
**Predicting counterproductive work behaviors:
A meta-analysis of their relationship with individual and situational factors**

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Abstract

The present article details a meta-analysis on 35 empirical studies which included 9897 participants within 39 independent samples. The research investigated individual and organizational predictors for counterproductive work behavior (CWB). The variables considered for this study are organizational justice (interactional, procedural and distributive), job satisfaction, negative affectivity, Big Five personality factors – as predictors for counterproductive behavior. Furthermore, the relationships between the organizational and interpersonal dimensions of CWB were analysed. Results indicate a negative association between justice dimensions and counterproductive behaviors, and an average positive association between negative affectivity and counterproductive behaviors. Low levels of Agreeableness and Conscientiousness are associated with counterproductive behaviors. Job dissatisfaction is also associated with counterproductive behaviors. The analysis includes a discussion of the implications of these results for further research, and suggestions regarding the management of counterproductive behaviors in organizations.

Keywords: meta-analysis, counterproductive work behavior (CWB), organizational justice, personality, negative affectivity, job satisfaction

Résumé

Le présent article décrit en détail une méta-analyse sur 35 études empiriques qui comprenait 9897 participants dans 39 échantillons indépendants. L'étude s'est penchée prédicteurs individuels et organisationnels d'un comportement contre-productif. Les variables considérées pour cette étude sont la justice organisationnelle (interactionnel, de procédure et de distribution), la satisfaction professionnelle, l'affectivité négative, cinq grands facteurs de la personnalité - comme prédicteurs d'un comportement contre-productif. En outre, les relations entre les dimensions organisationnelles et interpersonnelles de la comportement contre-productif ont été analysés. Les résultats indiquent une association négative entre la justice et les dimensions de comportement contre-productif, et une association positive moyenne entre l'affectivité négative et des comportements contre-productifs. Un faible niveau d'amabilité et la conscienciosité sont associés à des comportements contre-productifs. L'insatisfaction au travail est également associée à des comportements contre-productifs. L'analyse comprend une discussion sur les implications de ces résultats pour des recherches plus poussées, et des suggestions concernant la gestion des comportements contre-productifs dans les organisations.

Mots-clés: méta-analyse, le comportement contre-travail (CCB), la justice organisationnelle, la personnalité, l'affectivité négative, la satisfaction au travail

Rezumat

Studiul de față reprezintă o meta-analiză asupra a 35 de studii empirice care include 9897 de participanți din 39 de eșantioane independente. Cercetarea analizează predictorii individuali și organizaționali pentru comportamentele contraproductive. Variabilele luate în considerare pentru

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acest studiu sunt justiția organizațională (interacțională, procedurală și distributivă), satisfacția cu munca, afectivitatea negativă, factorii de personalitate Big Five – considerate predictorii ai comportamentelor contraproductive. De asemenea, a fost analizată relația dintre dimensiunile interpersonală și organizațională ale comportamentelor contraproductive. Rezultatele indică o asociere negativă între dimensiunile justiției și cele ale comportamentelor contraproductive, precum și o asociere medie pozitivă între comportamentele contraproductive și afectivitatea negativă. Nivele scăzute ale Agreabilității și Conștiinciozității sunt asociate cu comportamentele contraproductive. Insatisfacția cu munca este de asemenea asociată cu comportamentele contraproductive. Analiza include și discuțiile legate de implicațiile pentru cercetări viitoare, precum și sugestii legate de managementul comportamentelor contraproductive în organizații.

Cuvinte cheie: *meta-analiză, comportamente contraproductive, justiția organizațională, personalitate, afectivitate negativă, satisfacția cu munca*

Since the mid 1990s there has been an explosion of research interest in counterproductive behaviors at work, behaviors harmful for employees and organizations. The costs of harmful behaviors can be economic (e.g., productivity loss due to arriving late at work or costs due to theft or sabotage) or social (e.g., psychological, mental and physical injuries, psychological withdrawal and decreased job satisfaction) – for those who are the targets of interpersonal counterproductive work behaviors. Individuals who witness or have firsthand knowledge about counterproductive work behaviors can also suffer from increased stress, a sense of insecurity, and increased levels of turnover (Vardi & Weitz, 2004). These are important arguments for the need to identify the predictors of counterproductive work behaviors (CWB), at both the individual level and the situational or organizational level. Findings will help inform organizational actors about ways to prevent such situations or actions (e.g. during the employment process, by paying attention to those personality predictors that are related to CWB or taking into consideration situational factors that might trigger or encourage such behaviors).

The analysis of personality factors, organizational justice, job satisfaction, demographic variables and counterproductive behaviors constitutes a valuable contribution to organizational research and practice. This meta-analysis aims to confirm and extend the results of previous studies (Berry, Ones & Sackett 2007; Herscovis, Turner, Barling, Arnold, Dupre, Inness, LeBlanc & Sivanathan, 2007; Dalal, 2005) by: (1) identifying moderating variables influencing the levels of interpersonal counterproductive behavior (CWB-I) and organizational counterproductive behavior (CWB-O); (2) analyzing the

relationship between predictors and CWB scales (or the general CWB scale). This last extension is essential because, up to this moment, researchers never had a complete scope on the dynamics of these relations. At the same time, 30% of the results included in this meta-analysis have been published in 2006-2007, in the context in which previous meta-analyses included studies published up to 2006.

The results of this meta-analysis contribute to a possible improvement of methodological and procedural dimensions of future CWB research and may also form the basis for organizational intervention programs aimed to diminish the proliferation of counterproductive conducts and their consequences at work.

Previous meta-analyses have identified several relationships between counterproductive work behaviors and related constructs and antecedents. Dalal (2005) found a modest negative relationship between organizational citizenship behavior and counterproductive work behavior and showed that these constructs are relatively distinct factors in their own right, and that both types of behaviors exhibited somewhat distinct patterns of relationship with certain antecedents. The antecedents of counterproductive work behavior had generally a stronger relationship to the construct than those of organizational citizenship behavior. The antecedents taken into account were perceptions of organizational justice, Conscientiousness, job satisfaction, organizational commitment, and negative and positive affectivity.

Herscovis et al. (2007) conducted a meta-analysis concerning enacted workplace aggression. Results showed that both individual and situational factors predict aggression and that the pattern of predictors is

target-specific. Trait anger and interpersonal conflict were identified as strong predictors for interpersonal aggression. In the case of organizational aggression, the strongest predictors found were interpersonal conflict, situational constraints, and job dissatisfaction. No statistical difference was reported regarding the predictive value of negative affectivity and distributive and procedural justice, for the two types of aggression.

In their meta-analysis, Berry et al. (2007) conducted research where relationship among interpersonal deviance, organizational deviance and their common correlates were meta-analyzed. Results showed that interpersonal and organizational deviance were highly correlated but had differential relationships with key Big Five variables and organizational citizenship behaviors, these conclusions lending support to the dichotomy of interpersonal and organizational deviance. Also, both forms of deviance exhibited strong (negative) relations with organizational citizenship behavior, Agreeableness, Conscientiousness, and Emotional stability. Correlations with organizational justice were small to moderate and correlations with demographics variables were generally negligible.

Upon examining the methodological characteristics of previous meta-analyses on this topic, we observed that different measures of counterproductive work behaviors have been used. Dalal (2005) focused on the general counterproductive work behavior (CWB) index, and not the organizational counterproductive work behavior – interpersonal counterproductive work behavior (CWBO-CWBI) typology, thus offering unspecific results for both scales. Lau, Au & Ho (2003), and Salgado (2002) used specific behaviors that are just facets of CWBO, but not of CWBI. Therefore, no conclusions can be drawn regarding CWBI relations. Hershcovis et al. (2007) combined studies using CWB scales with studies using variables associated with CWB (workplace aggressive behavior, for example). According to Hunter & Schmidt (2004), this approach can lead to a larger variance between studies and a larger unexplained variance, as a result of variation in the operational definition of the constructs.

Results reported by Berry et al. (2007) showed that the CWBI-CWBO relation is a very heterogeneous one, as only 15% of the variance of results can be explained by sampling error. In this paper, we will approach

the problem of unexplained variance using an exploratory multi-level meta-analysis that takes into account the possible influence of study characteristics on the CWBI-CWBO correlation.

In the present study we aim to overcome the methodological limitations of previous meta-analyses regarding predictors of counterproductive behaviors, as we intend to conduct a thorough investigation of the factors that moderate the relationship between CWBI and CWBO.

In the following, we review the literature on the antecedents of counterproductive work behaviors. We examine the empirical evidence of their relationship with the interpersonal and organizational dimensions of CWB, and identify the contextual factors that moderate the relationship between CWB dimensions.

Counterproductive behavior

Counterproductive work behaviors represent an important area of interest for researchers, managers and organizational consultants. They can be found in the literature under different names, such as workplace aggression (Neuman & Baron, 2005), employee deviance (Robinson & Bennett, 1995), antisocial behavior (Robinson & O'Leary-Kelly, 1998), organizational misbehavior (Vardi & Wiener, 1996). All these constructs can be included under the umbrella concept of counterproductive work behaviors, which consists of volitional acts that harm or intend to harm organizations and their stakeholders (e.g., clients, co-workers, customers or supervisors). Specific CWBs include abusive behaviors against others, aggression (both physical and verbal), purposely doing work incorrectly, sabotage, theft, and withdrawal (e.g., absenteeism, lateness, and turnover) (Spector & Fox, 2005).

Initial research focused on singular behaviors such as theft (Greenberg, 1990), client abuse (Perlow & Latham, 1993), and substance abuse at work (Lehman & Simpson, 1992). Subsequently, researchers preferred to group these behaviors in several categories, the most influential ones being those proposed by Robinson & Bennett (1995), and Spector, Fox, Penney, Bruursema, Goh & Kessler (2006), specifically interpersonal counterproductive behavior and organizational counterproductive behavior.

Robinson & Bennett (1995) initially created a typology for deviance/counterproductive behaviors by employing a multidimensional scaling technique. The two dimensions by which the various counterproductive behaviors were classified are the following: the target of counterproductive behavior (organizational/interpersonal) and the impact of the counterproductive behavior (minor/major). Interpersonal counterproductive behaviors are oriented towards individuals within the organization (such as offending someone, being impolite), while organizational counterproductive behaviors (such as loitering at work, being late, theft of objects or data) are oriented towards the organization. Next, we will present the main individual and situational predictors, as identified by previous research, along with a rationale for their connection with CWB.

Predictors of counterproductive work behaviors

Previous research on CWBs identified two main categories of predictors: individual differences and situational factors. Individual differences refer to stable personality traits and other individual characteristics such as age and gender. These predisposing factors influence the way situations and events in the organizational context are perceived and interpreted by individuals. Personality is considered to have an indirect role by moderating the relationship between an individual's perception on workplace circumstances and counterproductive behaviors (e.g., Fox & Spector, 2005). Situational factors refer to aspects of the social context that are perceived by people and are largely influenced by other members of the organization (e.g., organizational injustice) (Herschovis et al., 2007). In previous research, the main individual predictors studied were Big Five personality factors, trait anger, positive and negative affectivity, and demographic variables (see Dalal, 2005; Herschovis et al., 2007; Berry et al., 2007).

Based on the above review, the individual predictors analyzed in our meta-analysis are the following: Big Five personality factors, negative affectivity, gender, work tenure, age. These types of individual predictors were chosen on the basis of their extended presence in the CWB literature and also because studies analysing these factors

met qualitative and quantitative requirements for the present meta-analysis.

Berry et al. (2007) synthetically describe the factors identified in the Big Five personality model (McCrae & Costa, 1987). Emotional stability is a factor that objectifies an individual's self confidence, calm, lack of anxiety and reduced emotional reactivity. Extraversion indicates the extent in which a person is sociable, assertive, communicative, ambitious, energized. The third personality factor – Openness towards experience – reflects the degree in which a person is curious, intelligent, imaginative and independent. Agreeableness refers to the degree in which a person is likeable and friendly. Conscientiousness indicates an individual's tendency for hard-work, trustworthiness and detail-orientation.

The most consistent results regarding personality factors that can predict counterproductive behavior relate to Conscientiousness, followed by results supporting the role of Emotional stability and Agreeableness (Cullen & Sackett, 2003). Further, Lee, Ashton & Shin (2005) and Mount, Ilies & Johnson (2006) note that organization-oriented deviance is associated with low Conscientiousness, while interpersonal deviance is associated with low scores of Agreeableness. Therefore we would expect a negative relationship between these two personality factors and CWB facets.

Negative affectivity, as a personality dimension, is defined as a generalized dispositional tendency for people to experience negative emotions in various circumstances. Negative affectivity refers to the extent in which individuals experience (in terms of frequency and intensity) distressing emotions such as hostility, fear or anxiety (Watson & Clark, 1984).

Research on positive and negative affectivity indicates that negative affectivity is associated with high levels of stress, depressive symptoms, a negative attitude towards the job and towards life in general (George, 1990; Staw, Bell, & Clausen, 1986). Martinko, Gundlach & Douglas (2002) found that individuals with a high level of negative affectivity report lower satisfaction regarding their lives and tend to focus on negative aspects of themselves and their surroundings; also they are often perceived as hostile and distant. These individuals tend to make pessimistic attributions. As such, they are more likely to manifest counterproductive

behaviors. Aquino, Lewis & Bradfield (1999) also support this relationship. Therefore, we would expect negative affectivity to be positively related to CWB dimensions.

As for demographic variables, Lau et al. (2003) indicated that older individuals generally tend to engage less in counterproductive behaviors. Men were also found to abuse alcohol more often than women, while women tend to be absent from work more often than men. Therefore, we would expect demographic variables to be related to CWB.

Situational predictors of CWB include perceptions of organizational justice, job attitudes (job satisfaction and organizational commitment) (see Dalal, 2005) or interpersonal conflict, situational constraints, and poor leadership (see Herschovis et al., 2007). The situational predictors analysed in our study are represented by organizational justice and its forms, distributive, procedural and interpersonal justice, along with job satisfaction. In the last 40 years, the number of studies on organizational justice has grown exponentially (Nowakowsky & Conlon, 2005). However, as discussed in the Methods section, only the research data focusing on justice perceptions provided a sufficiently large number of studies to conduct the meta-analysis.

Existing studies demonstrate that deviance can be predicted by perceived injustice in the workplace, showing how theft increases as a reaction to procedural and distributive injustice (Greenberg, 1993). Similar effects were observed for sabotage (Ambrose, Seabright, & Schminke, 2002) and aggression (Skarlicki & Folger, 1997).

Colquitt (2001) showed in his studies that organizational justice is best conceptualized through four distinct dimensions: procedural, distributive, interpersonal and informational (the last two being facets of interactional justice). Distributive justice refers to the degree in which an employee feels that the allocation of outcomes or rewards was fair. Procedural justice focuses on the degree in which an employee feels that the process by which rewards are distributed, or decision are made, was fair. The third component of organizational justice is interactional justice, conceptualized as interpersonal treatment associated with the implementation of procedures. This type of justice has two dimensions and occurs when individuals responsible for the decision-making

process treat people with respect and sensibility (interpersonal justice) and also explain reasons for the decisions taken (informational justice). Some authors describe this type of justice as being the third type of justice (e.g., Aquino, 1995, Skarlicki & Folger, 1997), while others considered it as being a subset of procedural justice (e.g., Moorman, 1991; Niehoff & Moorman, 1993).

Fox, Spector & Miles (2001) showed that distributive justice is significantly correlated with organizational counterproductive behavior. Research shows negative correlations between procedural justice and both organizational and interpersonal deviance. Bennett & Robinson (2000) and Fox et al. (2001) showed that scores on the interpersonal/organizational deviance scales were negatively correlated with the perception of procedural and interactional justice. Aquino et al., (1999) also found that favorable perceptions of interactional justice were negatively correlated both with interpersonal deviance and with organizational deviance. Gallperin (2002) found that perceived justice was negatively correlated with deviance, both interpersonal and organizational, while perceived justice was an important predictor of destructive deviance. When employees perceive that they were treated unfairly, the possibility of breaking organizational norms grows, together with the probability of getting involved in deviant acts oriented towards the organization and other individuals. Therefore, we would expect a negative relationship between specific forms of organizational justice and CWB facets.

Job satisfaction reflects the extent to which people like or dislike their jobs (Spector, 1997 apud Herschovis et al., 2007). Research indicated that job satisfaction is correlated with counterproductive behaviors, and these correlations are stronger in the case of the organizational-level counterproductive behaviors (Penney & Spector, 2002; Chen & Spector, 1992; Fox & Spector, 1999). Therefore we would expect a negative relationship between job satisfaction and CWB facets.

To summarize, the objective of this meta-analysis is to clarify the following research questions: a) What are the moderators of the relationship between CWB dimensions (CWBI-CWBO), b) What are the personality correlates of CWB dimensions, and c) What are the situational correlates of the CWB dimensions.

Method

Study identification

We identified papers by using the keywords *workplace deviance*, *counterproductive work behavior*, *organizational misbehavior*, *interpersonal workplace deviance*, *organizational workplace deviance*, *antisocial behavior at work*, and *employee deviance* in the following databases: PsychInfo, ProQuest, Ebsco, Science Direct, PsychArticles, and JSTOR. We included the papers that used the Bennett & Robinson (2000) or the Robinson & Bennett (1995) scale, or those using the bi-dimensional model of organizational and interpersonal deviance (e.g. Spector et al., 2006). Through this approach, we aimed at overcoming the operational definition variation that was found in previous meta-analysis (Salgado, 2002; Lau et al., 2003; Hershcovis et al., 2007). Also, we identified papers presented at different conferences, focusing on organizational studies. Finally, we completed our database by analyzing the references of existing meta-analyses (Dalal, 2005; Salgado, 2002; Lau et al., 2003; Herschovis et al., 2007).

Inclusion criteria for studies

Only those studies which simultaneously respected minimal conditions for the meta-analytical procedure were considered. First, we researched those articles

that used self-report measures for counterproductive behaviors and which provided data on both the interpersonal and organizational dimension (Bennett & Robinson, 2000; Robinson & Bennett, 1995).

With regard to correlates of CWB, we selected those articles that used measures of negative affectivity (JAWS – Van Katwyk, Fox, Spector & Kelloway, 2000; PANAS – Watson & Clark, 1994) and the papers measuring Big Five personality factors. We did not consider those papers that measured aspects associated with negative affectivity (such as trait anger).

Within each of the selected papers, we searched for the number of participants and the Pearson linear correlation coefficient (r) between a form or another of counterproductive behavior, or the counterproductive behavior as a global construct and one of the main predictors taken into consideration in this meta-analysis.

Those studies which investigated singular aspects of counterproductive behaviors (such as absenteeism) or psychological variables associated with these behaviors (such as workplace aggressive behavior) were not considered, as they are isolated facets of CWB. Upon applying these inclusion criteria, 35 articles were selected for this meta-analysis (see Table 1).

Table 1. Types of studies included in meta-analytical reviews

	Published papers	Phd. or MA thesis	Conference papers	Total
Present study	28	5	2	35
Berry et al. (2007)	13	9	8	30
Hershcovis et al. (2007)	38	10	7	55
Dalal (2005)	17	15	4	36

Analysis

The present study is a random-effects meta-analysis. As Hunter & Schmidt (2000) stated, a random-effects meta-analysis assumes that the true effect size is not the same in all the populations the samples are drawn from. Therefore, a random-effect approach can lead to a more accurate estimation of the general population effect size (Rosenthal et al., 2006). Furthermore, random-effect estimation is a more realistic alternative when study results are heterogeneous, because it takes into account the random

variation of the analyzed effect and offers smaller variance estimations (Erez, Bloom, & Wells, 1996). This approach was imposed by the heterogeneous results reported by Berry et al. (2007) on most of the relations they analyzed.

We included the following information from these studies: sample characteristics (N, gender distribution with mean and standard deviation, age with mean and standard deviation, workplace tenure, nationality), descriptive indicators of interest variables (mean and standard deviation of scales), and

correlation coefficients between counterproductive behaviors and focus predictors for this meta-analysis.

Results

The CWBI-CWBO relation

The relation between CWBI and CWBO was the first research question of this paper. Previous meta-analyses on this matter arrived at contradictory results: Dalal (2005) concluded that CWB is a one-dimensional construct, while Berry et al. (2007) concluded

that CWB facets can be used as separated constructs. Another unsolved issue in the analysis of this relation is the high level of heterogeneity reported by previous research. Berry et al. (2007) conducted a moderator analysis by isolating only the results obtained when using the Bennett and Robinson (2000) measure, but the results were still heterogeneous. Our results offer support to the idea of a dimensional approach to CWB, although the heterogeneity issue is still present (see Table 2).

Table 2. Meta-analysis of the CWBI-CWBO relation

	N	k	mean r	SD	lower r	upper r	Q Value	df	p
CWBI - CWBO	5068	17	.53	.04	.47	.59	122.31	16	<.001

Note. *k* = number of samples in which relationship was estimated; *N* = total number of individuals in the *k* samples; *Mean r* = mean of uncorrected correlations, weighted by sample size (*N*); *SD* = standard deviation of the *mean r*; *lower r*, *upper r* = limits of the 95% confidence interval of the *mean r* (Dalal (2005) and Berry et al. (2007) used 90% confidence intervals); *Q value* = value of the heterogeneity Q test; *df* = degrees of freedom for the Q test; *p* = probability of the Q test. *R&B* = only studies that used the Robinson and Bennett (2000) measure of CWB were included in the analysis.

The homogeneity analysis was conducted in an exploratory manner. We started from the indications provided by Hunter and Schmidt (2004) on the possible moderators that should be taken into account. We took into account the following study characteristics: female participant percent, mean participant age, standard deviation of participant age, participant nationality (dummy variable in which 1 was US participants and 2 was non-US participants), the instrument type utilized to measure CWB (dummy variable in which 1 was Robinson and Bennett's scale and 2 was another instrument).

The data were analysed through a multi-level meta-analysis (Hox, 1995; Hox & de Leeuw, 2003; de Leeuw & Hox 2003). In this regard, a regression analysis was conducted using the weighted least squares technique, the weighted indicator being calculated according to Durlak's (2005) indications ($N_{\text{study}} - 3$). The dependent variable for the equation was the correlation coefficient between CWBI and CWBO, and the included predictors were the study characteristics described above. The results of this regression analysis are presented in Table 3.

Table 3. Results for regression analysis

Predictor	B	Std. Error	Beta	t	p	part r^2
(Constant)	0.350	0.022		15.858	<.001	
% women	0.007	<.001	0.768	42.563	<.001	0.112
Mean age	0.011	<.001	0.562	30.324	<.001	0.048
SD age	-0.041	0.001	-0.767	-54.732	<.001	0.146
Measure	-0.141	0.005	-0.337	-26.071	<.001	0.026
Nationality	-0.339	0.004	-1.302	-84.542	<.001	0.396

Note. % women = female participant percent, mean age = mean participant age, SD age = standard deviation of participant age, measure = dummy variable in which 1 – Robinson and Bennett's scale, 2 – another instrument, nationality = dummy variable in which 1 - US participants and 2 - non-US participants

The predictive model visualized in Table 3 explained 77.7% of the criterion variance ($R^2 = .778$, Adjusted $R^2 = .777$). Although all predictors were significant due to weighting, not all of them have the same effectiveness in explaining the variations of the CWBI-CWBO correlation. The explanation effectiveness of each predictor is reported in the *part r^2* column of Table 3.

According to our results, the gender distribution of each study acts as a moderator variable for the CWBI-CWBO relation, and explains 11.2% of its variance. Research using male samples is expected to report lower correlations than research using female samples. Further research should take into account the necessity of using gender balanced samples.

The mean age of the sample and the age homogeneity within the sample (expressed here as the standard deviation of participant age) are also moderators of the CWBI-CWBO relation. By comparing the individual contribution of each of these two study characteristics, we conclude that age homogeneity (part $r^2 = .146$) has a stronger moderating effect than mean age of the sample (part $r^2 = .048$). This result provides

new insights on the effects of using graduate student samples in CWBI research: because such samples usually have a small standard deviation of participant age, the correlation between CWBI and CWBO is artificially higher than in a more age-heterogeneous employee sample.

The nationality of the participants is the strongest moderator of the CWBI-CWBO correlation (part $r^2 = .396$). According to our results, studies conducted on non-US participants reported a lower correlation than studies conducted on US participants.

The present analysis indicates that the CWBI-CWBO relation is a homogeneous one, if one controls moderator variables like participants' nationality, gender balance and age homogeneity. Participant mean age and the specific measure used in a study have only small moderating effects, but should be taken into account when designing future studies.

Individual factors and CWBs

Personality is considered to be an important predictor of counterproductive behavior. Relations found so far between personality and CWB dimensions are reported in Table 4.

Table 4. Correlations between trait variables and CWB dimensions

	N	k	r	SD	lower r	upper r	Q Value	df	p
NA - CWBI	1629	7	.27	.04	.21	.34	11.74	6	.07
NA - CWBO	1629	7	.35	.05	.28	.42	14.67	6	.02
NA - CWB	2242	8	.29	.05	.21	.37	21.15	7	<.001
Extraversion - CWB	1624	9	.08	.03	.03	.13	3.94	8	.86
Emotional stability - CWB	1624	9	-.12	.04	-.20	-.03	20.71	8	.01
Agreeableness - CWB	1624	9	-.19	.04	-.27	-.11	18.87	8	.02
Conscientiousness - CWB	1829	10	-.33	.02	-.37	-.29	7.56	9	.58
Openness - CWB	1624	9	.04	.04	-.04	.11	15.4	8	.05

Note. k = number of samples in which relationship was estimated; N = total number of individuals in the k samples; *Mean r* = mean of uncorrected correlations, weighted by sample size (N); *SD* = standard deviation of the *mean r* ; *lower r* , *upper r* = limits of the 95% confidence interval of the *mean r* (Dalal, (2005) and Berry et al. (2007) used 90% confidence intervals); *Q value* = value of the heterogeneity Q test; *df* = degrees of freedom for the Q test; *p* = probability of the Q test.

Of the *personality traits* examined in this study, *Extraversion*, *Emotional stability* and *Openness to Experience* do not present a statistically significant relationship with CWB. With regard to *Extraversion* and *Emotional*

stability the confidence interval of the mean is close to „0” (ranging from .02 to .08), and in the case of *Openness to Experience* the confidence interval includes this value.

The personality variables associated with CWB are *Conscientiousness* and *Agreeableness*. *Conscientiousness* was also highlighted in previous meta-analyses as a significant predictor for CWB (Berry et al., 2007; Dalal, 2005; Salgado, 2002). Results of previous meta-analyses indicated that *Conscientiousness* is associated only with CWBO, while the *Agreeableness* factor is associated only with CWBI, both personality factors being at the same time associated with the CWB general index.

The relationship of *Negative Affectivity* with CWB is a differentiated one, based on the type of CWB. Our results showed that negative affectivity is rather associated with CWBO ($r = .35$) than CWBI ($r = .27$). This result is different from Herschovis et al.'s (2007) findings, who found no support for differential prediction.

Demographic factors are also individual factors that might predict counterproductive behavior. Table 5 visualizes the relationship between demographic factors and counterproductive facets.

Table 5. Relations between demographic variables and CWB dimensions

	N	k	r	SD	Lower r	upper r	Q Value	df	p
Age- CWBI	2404	10	-.14	.02	-.18	-.10	9.25	9	0.41
Age - CWBO	1823	7	-.13	.03	-.19	-.06	9.41	6	0.15
Gender - CWBI	2301	9	-.13	.03	-.19	-.07	15.72	8	0.05
Gender – CWBO	2031	7	-.09	.03	-.15	-.04	7.57	6	0.27
Tenure - CWB	676	4	-.11	.06	-.22	.01	6.44	3	0.09

Note. k = number of samples in which relationship was estimated; N = total number of individuals in the k samples; *Mean r* = mean of uncorrected correlations, weighted by sample size (N); *SD* = standard deviation of the *mean r* ; *lower r* , *upper r* = limits of the 95% confidence interval of the *mean r* (Dalal, (2005) and Berry et al. (2007) used 90% confidence intervals); *Q value* = value of the heterogeneity Q test; *df* = degrees of freedom for the Q test; *p* = probability of the Q test. For Gender: men = 0 and women = 1.

Generally, demographic factors are not important predictors of CWB, even though there homogenous relations between age or gender and CWB dimensions have been found. A low-intensity relation was found between participant gender and CWB facets (men are more inclined to engage in CWB than women).

Previous meta-analyses report different findings — Herschovis et al. (2007) found that gender and trait anger are significant predictors of workplace aggression, with men being more aggressive than women. As the above cited author, we also consider that the gender propensity for counterproductive behavior should be treated with caution because there is a need for further understanding the relation between gender and differentiated forms of deviance at work. Berry et al. (2007) also found that being male was slightly and positively correlated with interpersonal and organizational deviance.

Situational factors and CWB dimensions

Perceived organizational justice and CWB

Organizational justice is considered to be one of the most important predictors of

CWB. The following table indicates the relations found among the facets of organizational justice and the dimensions of counterproductive behavior.

According to the results presented in Table 4, procedural justice and distributive justice represent constant predictors of the two CWB facets. The results obtained in the present study indicate a homogenous negative relationship between organizational justice dimensions and CWB facets.

The predictive quality of interpersonal justice remains an arguable issue due to the heterogeneous relation that have been found. Results reported by Berry et al. (2007) indicate that the confidence interval of interpersonal justice correlations with CWB dimensions include or are very close to zero, which would indicate a not significant relationship at the population level. The present study found a confidence interval which does not include this value. We couldn't replicate the previous result due to the lack of studies which would respect the inclusion criteria for this meta-analysis.

Table 6. Relationships between perceived organizational justice facets and CWB dimensions

	N	K	mean r	SD	lower r	upper r	Q Value	df	p
PJ - CWBI	1660	6	-.21	.04	-.28	-.14	10.02	5	.07
PJ-CWBO	1660	6	-.24	.04	-.31	-.18	9.55	5	.09
PJ - CWB	1494	6	-.28	.05	-.37	-.19	15.83	5	.01
IJ - CWB	776	6	-.27	.04	-.33	-.20	48.63	5	<.001
DJ - CWBI	1763	7	-.15	.02	-.19	-.10	4.41	6	.62
DJ - CWBO	1660	6	-.18	.02	-.22	-.13	3.94	5	.56

Note. *k* = number of samples in which relationship was estimated; *N* = total number of individuals in the *k* samples; *Mean r* = mean of uncorrected correlations, weighted by sample size (*N*); *SD* = standard deviation of the *mean r*; *lower r*, *upper r* = limits of the 95% confidence interval of the *mean r* (Dalal, 2005 and Berry et al. used 90% confidence intervals); *Q value* = value of the heterogeneity Q test; *df* = degrees of freedom for the Q test; *p* = probability of the Q test.

Table 7. Correlations between Job satisfaction and CWB dimensions

	N	k	r	SD	lower r	upper r	Q Value	df	p
Job satisfaction - CWBI	693	4	-.20	.08	-.34	-.05	10.38	3	.02
Job satisfaction - CWBO	693	4	-.36	.06	-.47	-.25	7.11	3	.07

Note. *k* = number of samples in which relationship was estimated; *N* = total number of individuals in the *k* samples; *Mean r* = mean of uncorrected correlations, weighted by sample size (*N*); *SD* = standard deviation of the *mean r*; *lower r*, *upper r* = limits of the 95% confidence interval of the *mean r* (Dalal, 2005 and Berry et al., 2007 used 90% confidence intervals); *Q value* = value of the heterogeneity Q test; *df* = degrees of freedom for the Q test; *p* = probability of the Q test.

Job satisfaction and CWB

The relationship between *Job Satisfaction* and CWB was also studied in meta-analyses on workplace aggression (Hershcovis et al., 2007) or on absenteeism (Scott & Taylor, 1985). Table 7 shows the correlations obtained between job satisfaction and CWB dimensions.

The results of the present study support the conclusions reported by Hershcovis et al. (2007), specifically the findings indicating that work satisfaction is associated with CWBO. It appears that a decreased level of satisfaction doesn't necessarily lead to the employees getting involved in interpersonal counterproductive behaviors, but we may say that they will be tempted to get involved into sabotaging behaviors.

Discussion

The purpose of this study was to identify moderating variables at the interpersonal counterproductive behavior and organizational counterproductive behavior level. Overall, results indicate that study characteristics such as participants' age, male-female ratio or CWB measure should be taken into account when studying counterproductive behaviors.

This study found a significant correlation between the two CWB facets. However, the confidence interval of the correlation coefficient is not close to the value 1 and the two dimensions have specific relations to the variables considered. As such, when further analyzing the two dimensions, it's also useful to consider each facet separately, and to monitor the specific dynamics of the

relationship between predictors at the interpersonal and organizational level.

Our results indicate that the common practice of researchers, to use student or post-graduate samples who are employed, has opposite effects on the CWBI-CWBO correlation: it leads, on one hand, to a lowering of this coefficient by including young participants in the study, and also leads, on the other hand, to an artificial increase, as a result of the low participant age differentiation. Furthermore, we found that studies using the Bennett and Robinson (2001) scale, repeatedly found higher correlation coefficients than the studies using other CWB measures.

The other objective of this meta-analysis was to analyze the relationship between predictors and counterproductive work behavior scales. According to meta-analytical studies (Dalal, 2005; Berry et al., 2007; Herschovis et al., 2007), it appears that the perceived injustice in the distribution of resources is a constant predictor for both CWB types. With regard to other forms of organizational justice, results indicate that a negative, but variable relationship is present with forms of CWB.

Former CWB research results supported the idea of differentiating predictors in the area of employee reaction and treating them separately as organizational environment and individual differences. With regard to the predictive validity of personality traits, *Conscientiousness* is the only Big Five factor that is significantly and constantly associated with both forms of CWB. While previous research has included Extraversion as an antecedent of CWB, our results indicate that Extraversion did not demonstrate substantial predictive validity for CWB. Important results for further research were obtained with regard to the relationship between Negative Affectivity and CWB. These two variables are positively associated, their relationship being strong and homogenous.

The analysis of the relationship between demographic variables and CWB revealed a weak, negative, but constant relationship between participant age and CWB facets. We also identified a low-intensity relationship between participant gender and CWB facets (men are more inclined to engage in CWB than women).

Limitations and implications for future research

One limitation of this study is represented by the way the samples are built in CWB related research, especially from the point of view of the mix of part-time and full-time working participants. An example of the differences between these two types of employees is offered by Thorsteinson (2003) who demonstrated through a meta-analysis that full-time employees are generally more satisfied with their jobs, than those working part-time. Since job satisfaction is a CWB correlate, it is possible to expect the type of job contract to be a moderating variable which has not been considered yet.

An important limitation of this meta-analysis is represented by the fact that it leads to emphasizing some singular relationships. The results we obtained are significant if taken separately, but when included in a regression equation, some of the variables did not predict CWB dimensions. A first step towards integrative models was made by Herschovis et al. (2007), but the lack of information with regard to predictor covariance represents an important limitation of their model. Significant relationships like for example those between negative affectivity and job satisfaction (Johnson and Johnson, 2000) or justice and job satisfaction (Shappe, 1998) influence the results of this regression analysis. Evaluating the predictive strength of the variables analyzed in this paper requires not only the meta-analysis of predictor-criterion relationships, but also the meta-analysis of predictor covariance relationship.

Practical implications

The results of this meta-analysis lead to a series of practical implications, which we consider to be relevant for researchers, practicing psychologists, consultants and managers alike. The variety of jobs present in the samples of this meta-analysis offers an increased degree of generalization regarding occupations and their relationship with counterproductive behaviors. Due to the negative effects of counterproductive behaviors for organizations and its members, managers should consider both prevention and reducing strategies for this type of behavior. Managers and human resources consultants should take into consideration both dispositional factors and perceived organizational stressors, in order to deal with counterproductive behaviors.

Considering the fact that the two dimensions of counterproductive behavior have specific relationships with the analyzed variables, it may be useful to focus on their separate relations with these predictors. Thus, organizations will focus first on identifying which type of deviance is present and then intervene on corresponding antecedents. Our meta-analysis emphasized that in the case of interpersonal deviance, low levels of Agreeableness should be monitored. In the case of organizational deviance, low levels of Conscientiousness and job satisfaction, as well as increased levels of Negative Affectivity, should be paid increased attention to. Perceived organizational justice should also be taken into account for both forms of deviance.

Regarding the process of employee selection, attention should be focused on dispositional factors, as mentioned above. Although they represent important predictive factors on their own, it should be taken into consideration that their power is increased by perceived situational factors, such as a context where the employees observe counterproductive behaviors in colleagues or supervisors or possible negative emotions experienced on the job (Sulea, 2008).

Organizations need to acknowledge the powerful effect had by the interpersonal context at work on affective and behavioral responses. Perceptions on organizational justice, interpersonal conflicts at work, role stress, and perceptions of counterproductive behaviors exhibited by colleagues are all important elements functioning as a trigger for counterproductive work behaviors.

In some cases, employees are involved in counterproductive behaviors as a way to adjust to some perceived organizational potential stressors (e.g. organizational injustice). It is important to notice that, for several reasons, individuals do not use all possible strategies for stress control, but only some of them, the ones they are familiar with; that is why employees should be trained to use more frequently adaptive strategies for occupational stress (Pitariu & Virga, 2007).

Managers who are aware of the role of emotions in general and at work can be better prepared to help employees respond in constructive ways to aversive events, through trainings, and coaching sessions. By becoming more aware of their own emotional negative responses, employees could be more able to choose less destructive options for self-

management and the emotional management of unpleasant events experienced on the job.

The way employees perceive the fairness of rewards or decisions made by supervisors, as well as the aspects related to respect and information is also relevant. If employees perceive that they are treated unfair in organization, this may increase the probability for them to get involved in counterproductive behaviors, orientated towards increasing their own personal benefit. Identifying such reasons will indicate a clear point of intervention in this respect.

Managers should pay attention to the way employees respond to work dissatisfaction and also to other negative emotions at their workplace. These factors could be motivators for the employees, pressuring towards toward reducing the unpleasant state they experience.

An important aspect which should be taken into account by managers is the fact that counterproductive behaviors are the result of both personal and perceived situational factors. It is necessary to monitor employee perceptions regarding the situations and processes encountered at the workplace, and to prevent or eliminate stressors represented by different organizational constraints.

Along with direct actions which can be developed for maintaining a positive climate in organizations, it is important that managers do not ignore the symptomatic role of such counterproductive behaviors. These may indicate organizational malfunctions that have the potential to impair organizational efficiency and workplace relationships. And even if it is hard to admit the benefic role of dysfunctional behaviors, they can have a positive role when they signal some deficiencies at work or maybe can lead to innovative and beneficial effects for the organization (change in procedures, modification of work groups, generation of an environment where employees may communicate their needs etc).

Raising awareness and applying these prevention and intervention actions could have an important role in diminishing counterproductivity inside organizations. This may be tackled through different forms of interaction with the employees, from individual discussions, meetings, coaching sessions, trainings, or similar actions by which managers, with the support received from HR consultants, may approach these problems, emphasizing factors which promote efficient behaviors in organizations, factors that both

the organization and its members would benefit from.

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