.24$, $p < .01$), perceived organizational support ($r = −.29$, $p < .01$), and job satisfaction ($r = −.34$, $p < .01$). However, other-reported CWBs correlated significantly only with job satisfaction: Higher other-reported CWBs were related to lower self-reported job satisfaction ($r = −.14$, $p = .01$).

Because the CRT-A scores were nonsignificantly related to other-reports of CWBs, our analyses were based only on self-reported CWBs. As a result, to test H1 we conducted a hierarchical regression analysis with CWB self-reports as the criterion. As seen from Table 7, when entered in the model in the second step, the CRT-A explained self-reported CWBs over and above the BAQ score ($ΔR^2 = .03$, $β = .17$, $p < .01$). Thus, H1 was partially supported in Study 2, considering that the expected relationships were observed only for self-reported CWBs and not for other-reports of the same construct.

In further analyses, we tested the relationship among implicit aggressiveness, CWBs, and job attitudes. Again, to test H2 we performed a hierarchical regression analysis for each job attitude, with explicit aggressiveness (BAQ) entered in the first step and the CRT-A in the second step. The results are shown in Table 8 and indicate that H2 was fully supported. CRT-A explained overall justice ($ΔR^2 = .01$, $β = −.11$, $p = .04$), perceived organizational support ($ΔR^2 = .03$, $β = −.17$, $p < .01$) and job satisfaction ($ΔR^2 = .02$, $β = −.15$, $p < .01$) over and above BAQ. In addition, the BAQ scores

### Table 6. Descriptive statistics and intercorrelations of variables in Study 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender$^a$</td>
<td>1.50 (0.50)</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>37.92 (11.65)</td>
<td>.16**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Education$^b$</td>
<td>2.04 (1.04)</td>
<td>.10</td>
<td>.01</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. BAQ</td>
<td>3.15 (0.86)</td>
<td>−.25*</td>
<td>−.08</td>
<td></td>
<td>−.10</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. CRT-A</td>
<td>4.76 (2.34)</td>
<td>−.15**</td>
<td>−.09</td>
<td>.02</td>
<td>.16**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. CWB self-reports</td>
<td>1.20 (0.20)</td>
<td>−.18**</td>
<td>−.13*</td>
<td>−.18**</td>
<td>.40**</td>
<td>.23**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. CWB other-reports</td>
<td>1.15 (0.19)</td>
<td>−.16**</td>
<td>−.06</td>
<td>−.23**</td>
<td>.22**</td>
<td>.08</td>
<td>.41**</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Overall justice</td>
<td>0.01 (0.87)</td>
<td>−.04</td>
<td>−.18**</td>
<td>.07</td>
<td>−.16**</td>
<td>−.14*</td>
<td>−.24**</td>
<td>−.07</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>9. Organizational support</td>
<td>0.00 (0.83)</td>
<td>−.01</td>
<td>.01</td>
<td>.09</td>
<td>−.09</td>
<td>−.18**</td>
<td>−.29**</td>
<td>−.08</td>
<td>.65**</td>
<td>—</td>
</tr>
<tr>
<td>10. Job satisfaction</td>
<td>3.68 (0.81)</td>
<td>.10</td>
<td>.09</td>
<td>.05</td>
<td>−.23**</td>
<td>−.19**</td>
<td>−.34**</td>
<td>−.14*</td>
<td>.52**</td>
<td>.59**</td>
</tr>
</tbody>
</table>

Notes. BAQ = Brief Aggression Questionnaire; CRT-A = Conditional Reasoning Test for Aggression; CWB = counterproductive work behavior.

$^a$1 = male, 2 = female. $^b$1 = high school graduate, 4 = graduate degree (M.A. or Ph.D.).

*p < .05. **p < .01.

### Table 7. Results of hierarchical regression analysis in explaining counterproductive work behavior self-reports in Study 2: Incremental validity of the CRT-A over the BAQ

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b (SE)</td>
<td>β</td>
<td>b (SE)</td>
<td>β</td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.91 (0.04)**</td>
<td>—</td>
<td>0.87 (0.04)**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>BAQ</td>
<td>0.09 (0.01)**</td>
<td>.40</td>
<td>0.09 (0.01)**</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRT-A</td>
<td></td>
<td></td>
<td>0.01 (0.00)**</td>
<td>.17</td>
<td></td>
</tr>
</tbody>
</table>

Model Summary

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>F value</td>
<td>62.50**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.16**</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.16</td>
</tr>
<tr>
<td>$ΔR^2$</td>
<td>.03**</td>
</tr>
</tbody>
</table>

Notes. CRT-A = Conditional Reasoning Test for Aggression; BAQ = Brief Aggression Questionnaire.

**p < .01.
predicted justice ($\beta = -0.16$, $p < .01$) and job satisfaction ($\beta = -0.23$, $p < .01$), and its betas remained practically the same after the CRT-A was entered into the analyses.

Finally, we conducted mediation analyses using Process for SPSS (Hayes, 2013) to compare the two models of causal sequences among implicit aggressiveness, job attitudes, and CWBs. Again, with the first set of the analyses we tested a model that assumes job attitudes as the mediators of the relationship of the CRT-A with CWBs (H3a). These results are shown in Table 9. This time, not all the indirect effects were significant. Whereas the indirect effects of the CRT-A through perceived organizational support (.003, 95% CI [.001, .006]), and job satisfaction (.003, 95% CI [.001, .006]), were significant, the 95% CI of the indirect effect through overall justice included zero (.001, 95% CI [.000, .004]). The indirect effect through organizational support explained 22%, and the indirect effect through job satisfaction explained 21% of the relationship between the CRT-A and CWB self-reports. As in Study 1, all the direct effects of the CRT-A on CWBs remained significant, ranging between .011 and .013.

With the second set of the mediation analyses, we tested the reversed model in which CWB self-reports were entered as the mediator variable and job attitudes as the criteria (H3b). The results in Table 10 show that the indirect effects of the CRT-A on the job attitudes through CWB self-reports were all significant (ranging between -.011 and -.016) and explained 27% of the relationship of the CRT-A with both overall justice and organizational support and 31% of the relationship of the CRT-A with job satisfaction. Although the direct effect of the CRT-A on perceived organizational support

Table 8. Results of hierarchical regression analyses in explaining job attitudes in Study 2: Incremental validity of the CRT-A over the BAQ

<table>
<thead>
<tr>
<th></th>
<th>Overall Justice</th>
<th>Organizational Support</th>
<th>Job Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td><strong>Model 2</strong></td>
<td><strong>Model 1</strong></td>
<td><strong>Model 2</strong></td>
</tr>
<tr>
<td>$b$ (SE)</td>
<td>$eta$</td>
<td>$b$ (SE)</td>
<td>$eta$</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.52 (0.18)**</td>
<td>0.66 (0.19)**</td>
<td>0.28 (0.17)</td>
</tr>
<tr>
<td>BAQ</td>
<td>-.17 (-.05)**</td>
<td>-.15 (-.06)**</td>
<td>-.09 (-.05)</td>
</tr>
<tr>
<td>CRT-A</td>
<td>-.04 (.02)*</td>
<td>-.11 (.02)**</td>
<td>-.06 (.02)**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td><strong>F value</strong></td>
<td><strong>R$^2$</strong></td>
<td><strong>Adjusted R$^2$</strong></td>
</tr>
<tr>
<td></td>
<td>9.28**</td>
<td>0.03</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>6.80**</td>
<td>.04**</td>
<td>.03</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>.02</td>
<td>.01*</td>
<td>.03**</td>
</tr>
</tbody>
</table>

Model Summary

| $R^2$ | 0.03** | 0.04** |
| 18.46** | .05** | .08** |

Notes. CRT-A = Conditional Reasoning Test for Aggression; BAQ = Brief Aggression Questionnaire.
*p < .05. **p < .01.

Table 9. Mediation effects of job attitudes in the relationship between the CRT-A and CWB self-reports in Study 2

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Effect</th>
<th>SE</th>
<th>LLCI</th>
<th>ULCI</th>
<th>$P_m$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediator: OJ</td>
<td>Direct effect</td>
<td>.013</td>
<td>.004</td>
<td>.005</td>
<td>.021</td>
</tr>
<tr>
<td></td>
<td>Indirect effect via OJ</td>
<td>.001 (.018)</td>
<td>.001 (.011)</td>
<td>.000 (.002)</td>
<td>.004 (.048)</td>
</tr>
<tr>
<td>Mediator: OS</td>
<td>Direct effect</td>
<td>.011</td>
<td>.004</td>
<td>.003</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>Indirect effect via OS</td>
<td>.003 (.041)</td>
<td>.001 (.017)</td>
<td>.001 (.013)</td>
<td>.006 (.080)</td>
</tr>
<tr>
<td>Mediator: JS</td>
<td>Direct effect</td>
<td>.011</td>
<td>.004</td>
<td>.003</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>Indirect effect via JS</td>
<td>.003 (.039)</td>
<td>.001 (.017)</td>
<td>.001 (.011)</td>
<td>.006 (.078)</td>
</tr>
</tbody>
</table>

Notes. For indirect effects, standard errors and 95% confidence intervals were calculated through a bootstrapping procedure with 10,000 bootstrap samples. In all the analyses, we controlled for the Brief Aggression Questionnaire score. Estimates outside of parentheses are unstandardized, and those inside parentheses are standardized coefficients. CRT-A = Conditional Reasoning Test for Aggression; CWB = counterproductive work behavior; LLCI = lower limit confidence interval; ULCI = upper limit confidence interval; $P_m$ = ratio of the indirect effect to the total effect; OJ = overall justice; OC = organizational cynicism; JS = job satisfaction.
remained significant (−.042, 95% CI [−.079, −.005]), the effects of the CRT-A on overall justice (−.030, 95% CI [−.069, −.010]), and job satisfaction (−.035, 95% CI [−.071, .000]), were fully mediated through CWB self-reports.

Comparisons of the two sets of mediation analyses within Study 2 were very similar as those in Study 1. The standardized effect sizes of the indirect effects for the mediation models testing H3b ranged between −.030 and −.047 and were higher than the standardized indirect effect sizes for the comparative models testing H3a (between .018 and .041). Also, the ratios of the indirect to the total effects were more consistent with the H3b, and the correlation of implicit aggressiveness with CWB self-reports (.23) was higher than the correlations with the job attitudes (−.14 to −.19), suggesting that our results were again more consistent with the model proposing CWBs as mediators of the relationship between CRT-A and job attitudes. Thus, although both models remain plausible, findings from Study 2 are also more consistent with the model described in H3b and Figure 2.

**Additional analyses**

Considering that in Study 2 we had data on both implicit and explicit aggressiveness, we were also able to test the channeling hypothesis, which states that the effects of latent motives are channeled into different behaviors depending on one’s standing on the explicit trait (McClelland et al., 1989; Winter, John, Stewart, Klohnen, & Duncan, 1998). Consistent with that, earlier research using the CRT-A (Bing et al., 2007; Frost, Ko, & James, 2007) reported that the effects of implicit aggressiveness on aggressive/counterproductive behaviors was stronger for the participants who had high levels of explicit aggressiveness. We reran the regression analyses reported in Tables 7 and 8 with all variables standardized and an additional step in which we added the cross-product term of implicit and explicit aggressiveness. The interaction effect explained significant portion of variance in self-reported CWBs (ΔR² = .01, b = .10, p = .024)—the relationship between implicit aggressiveness and CWBs was stronger among individuals higher on explicit aggressiveness. At the same time, the interaction effects were nonsignificant in the analyses where job attitudes served as the criteria (ΔR² = .00–.01, b = −.01 to −.08, p > .05).

In addition, we tested two moderated mediation models (again using standardized variables) that extend our research models from Figures 1 and 2 with the assumptions of the channeling hypothesis. If the model from Figure 1 is true, it could be speculated that the relationship between implicit aggressiveness and job attitudes should be stronger among participants higher on explicit aggressiveness. These negative attitudes would then lead to CWBs, and the described process would manifest through significant moderated mediation where explicit personality moderates the indirect effect between implicit aggressiveness and CWBs via job attitudes. We tested for this possibility but the moderated mediation was nonsignificant, with the index of moderated mediation ranging from .002 to .025. We also explored the alternative moderated mediation (consistent with Figure 2) where explicit aggressiveness moderates the indirect effect of implicit aggressiveness on job attitudes.
through CWBs. In this case, the relationship between implicit aggressiveness and CWBs should be stronger among participants high in explicit aggressiveness, which then leads to negative job attitudes. For this model, moderated mediations were marginally significant (i.e., the three moderated mediation indices for job attitudes ranged from $-0.022$ to $-0.032$ and their 90% CIs did not include zero) indicating that among those higher on explicit aggressiveness the indirect effect of CRT-A on job attitudes through CWBs was stronger than among those lower on that trait. Thus, the additional analyses seemed also consistent with H3b. However, considering that the channeling model does not have any assumptions regarding “the proximal cognitive processes that may underlie the manifestation of aggression in these behavior outcomes” (Bing et al., 2007, p. 741), these findings should be interpreted only tentatively.

**Discussion**

Our research intends to add to the literature in several aspects. First, considering that there were discrepancies in the evaluations of the value of the CRT-A (cf. Banks et al., 2012; James & LeBreton, 2012), we wanted to additionally explore the importance of implicit aggressiveness for understanding CWBs and job attitudes. The latter seemed especially important since the implicit sources of explicit attitudes have been understudied in organizational psychology/organizational behavior literature (Barsade, Ramarajan, & Westen, 2009; Becker et al., 2011; George, 2009; Uhlmann et al., 2012). Second, we tested the idea that to understand the effect of implicit aggressiveness on CWBs, it is important to consider the relationship of the two constructs with job attitudes in the same analysis. We believe that this analysis helps us advance the understanding of the relationship between implicit personality and organizational behavior. More specifically, we sought to fit the findings that implicit aggressiveness explains CWBs with the dominant theoretical models that are mostly based on social exchange theory as the conceptual paradigm (Cropanzano & Mitchell, 2005).

Our results showed that implicit aggressiveness, as measured with the CRT-A, is important for understanding CWBs and that it adds to CWBs' explanation over and above explicit personality. The results of our study again revealed that implicitly aggressive individuals report higher frequency of CWBs. The correlations between implicit aggressiveness and CWBs (.31 in Study 1 and .23 in Study 2) suggested a greater validity than that reported by Berry et al. (2010) or Banks et al. (2012) and comparable to those reported by the test’s authors (James & LeBreton, 2012). In addition, implicit aggressiveness explained the variance in CWBs above a PA/NA instrument (Study 1) and a self-report aggressiveness measure (Study 2), suggesting that the CRT-A introduces a construct not covered by these “typical” self-report personality questionnaires. However, in Study 2 we did not observe a significant correlation when other-reports were used as the criterion. This finding is probably related to the fact that the participants themselves reported significantly more CWBs than the raters ($p < .001$; Cohen’s $d = 0.29$), which was already observed in a recent meta-analysis by Berry, Carpenter, and Barratt (2012) that compared self- and other-reports of CWBs and could be explained by the fact that only employees themselves know the entire range of their CWBs. For example, the CWB-C scale used for self- and other-reports in Study 2 contains the behaviors “Purposefully failed to follow instructions” or “Put in to be paid for more hours than you worked,” which might have occurred without catching anyone’s attention. This explanation is further corroborated by the finding that the most prevalent form of aggressive behavior in the workplace is covert aggression (Baron & Neuman, 1998). The finding that other reports captured a narrower range of CWBs leads us to believe that the relationship between the CRT-A scores and self-reports of CWBs is a more precise indicator of the relationship between implicit aggressiveness and CWBs than that including other-reports of CWBs.

We also showed that implicit aggressiveness is important for understanding job attitudes. In both studies, the CRT-A scores had significant correlations with all the measured attitudes revealing that implicitly aggressive individuals more often feel unfairly treated and are less satisfied with their jobs.
and the relationship they have with their organization. Similarly to CWBs, the CRT-A added to the explanations of all the measured attitudes over and above personality measured by broad affectivity dimensions or self-reported aggressiveness. This finding again shows that job attitudes do not reflect only the characteristics of the working environment but also the characteristics of the individual who forms the attitudes and is consistent with earlier research on the relationship between explicit personality and job attitudes (Brummel & Bowling, 2013). Our research adds to that literature by showing that aspects of implicit, unconscious personality are also important for understanding job attitudes and that employees’ estimates of the quality of their social exchange with the employer might partially stem from their personality. Still, it is notable that, although in all cases significant, the relationship between implicit aggressiveness and job attitudes was in every case lower than the relationship between implicit aggressiveness and CWBs.

Finally, using the mediation analyses, we sought to relate implicit aggressiveness, job attitudes, and CWBs within one statistical model. The mediation analyses conducted in both studies revealed a shared variance (i.e., significant indirect effects in the mediation models) among the three groups of constructs. Implicitly aggressive individuals engage in CWBs but are at the same time unaware that their CWBs stem from their implicit personality. To reconcile their CWBs with the need to maintain a positive self-regard (Baumeister, Campbell, Krueger, & Vohs, 2005), they must justify their CWBs through the cognitions they hold about their job and employing organization. Only in this way can they achieve cognitive balance and satisfy the assumptions of an equitable relationship with the employing organization (Cropanzano & Mitchell, 2005; Gouldner, 1960).

Due to their cross-sectional design, our data by no means establish exact causal sequence among implicit aggressiveness, job attitudes, and CWBs. Still, the findings from both studies gave more support to the research model where CWBs serve as the mediator of the relationship between implicit aggressiveness and job attitudes than for the one consistent with the alternative causal sequence (implicit aggressiveness → job attitudes → CWBs). First, the zero-order correlations between CRT-A scores and CWBs in both studies were larger than the correlations between CRT-A scores and job attitudes, which is consistent with the idea that effects should be stronger when the variables are positioned closer in terms of causal flow (Edwards & Berry, 2010). Second, in the mediation analyses where CWBs were mediator in the relationship between implicit aggressiveness and job attitudes all comparative indirect effects were significant and larger in size than in the analyses where the job attitudes served as the mediator between implicit aggressiveness and CWBs. Third, the findings were quite consistent across the two studies. These findings suggest an intriguing possibility that job attitudes might partially be post hoc explanations of the behavior that stems directly from implicit personality. Although not widely accepted in organizational psychology/organizational behavior literature about job attitudes (cf. Judge, Hulin, & Dalal, 2012), this is highly consistent with the research about attitude formation in social psychology that shows that explicit attitudes reflect past behavior because an individual either rationalizes his or her behavior through the process of motivated reasoning (Festinger, 1957) or infers his or her attitudes from the behavior (Bem, 1972). But although our findings were more consistent with the research model where CWBs mediate the relationship between implicit aggressiveness and job attitudes, they did not completely disprove the alternative causal sequence (implicit aggressiveness → job attitudes → CWBs).

Limitations and future research

The main limitation of our research is the cross-sectional design of both our studies and the fact that, with the exception of other-reports of CWBs in Study 2, all the data came from the same source—the participants. The main trouble with the cross-sectional design is the fact that it did not allow us to explore the time order between the tested variables that is needed to be conclusive about the exact causal sequence among implicit aggressiveness, job attitudes, and CWBs. Although we showed (and replicated) that the field data were more consistent with one of the two theoretically plausible models, future research in this area would strongly benefit from repeated measurements of job
attitudes and CWBs on field data, and even lab studies where potential meditators are manipulated through experimental designs. Considering that even these stronger research designs have limitations in establishing mediation (see Bullock, Green, & Ha, 2010, for overview of problems in experimentally designed mediation studies), we concur that we should “think of mediation analysis as a cumulative enterprise” (Bullock et al., 2010, p. 550), and we see our article as only a first step in the analysis of the relationship among implicit aggressiveness, CWBs, and job attitudes.

Moreover, although studies with objective CWB criteria are certainly needed, it should be stressed that some characteristics of the instruments we used in our study help us to be relatively confident that our conclusions were not significantly influenced by common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), a threat often related to a design like ours. More precisely, we believe that the observed relationships do not suffer from common method bias because implicit aggressiveness and CWBs/job attitudes were not measured using the same method. In our study, implicit aggressiveness was measured with an inductive reasoning test that was shown to be unsusceptible to deliberate response distortion (LeBreton, Barksdale, Robin, & James, 2007), whereas CWBs and job attitudes were measured with “typical” self-report scales. Moreover, CFAs conducted on explicit personality, job attitudes, and CWB self-reports indicated that the construct validity of used scales was not undermined by common measurement method. Important for our conclusions, we replicated Study 1’s findings on another sample of employees in Study 2 using different measures of the same (in the case of CWBs) or parallel constructs (in the case of job attitudes).

The research context of our study was both a limitation and a strength. One could argue that the relationships observed in our study are hardly generalizable due to specificities of cultural context. However, because all the “known” relationships between variables in our studies were in accordance with those in the most influential meta-analyses of CWB research, we believe that specificities of cultural context did not significantly influence our findings. For example, the pattern of correlations between demographic variables and self-reported CWBs in both studies was similar to those reported in the meta-analyses (Berry et al., 2007; Hershcovis et al., 2007), with male and younger participants reporting higher levels of CWBs. Also, the correlation of NA with CWBs in Study 1 was similar to the estimates from Hershcovis et al.’s (2007) meta-analysis. As for the explicit aggressiveness in Study 2, its correlation with CWB self-reports was moderately high (.40, \(p < .01\)) and practically identical to the meta-analytical estimate (corrected \(r = .38\); Hershcovis et al., 2007). Finally, the correlation between self- and other-reports of CWBs was moderately high (.41, \(p < .01\)) and very close to the average correlation reported in Berry et al.’s (2012) meta-analysis on the similarity between self- and other-reports of CWBs (.38 with both variables corrected for unreliability). Given these similarities, we believe we have showed that the CRT-A works in significantly different cultural circumstances than those where the test was originally developed. However, replications of our results in different cultural contexts are certainly welcome.

**Practical implications**

The main practical implication of our research is recognizing the value of implicit aggressiveness for preventing CWBs and undesirable job attitudes. First, psychometrically sound measures of implicit aggressiveness, such as the CRT-A, could be a valuable addition to personnel selection batteries that usually consist of intelligence tests and self-report personality questionnaires. Second, unconscious motive-based cognitive biases could be identified with the CRT-A and revealed to employees. There is some evidence that simply making implicit processes explicit may be sufficient to change cognition and behavior (Barsade et al., 2009). Stated differently, revealing implicit cognitive biases related to aggression to employees might help them control the aggressive impulses that stem from their implicit personality and would, therefore, prevent CWBs as well as negative job attitudes. If the act of making implicit biases explicit is insufficient, implicitly aggressive employees may undergo
organizational interventions that change dysfunctional patterns in their reasoning. For example, employees who use victimization by powerful others bias in their reasoning may be subjected to an attributional training (Douglas et al., 2008).

**Conclusion**

Conditional reasoning researchers have shown that implicit aggressiveness as measured with the CRT-A is important for predicting CWBs. Our study revealed that it is also important for predicting job attitudes and that that relationship could explain how implicit aggressiveness fits into current theoretical models of CWBs that are based on social exchange between employer and employee.

**Note**

1. In accordance with James and LeBreton (2012), internal consistencies for the CRT-A in both studies were calculated with a derivative of the KR-20 formula that computes internal consistency coefficient using item-total biserial coefficients (Equation 21, Gulliksen, 1950, p. 389).

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**References**


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