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ORIGINAL PAPER

The Development and Validation of an Interpersonal Distrust Scale

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Abstract

Though many researchers have studied interpersonal trust, its counterpart, distrust, has been largely ignored. The relative dearth of distrust research may be a result of an early assumption that distrust represents an absence of trust. Nevertheless, recent reviews have pointed out that distrust is not the opposite of trust, but rather a distinct construct (e.g., Lewicki, Tomlinson, & Gillespie, *Academy of Management Review*, *23*(3), 438–458, 2006; Lumineau, *Journal of Management*, 0149206314556656, 2015). We use three studies to empirically demonstrate that distrust and trust are descriptively bipolar but functionally distinct constructs. In Study 1, we generate a distrust scale with methodological rigor, which shows good psychometric properties. In Study 2, we crossvalidate the distrust scale. Discriminant validity of the new scale also demonstrates that the distrust scale is distinct from subscales of trust and another theoretically relevant construct (i.e., distrust propensity), which provides the first empirical evidence that distrust is not redundant with trust. Moreover, we develop a theoretical model of distrust antecedents and outcomes based on social exchange theory and empirically investigate the nomological network of interpersonal distrust in Study 3. Consistent with the hypotheses, interpersonal distrust significantly correlates with the theoretical antecedents and consequences across two samples. Additionally, our findings in Study 3 demonstrate that distrust has significantly different relation strength with other constructs compared to trust, which further supports that distrust and trust are descriptive bipolar but functionally independent constructs.

Keywords measurement · validity · reliability · interpersonal distrust

Interpersonal trust has been viewed as one of the essential prerequisites of risk-taking behavior in social systems (Creed & Miles, 1996). Trust has been associated with important organizational outcomes, such as team effectiveness, risk-taking, task performance, citizenship behavior, and counterproductive work behavior (e.g., Colquitt et al, 2007). On the other hand, the counterpart of interpersonal trust, *interpersonal distrust*, has been less studied. The relative dearth of distrust studies may be the result of an early assumption that distrust was the opposite of trust (i.e., distrust was a lack of trust). Another hindrance in distrust research is the lack of a reliable and valid measurement of distrust. It is almost impossible to distinguish distrust from trust if the two constructs are measured with the same scale.

More recent research (e.g., Lewicki et al, 2006) pointed out that it is erroneous to assume interpersonal trust and distrust are opposite ends of the same construct. High interpersonal distrust is not the same as low interpersonal trust. High interpersonal distrust represents fear, doubt, and high certainty in negative expectations, whereas low interpersonal trust indicates uncertainty in positive consequences and a lack of hope (Lewicki et al, 1998, 2006). Similarly, high interpersonal trust is not the same as low interpersonal distrust. High interpersonal trust is linked with optimism and confidence in positive consequences, whereas low interpersonal distrust represents low certainty about negative consequences (Cropanzano et al, 2017). Erroneously treating that interpersonal distrust and trust as the same construct represents the "jingle fallacy," which refers to that two distinct things bear the same name and are treated as the same (Casper et al., 2018). If researchers fail to distinguish interpersonal trust and distrust conceptually or empirically, it obscures the relationship between the focal

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constructs, interpersonal trust and distrust in our case, and other constructs, which further impede theory advancement. Researchers may find conflicting results in theory development and testing when they erroneously treat high levels of interpersonal distrust as low trust.

Additionally, assuming that interpersonal trust and distrust are the opposite ends of the same constructs disguises the complexity of interpersonal relationships. Lewicki and colleagues (1998) proposed a two-factor framework of interpersonal distrust and trust, which included four prototypical relationship conditions: low trust/low distrust, low trust/high distrust, high trust/low distrust, and high trust/high distrust. Each condition reflects one type of interpersonal relationship and is associated with different characteristics and behaviors. However, failing to distinguish interpersonal distrust from trust makes it impossible to conceptualize and empirically examine the differences among the four conditions, as well as the consequences (e.g., collaboration, relationship repair, and team performance) associated with these conditions. An emerging view among organizational researchers is that high levels of trust combined with an absence of distrust (i.e., blind trust) can be dysfunctional (e.g., Kramer, 1994), because trustors can easily be exploited in those situations. Interpersonal distrust promotes healthy suspicion, encourages monitoring behavior, and prevents blindness in business relationships (Kee & Knox, 1970). Luhmann (1979) explicitly stated that a certain level of distrust was necessary in many social relations because it kept people vigilant and kept people from falling back into "the customary pedestrian ways of relying on one another" (p. 91). Given the importance of interpersonal distrust, many scholars have called for examining impacts of interpersonal trust and distrust simultaneously on organizational outcomes, such as relationship repair (Lumineau, 2015).

The current study takes the first step to fill in several gaps in the distrust literature. First, this study briefly reviews the different conceptualizations of interpersonal distrust based on previous reviews (e.g., Lewicki et al, 2006). Incorporating the previous definitions, the current study defines interpersonal distrust at work and develops an interpersonal distrust scale, following the procedures of scale development recommended by Clark and Watson (1995) and Hinkin (1995, 1998). The current study uses both inductive and deductive approaches (Hinkin, 1995) to develop an interpersonal distrust scale with good psychometric properties.

Second, this study contributes to the literature by evaluating the structural nomological net of interpersonal distrust both theoretically and empirically. Social exchange theory (SET) pointed out that successful exchanges result in interpersonal trust (Cropanzano & Mitchell, 2005). Similarly, unsuccessful exchanges may lead to interpersonal distrust. Interpersonal distrust then influences people's future exchange behavior. We identify several potential organizational antecedents (i.e., distrust propensity, incapacity, social undermining, and unethical behavior) and outcomes of interpersonal distrust (i.e., risk-taking, organizational citizenship behavior, and counterproductive work behavior) based on SET, and we examine the relationships between interpersonal distrust and its potential antecedents and outcomes.

Third, we empirically distinguish interpersonal distrust from interpersonal trust. Though researchers (e.g., Cropanzano et al, 2017; Lewicki et al, 1998, 2006) suggested that interpersonal distrust and trust are not two ends of the same latent continuum but instead are distinct constructs, no empirical study has examined this proposition. The current study investigates the factor structure of interpersonal distrust and trust and their nomological network. These results demonstrate that interpersonal distrust and trust function differently and have different relations with other relevant constructs.

Defining Interpersonal Distrust

Three Approaches of Distrust Conceptualization

According to Clark and Watson (1995) and Hinkin (1995, 1998), the first step of scale development is to define the construct, interpersonal distrust. There are three major conceptualizations of interpersonal distrust, a behavior approach and two psychological approaches, which are parallel to the three conceptualizations in trust research (Lewicki et al, 2006). The *behavior approach* is the earliest approach and views distrust as specific behaviors or choices (e.g., choice to compete). Deutsch (1973) defined interpersonal distrust as a person's choice to avoid an ambiguous path that has greater negative consequences than positive consequences. This definition emphasized behavioral choice and mirrored the opposite of trust. The psychological approaches view interpersonal distrust as cognitive or affective conditions. The psychological approaches can be further divided into the bipolar approach and the distinct-construct approach. The *bipolar approach* perceives interpersonal distrust and trust as two ends of the same continuum. Barber (1983), for example, defined distrust by simply adding a "not" in his definition of trust, that was "rationally based expectations that technically competent performance and/or fiduciary obligation and responsibility will *not* be forthcoming" (p. 166). In contrast, the *distinct-construct* approach perceives interpersonal distrust and trust as distinct constructs. Interpersonal distrust in psychological approaches involves the same three components as interpersonal trust—cognition, affect, and behavioral intention.

There are a couple of essential differences among the three interpersonal distrust conceptualizations. The major difference is that the behavioral approach views

interpersonal distrust as a behavioral phenomenon whereas psychological approaches view interpersonal distrust as psychological states from which behaviors result. The difference in conceptualization leads to differences in research methods used by researchers adopting the different approaches. More specifically, interpersonal distrust in behavioral approach is studied by observing competitive behaviors in lab experiments, whereas that in psychological approaches is examined using self-report scales. The major difference between the two psychological approaches is how they perceive the relationship between interpersonal trust and distrust. The current study takes the psychological-distinct constructs approach. In the next section, we will discuss in detail why this approach is adopted.

Theoretical and Empirical Evidence of Distinct Constructs Approach

Previous research indicated that positive and negative evaluative processes can be separated (Cacioppo & Berntson, 1994; Kaplan, 1972). Experiments demonstrated that positive valent and negative valent attitudes toward the same target could coexist (Priester & Petty, 1996). An example of coexisting positive valent and negative valent constructs in an organizational study are positive and negative affect. Positive affect and negative affect are characterized as descriptively bipolar but affectively unipolar dimensions (Zevon & Tellegen, 1982). The high ends of both dimensions (i.e., positive and negative affect) reflect high arousal or strong engagement, such as elated for positive affect and distressed for negative affect, whereas the low ends of both dimensions reflect low arousal or disengagement, such as dull for positive affect and calm for negative affect (Watson & Tellegen, 1985).

We argue that interpersonal trust and distrust are another pair of descriptively bipolar but actually independent dimensions. Evidence from various scientific fields has supported that interpersonal distrust and trust are distinct constructs. From a neuroscience perspective, functional neuroimaging (fMRI) has demonstrated that interpersonal trust and distrust activate different areas of the brain when participants viewed sellers' profiles with different levels of trust- or distrust-worthiness (Dimoka, 2010). Specifically, interpersonal trust activates brain areas associated with anticipating rewards, predicting the behavior of others, and calculating uncertainty; interpersonal distrust activates brain areas associated with intense negative emotions and fear of loss.

From a sociology perspective, researchers (i.e., Lewis & Weigert, 1985) have pointed out that people use both interpersonal distrust and trust as methods to reduce uncertainty and complexity in social contexts. Interpersonal distrust reduces social uncertainty by viewing undesirable consequences as likely, whereas interpersonal trust reduces uncertainty by viewing desirable outcomes as likely (Luhmann, 1979). Thus, the opposite of high trust is low trust, which indicates high uncertainty of desirable consequences and differs from high distrust, and the opposite of high distrust is low distrust, which indicates high uncertainty of undesirable consequences and differs from high trust.

Additionally, studies from information system and electronic commerce have looked into correlation patterns between these two and other constructs. Benamati et al. (2006) suggested that distrust and trust were distinct, but highly correlated constructs and their influences on outcome variables (e.g., intention to use online banking in future) were different. Lee and Huynh (2005) demonstrated that distrust and trust had different influences on IT outsourcing success. Cho (2006) demonstrated that distrust and trust in B2C (Business to Consumer) systems were shaped by different dimensions of trustworthiness, and they showed different effects on behavior (also see McKnight & Choudhury, 2006).

As discussed above, studies from various disciplines provide evidence to support that distrust and trust toward a specific target are distinct constructs. Building on these evidence and previous review articles (e.g., Lewicki et al, 2006), the current study defines interpersonal distrust in the workplace as *an expectation of harmful, hostile, or other negative things in the interactions with another person, and is accompanied by negative affect and intention to take protective actions based on these expectations.* Interpersonal distrust is a functional equivalent for interpersonal trust because they are both used as means to reduce uncertainty and complexity, yet they operate differently.

Interpersonal distrust includes three dimensions—affect, cognition, and behavioral intention. The cognitive component of interpersonal distrust refers to rational beliefs or expectations about other parties' distrustworthiness in which respect and under which circumstances. The behavioral intention refers to unwillingness or avoidance of future interactions or risk-taking actions in uncertain situations based on expectations and feelings toward another person. The affective component refers to negative emotions toward the distrusted person. Nevertheless, the set of emotions linked to distrust (e.g., wariness, caution, cynicism, anger, fear, hate, and feeling of betrayal) tend to be more intense, compared to those linked to trust (e.g., hope, safety, assurance, and confidence; McKnight & Chervany, 2001; Slovic, 1993). McKnight and Chervany (2001) described distrust as representing emotionally charged human survival instincts, whereas trust was described as calmer and more collected. Sitkin and Roth (1993) also indicated distrust was more of an emotion-laden belief, whereas trust was more of a cognitive judgment.

Table 1 Overview of studies, analyses used, and samples

Study description	Analyses used	Samples used
Study 1 Scale development		
Phase 1 Item development	Interrater reliability	Qualitative sample (undergraduate students), subject matter experts (IO graduate students)
Phase 2 Item reduction	IRT (item discrimination and item location); CTT (Cronbach's alpha, Cronbach's alpha if item deleted, and corrected item-total correlation)	Sample 1
Study 2 Psychometric properties		
Factor structure	CFA	Sample 2
Convergent validity	Average variance extracted (AVE), composite reliability	Sample 2
Discriminant validity	CFA The Fornell-Larcker test Disattenuate formula	Samples 2, 3, and 4 Sample 2 Sample 4
Measurement equivalence	CFA-based measurement equivalence test	Sample 2
Study 3 Hypothesis testing		
Testing nomological network	Bivariate correlation and hierarchical regression	Sample 3 and 4
Incremental validity of distrust	Hierarchical regression	Sample 4
Differential correlation	Steiger's test to compare correlations	Sample 4

Study 1: Scale Development

Based on the discussion above, interpersonal distrust is conceptualized as a distinct construct from interpersonal trust. As a result, measurements of interpersonal distrust should be able to distinguish these two concepts. Using reverse-coded trust scales as measures of interpersonal distrust obscures the correlations between interpersonal distrust and other variables. When researchers use reverse-coded measures to study relationships between interpersonal distrust and its antecedents/outcomes, the results indicate the relationships between low interpersonal trust, not interpersonal distrust, and other variables. As such, we develop a measure of interpersonal distrust based on our conceptualization.

Phase 1: Item Generation

Following guidelines of scale development (e.g., Clark & Watson, 1995; Hinkin, 1995, 1998), we used two sources to generate the distrust item pool. First, an initial item pool based on existing interpersonal trust and distrust scales was developed. Though there is no scale measuring interpersonal distrust, distrust scales focusing on other aspects do exist, for example, health care system distrust scale (Rose et al, 2004), e-vendor distrust scale (Cho, 2006), and corporations distrust scale (Adams et al, 2010). All items from these distrust scales were adapted for the initial item pool in the current study.

A deductive scale development approach was utilized by conducting a pilot qualitative study to get general ideas about people's affects, cognition, and behavior intention when distrusting someone. Specifically, participants saw the definition of interpersonal distrust and were asked what their feelings are when they distrusted someone. Subject matter experts (SMEs) in industrial/organizational psychology were recruited from two graduate programs ($N = 9$; 33% male; mean age = 28.25; $SD = 8.55$). The SMEs first read the definition of interpersonal distrust and explanations of the three dimensions (i.e., cognition, affect, and behavioral intention). Then they were asked to recall someone they distrust in a working environment and to describe what were the specific cognition, affect, and behavioral intention they had toward the specific distrusted target using open-ended questions. Responses from the SMEs were then summarized under each dimension of distrust. These were used as the framework for coding in the inductive stage. A summary of studies, samples, analyses in the current study is reported in Table 1.

Then an inductive approach was taken by asking respondents to provide their feelings about distrusting someone. Respondents in the qualitative sample were undergraduate students recruited through an online system at a large public university in Midwest US ($N = 279$; 62.70% female; 57.90% Caucasian; mean age = 19.54; $SD = 4.68$). Half of the participants (50.89%) had a job or an internship. Participants read the definition of interpersonal distrust and were asked to describe their feelings when they distrusted someone using open-ended questions ("Interpersonal distrust in workplace refers to an expectation of harmful, hostile, or other negative things based on previous interactions with a person,

along with negative emotions and intention to avoid those consequences. Based on your experience, what are your general feelings when you distrusted someone (please be specific)*?*"). Two trained undergraduate raters then independently evaluated the 279 responses and categorized them under correspondent dimensions (i.e., affect, cognition, and behavior intention). Also, the raters recorded the frequencies of each affect/cognition/behavioral intention; for example, "to avoid the distrusted person" appeared 73 times as a type of behavioral intention. Rater agreement before discussion was 91%. All rater disagreements were resolved through rater discussion (100% rater agreement). Based on the definitions of distrust dimensions, previous trust/distrust scales, and coded responses, the first author adapted and wrote 47 affect items, 50 cognition items, and 44 behavioral intentions. To ensure the validity of the interpersonal distrust items, we only included affects/cognitions/behavioral intentions that could be generalized to the workplace and were reported at least twice by participants.

The undergraduate students were also asked whether they had experience trusting and distrusting the same person at the same time. Seventy-eight percent of the 279 undergraduate students indicated that they had experiences trusting and distrusting the same person at the same time. This result provided initial support that interpersonal trust and distrust could coexist toward the same referent and that they were not separate ends of the same continuum, but distinct constructs.

Phase 2: Item Reduction

This stage was to reduce the large item pool (141 items) to a final set of five items for each distrust subdimension based on psychometric properties.

Participants and Procedure

Sample 1 was recruited through Amazon Mechanical Turk (MTurk). To ensure quality and control for the country, only US participants with a 95% approval rating could participate. Screening questions were used to make sure participants were full-time employees who spent time interacting with others at work ($N = 989$). Five attention check questions were embedded to assess effortful responding. Only participants who passed four of the five attention check questions (84.02% of the participants) were included in data analyses. This resulted in an analysis sample of 831 individuals of which 54.00% were females and 78.50% were Caucasian. Mean age was 37.50 years ($SD = 11.23$) and mean tenure with their current organization was 6.36 years ($SD = 6.27$). More than half (63.40%) of the participants had a bachelor's degree or higher.

All items in the item pool were administered to sample 1. Participants were instructed to think about someone they distrusted at work and then respond on a seven-point Likert scale, ranging from "strongly disagree" to "strongly agree." All items were mixed based on their dimensions and randomized in order.

Results

Classical test theory (CTT) and item response theory (IRT) were applied to examine the 141 interpersonal distrust items. Parameters in CTT were analyzed using SPSS 24.0 (IBM Corp), and those in IRT were analyzed using IRTPro 2.1 (Cai et al, 2011). Cronbach's α represents the degree of interrelatedness among items in a scale and is widely reported to reflect the scale reliability (Cortina, 1993). Item-total correlation represents the correlation between an item and other items in the same scale. A positive item-total correlation indicates the item varies in line with other items on the same scale. Cronbach's α if item deleted shows the internal consistency of the scale, if one particular item is deleted. Item discrimination in IRT, *a*, denotes whether an item successfully distinguishes respondents at different levels of the latent trait. The larger the value, the better the item is at distinguishing respondents experiencing high versus low levels of interpersonal distrust. Item location in IRT, *b*, denotes where an item is on the latent continuum (i.e., interpersonal distrust in this case).

For each subdimension, Cronbach's α, corrected item-total correlation and Cronbach's α if item deleted, item discrimination, and item location were examined. Two criteria were used to delete items—first, items with a discrimination parameter *a* smaller than two; second, items that would increase Cronbach's alpha if the item was deleted. After the initial item reduction, each dimension had more than ten items (affect: 14 items; cognition: 30 items; behavioral intention: 17 items). Then psychometric characteristics (i.e., Cronbach's α, corrected item-total correlation, item discrimination, and item location) and scale bandwidth were both considered in further item reduction. For example: "I want to distance myself from this person" and "I will try to limit my interactions with this person" had similar meanings. With conceptual redundancies, the item with better psychometric characteristics was included in the final scale. Moreover, item readability was considered when we identified the final set of items. For example, item "I think that this person is going to stab me in the back" in cognition subscale was excluded because the phrase "stab me in the back" may be difficult to understand for those who were not native speakers in English. The final set of 15 items was reported in supplemental material 1.

Study 2: Psychometric Properties of the Interpersonal Distrust Scale

Hinkin (1998) recommended that the factor structure of a new scale should be examined using a new sample. As discussed in the introduction section, the interpersonal distrust scale includes three subdimensions, affect, cognition, and behavior intention. In Study 2: Psychometric Properties of the Interpersonal Distrust Scale, we use a separate sample to examine the factor structure of the interpersonal distrust scale and to investigate convergent and discriminant validity of the new scale. Moreover, "Study 2: Psychometric Properties of the Interpersonal Distrust Scale" examines measurement invariance of the interpersonal distrust scale across sex groups.

Participants and Procedure

Sample 2 were recruited through Amazon Mechanical Turk (MTurk). Participants first answered six questions about their working status and demographic information, four of which were used as screening questions. Qualified participants then answered randomized interpersonal distrust items. Next, participants answered two scales measuring interpersonal distrust propensity and interpersonal trust. To ensure quality and control for the country, only US participants with a 95% approval rating were allowed to participate and Mturk workers who had participated in "Study 1: Scale Development" were restricted from participating in "Study 2: Psychometric Properties of the Interpersonal Distrust Scale". Screening questions were used to ensure participants were full-time employees and spent time interacting with others at work ($N = 801$). Four attention check questions were embedded in the survey, and only participants who passed at least three attention check questions were included in data analyses ($N = 770$; 96.13% of the participants). Half of the participants were male (50.50%); the mean age was 35.42 years ($SD = 10.42$), and 64.50% of the participants had a Bachelor's degree or higher. A majority of the participants (72.60%) were Caucasian. Participants' mean tenure with their current organization was 5.77 ($SD = 6.17$) and that with their current position was 4.24 ($SD = 5.31$).

Measure

Unless otherwise noted, participants in sample 2 answered all items on a seven-point Likert scale (1 = Strongly disagree and 7 = Strongly agree). The interpersonal distrust items were developed and selected from "Study 1: Scale Development". Cronbach's alpha for the interpersonal distrust affect, cognition, and behavior intention subscales were 0.91, 0.88, and 0.87, respectively.

Interpersonal Trust Interpersonal trust was measured using the eleven-item Likert scale developed by McAllister (1995). This trust scale includes an affect-based subscale (five items) and a cognition-based subscale (five items). We dropped a reverse coded item from the cognition subscale because this item showed negative corrected item-total correlation even after reverse-coding (corrected item-total correlation = −0.03; "If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely"). An example item of affect-based interpersonal trust is "We have a sharing relationship. We can both freely share our ideas, feelings, and hopes;" an example item of cognition-based interpersonal trust is "This person approaches his/her job with professionalism and dedication." Internal consistencies for the affect- and cognition-based interpersonal trust scales were 0.93 and 0.85, respectively.

Distrust Propensity Distrust propensity was measured using the five-item Likert "Distrust to others" subscale in the Machiavellianism scale developed by Dahling et al., (2009; 1 = *Strongly disagree* and 5 = *Strongly agree*). An example item is "Other people are always planning ways to take advantage of the situation at my expense." Internal consistency reliability for "Distrust to others" subscale was 0.85.

Results

Means, standard deviations, and correlations of sample 2 are reported in Table 2.

Factor Structure of the Three Dimensions Confirmatory factor analyses were conducted to examine factor structure of the new scale. The three-factor model demonstrated significantly better fit (χ^2 (87) = 475.37; $RMSEA = 0.076$, 90% CI (0.070, 0.083); $CFI = 0.95$; $SRMR = 0.05$) than the one-factor model (χ^2 (90) = 2273.05; $RMSEA = 0.177$, 90% CI (0.171, 0.184); $CFI = 0.70$; $SRMR = 0.122$; $\Delta CFI = 0.25$). We used change of CFI to test nested-models because the chi-square significance test shows significant results even when there are minor differences with large sample size (Cheung & Rensvold, 2002; Vandenberg & Lance, 2000). All items demonstrated large and significant loadings on their own correspondent dimension. These results supported the theoretical three dimensions of interpersonal distrust. The factor loadings and factor correlations for the final CFA model was reported in supplemental material 2.[1]

[1] We also conducted a measurement invariance test of the interpersonal distrust scale and reported the results in supplemental material 3.

Table 2 Means, standard deviations, correlations, and internal consistencies of sample 2 (Study 2)

	Mean	*S.D*	1	2	3	4	5	6
1. Interpersonal trust	2.84	1.26	.93					
2. Interpersonal distrust	5.32	0.98	− .32**	.92				
3. Affect	4.85	1.36	− .11**	.79**	.91			
4. Cognition	5.44	1.12	− .33**	.86**	.46**	.88		
5. Behavior intention	5.67	1.05	− .38**	.84**	.42**	.74**	.87	
6. Distrust propensity	2.85	0.91	.26**	.17**	.18**	.15**	.07*	.85

The values on the diagonal are Cronbach alpha of the correspondent scale

$N = 770$

*$p < .05$; **$p < .01$

Table 3 Convergent and discriminant validity analysis for sample 2 (Study 2)

Factor/construct	CR	AVE	MSV	ASV
Distrust-affect	.91	.66	.04	.03
Distrust-cognition	.88	.59	.11	.07
Distrust-behavior intention	.87	.58	.14	.08

$N = 770$

CR composite reliability, *AVE* average variance extracted, MSV maximum shared variance with trust and distrust propensity, ASV average shared variance with trust and distrust propensity

subscales are reported in Table 3. The composite reliability for the three dimensions were larger than the correspondent AVEs, and the AVEs were larger than 0.50 for each dimension, which provided support for convergent validity of the three dimensions of interpersonal distrust.

Discriminant Validity We examined the evidence of discriminant validity for the interpersonal distrust scale, in order to demonstrate that the distrust scale is a unique construct that is not redundant from related constructs (i.e., interpersonal trust, distrust propensity). First, we compared a series of nested models to determine whether one model demonstrated significantly better fit. Fit indices of the nested models are reported in Table 4. The results demonstrated that the model loading distrust items and other relevant constructs on separate latent factors had the best model fit, which provides support for discriminant validity.

Table 4 Confirmatory factor analyses of interpersonal distrust measure and relevant constructs in sample 2 (Study 2)

Model	Factors#	Model description	χ^2 (*df*)	*RMSEA* (90% *CI*)	*CFI*	*SRMR*
Three distrust dimensions and distrust propensity						
1	4	Four latent factors and items load on their own correspondent factors	625.30 (164)**	.060 (.055, .066)	.95	.047
2	3	Items of affect distrust and distrust propensity load on the same factor	2040.99 (167)**	.121 (.116, .125)	.79	.114
3	3	Items of cognition distrust and distrust propensity load on the same factor	2083.54 (167)**	.122 (.117, .127)	.78	.119
4	3	Items of behavior intention distrust and distrust propensity load on the same factor	2109.73 (167)**	.123 (.118, .128)	.78	.122
Three distrust dimensions and two trust dimensions						
1	5	Five latent factors and items load on their own correspondent factors	1128.05 (265)**	.065 (.061, .069)	.94	.046
2	4	Items of affect distrust and affect trust load on the same factor	4494.54 (269)**	.143 (.139, .147)	.68	.189
3	4	Items of cognition distrust and cognition trust load on the same factor	3252.65 (269)**	.120 (.116, .124)	.78	.132

[a]Difference assessed versus Model 1

Convergent Validity Both item-level and factor-level convergent validity were investigated. Item-level convergent validity can be examined with item loadings (Anderson & Gerbing, 1988; Hinkin, 1998). Specifically, items significantly loaded on their own correspondent dimension, providing support for item-level convergent validity. Factor-level convergent validity can be examined with the average variance extracted (AVE) and composite reliability (Hair et al, 2010). Convergent validity is established when two standards are met: (1) when the composite reliability is larger than AVE and (2) the AVE is larger than 0.50 for each dimension (Hair et al, 2010). Composite reliabilities and AVEs for the three

Another method to provide evidence of discriminant validity is the Fornell-Larcker (1981) test (also see Thompson & Bolino, 2018). That is, the amount of variance captured by the construct (i.e., the AVE) should be larger than the shared variance between the focal construct and

the relevant constructs. Table 3 shows that the maximum and average shared variance between interpersonal distrust dimensions and two other constructs were smaller than the AVEs for interpersonal distrust dimensions. These results indicated that interpersonal distrust were not redundant constructs of interpersonal trust or distrust propensity, providing support for discriminant validity of interpersonal distrust and its three dimensions.

Study 3: Nomological Network and Criterion-Related Validity

Many studies have examined the nomological network of interpersonal trust at work (e.g., Colquitt et al, 2007; Mayer & Davis, 1999). Mayer and colleagues (1995) proposed an integrative model of trust classifying antecedents into two large categories: characteristics of the trustor (i.e., trust propensity) and characteristics of the trustee (i.e., including capability, benevolence, and integrity). Building on Mayer and colleagues' (1995) integrative model and SET, the current study proposes a model of antecedents and outcomes of interpersonal distrust.

Antecedents of Interpersonal Distrust

Distrust Propensity Distrust propensity is a dispositional characteristic reflecting people's general tendency to distrust another party, which represents a characteristic of the distrustor. People with high distrust propensity are likely to adopt this general tendency of distrusting when facing a specific person. Though the influence of distrust propensity on distrust toward a specific person (i.e., interpersonal distrust) has not been studied, the influence of its counterpart, trust propensity, on interpersonal trust has been studied. Previous studies (e.g., Baer et al, 2018) demonstrated that trust propensity was a significant predictor of interpersonal trust, even after controlling for trustee's trustworthiness (Colquitt et al, 2007). Thus, we predict distrust propensity is likely to influence distrust toward a specific person.

Hypothesis 1: Distrust propensity positively relates with interpersonal distrust propensity positively relates with interpersonal distrust.

Building on SET, we propose that incapacity, social undermining, and unethical behaviors represent characteristics of the distrusted target and influence interpersonal distrust. SET views social behaviors as exchanges of resources. Social exchange follows reciprocity rules (Cropanzano & Mitchell, 2005). That is, when one person takes an initial action, another person tends to repay the good (sometimes bad) deeds (Cropanzano & Mitchell, 2005; Cropanzano et al, 2017). Exchanges of resources can be economic, socio-emotional, or a combination of these two (Foa & Foa, 1974). Favorable exchange relationships can evolve into interpersonal trust (Blau, 1964). Similarly, unfavorable exchange can turn into interpersonal distrust. Below, we discuss in detail how each of these distrustee characteristics relates to interpersonal distrust toward a specific person.

Incapacity When an individual perceives another person as incapable, this individual is likely to view the incapable person as obtaining less resource (e.g., knowledge or skills). Thus, the individual may expect to get limited economic resources from the incapable person in the process of social exchange, for example, get help from the incapable person when the individual encountered a difficult problem at work. This negative expectation of unfavorable exchange process may further result in negative emotions toward the incapable other and unwillingness for future exchange relationships. As such, we expect that when an individual perceives another person as incapable, they are more likely to distrust the person.

Hypothesis 2: Perceived incapacity positively relates with interpersonal distrust toward the incapable person.

Social Undermining Social undermining indicates behaviors intended to harm the target's favorable reputation and hinder the target's ability to obtain work-related success and positive interpersonal relations (Duffy et al, 2002). Social undermining has a variety of forms, ranging from actively saying derogatory things to passively withholding needed information. Social undermining targets a specific individual, not an organization. Compared to other forms of workplace mistreatment, social undermining inherently associates with intention to harm the target; and the target of social undermining is aware of those intentions (Duffy et al, 2002; Hershcovis, 2011). Social undermining is associated with high negative emotions (McCaskill & Lakey, 2000), counterproductive work behavior and somatic complaints, and low self-efficacy, and organizational commitment (Duffy et al, 2002).

Whereas incapacity is perceived as related to economic resources, social undermining indicates a lack of socio-emotional resources in exchange relationships. Socio-emotional resources fulfill one's social and esteem needs (Cropanzano & Mitchell, 2005). When an individual (i.e., victim) experiences social undermining from another person (i.e., perpetrator), the perpetrator may have derogatory comments for the victim, fail to defend the victim, or withhold needed information from the victim. These behaviors jeopardize

the victim's reputation, interpersonal relations, and make it more difficult for them to achieve career success. The victims cannot fulfill their social and esteem needs in this type of exchange process. Thus, perceived social undermining is likely to cause unfavorable exchange relations and people's unwillingness for future interaction.

Hypothesis 3: Social undermining positively relates with distrust toward the perpetrator of undermining.

Unethical Behavior Unethical behavior is defined as behaviors that are morally unacceptable to the large community (Jones, 1991). Unethical behavior includes not only violations of official or explicit standards, policies, and laws, but also violations of informal and implicit norms (Kaptein, 2008). Certain behaviors may be perceived as unethical in one organization or between two particular individuals but not in other organizations, such as disclosing job-relevant information to a third party. Though moral principles and norms vary a lot in different organizational cultures, there are sets of principles widely accepted across organizations and occupations. For example, sexual harassment is perceived as violating organizations' norms across different organizations.

Incapacity and social undermining both represent lack of preferred resources, economic or social-emotional, in social exchange. Unethical behavior, on the other hand, represents a high probability of deviance from exchange rules and norms. SET states that exchange relationships follow certain rules or norms held by both parties in an exchange relationship. Those rules or norms act as the guidelines of the exchange process (Cropanzano & Mitchell, 2005). Unethical behavior inherently indicates violation of explicit or implicit standards. When one person is perceived as unethical, others expect him to break rules for his own profits in the exchange process. These negative expectations lead others to be reluctant to engage in an exchange relationship with an unethical person. Thus, it is hypothesized that people are more likely to distrust another person who they perceive to be unethical.

Hypothesis 4: Unethical behavior positively relates with distrust toward the unethical person.

Additionally, we expect that capability, social undermining, and unethical behavior will relate to distrust independently and interactively. "There is nothing more destructive, dangerous, than a really good, efficient, hard-working, dedicated, effective man, going in the wrong direction. He will destroy you with incredible speed…" (Goldsmith, January 23, 2015) A capable and malicious person is perceived as more destructive and dangerous than an incapable and malicious one, because the more capable person can cause more and worse negative consequences. For instance, a capable and malicious coworker may understand what the critical tasks are for your job and intentionally share incorrect or misleading information about those critical tasks, whereas an incapable and malicious coworker may intentionally share incorrect information on trivial things. Therefore, we predict that capability moderates the relation between interpersonal distrust and social undermining in that social undermining is more strongly correlated with interpersonal distrust when the distrusted person's capability is high. Similarly, a capable and unethical person is more detrimental than someone who is unethical but incapable. Thus, we predict that unethical is more strongly correlated with interpersonal distrust when the distrusted person's capability is high.

Hypothesis 5: Capability moderates the relation between interpersonal distrust and (a) social undermining, (b) unethical behavior.

Outcomes of Interpersonal Distrust

SET identified the reciprocity rule as an important rule for the exchange relationship. Though reciprocity can take different forms (i.e., transactional pattern, folk belief, or moral norm; Cropanzano & Mitchell, 2005), the essence of the reciprocity rule emphasizes that the exchange is bidirectional. Lyons and Scott (2012) found that employees received help and harm from colleagues when they had engaged those behaviors toward colleagues, respectively. The authors concluded that the things being exchanged were identical in form and named this phenomenon *homeomorphic reciprocity*. That is, when one person in the exchange process supplies a benefit, the receiving person is very likely to respond in kind. When one person exhibits something negative, the receiving person is likely to respond spitefully.

Cropanzano and colleagues (2017) further extended the reciprocity rule of SET and put it on a two-dimensional space. The two dimensions are valence and activity. Valence represents whether an action is desirable or undesirable; activity represents whether someone is exhibiting or withholding certain behavior. For example, exhibiting OCB is active and desirable, whereas withholding OCB is inactive and undesirable; exhibiting CWB is active and undesirable, whereas withholding CWB is inactive and desirable. In social exchange, individuals often intend to match another person's action on both dimensions. Cropanzano and colleagues (2017) also pointed out that employees were constrained by situation and not able to match both activity and valence. For example, when an employee experiences abusive supervision (i.e., active and undesirable), they may not be able to engage in deviant behavior toward the supervisor. In situations like this, the employee may withhold OCB

toward the supervisor (i.e., inactive and undesirable). Withholding OCB does not match abusive supervision in activity, but matches in valence.

Counterproductive Work Behavior Counterproductive work behavior (CWB) refers to voluntary behaviors that violate organization norms and harm or intent to harm other employees in organization or the organization itself (Bennett & Robinson, 2000; Spector et al., 2006). Examples of CWB include theft, sabotage, incivility, bullying, and abusive supervision. Researchers had different opinions about the dimensionality of CWB, such as Bennett and Robinson's (2000) two-dimension model and Spector and colleague's (2006) five-dimension model. Most researchers agree that based on its target CWB can be categorized into CWB toward individuals (CWBI; e.g., abuse) and CWB toward an organization (CWBO; e.g., absenteeism).

When a person distrusts another person, they expect a high probability of harmful, hostile, or other negative consequences in the social exchange process, regardless of whether interpersonal distrust was caused by the other person's incapacity, social undermining, unethical behavior, or other characteristics. Because this person is expecting something undesirable, they are likely to engage in undesirable behaviors toward the distrusted person according to homeomorphic reciprocity. Previous studies demonstrated that when employees experienced undesirable things at work (e.g., low informational and interpersonal justice), they were more likely to engage in CWB (e.g., El Akremi et al, 2010). Thus, when a person distrusts another person, the distruster is more likely to engage in counterproductive work behavior toward the distrusted person.

Hypothesis 6: Interpersonal distrust in the workplace positively relates with CWBI toward the distrustee.

Organizational Citizenship Behavior Organizational citizenship behavior (OCB) refers to employee behaviors that are not critical to the job or not officially recognized or rewarded, but facilitates other people or organizational functioning (e.g., Lee & Allen, 2002; Organ & Ryan, 1995; Smith et al., 1983). Researchers classified OCB into two categories based on its targets—OCB directed to individuals (OCBI) and OCB directed to organization (OCBO; Lee & Allen, 2002; McNeely & Meglino, 1994). An example of OCBI is helping behavior, and an example of OCBO is attending functions that are not required.

Previous research demonstrated that people engage in reciprocal exchange relationships in the workplace. For example, when perceiving high leader-member exchange (LMX), employees tend to show high OCB toward leader, better job performance, and favor-doing for the leader (Wayne et al, 1997). Perceived organizational support (POS) predicted organizational commitment and turnover intention, but not job performance (Settoon et al, 1996). These results indicated that social exchange has a clearly defined focus and employees use OCB toward another individual (i.e., OCBI) as a method to return benefit in interpersonal exchange. When an employee distrusts another person, they expect negative consequences in future exchange processes and intends to avoid those negative consequences. Thus, they are likely to withhold positive behaviors (e.g., OCBI) toward the distrusted person.

Hypothesis 7: Interpersonal distrust in the workplace negatively relates with OCBI toward distrustee.

Risk-taking in a Relationship Risk-taking represents the decision-maker's perceived probabilities of different options in a situation (Lopes, 1987; Weber & Johnson, 2009). Interpersonal trust itself does not involve any risk-taking; risk-taking is one of the consequences of interpersonal trust (Mayer et al., 1995). People are more willing to take risks when they have relatively high certainty about positive consequences. A meta-analysis (Colquitt et al, 2007) demonstrated that trust modestly correlated with risk-taking ($r = 0.25$) after accounting for trust propensity and trustworthiness.

Interpersonal trust represents certainty of positive consequences, whereas interpersonal distrust involves certainty of negative consequences. According to SET, the expected negative consequences are results of previous unfavorable exchange processes. These previous unfavorable exchanges may make a person resistant to being vulnerable to the distrusted person in future exchange processes. Thus, when a person distrusts another person, the distruster is less likely to engage in risk-taking behavior with this particular person.

Hypothesis 8: Interpersonal distrust in the workplace negatively correlates with risk-taking behavior in interactions with distrustee.

According to Lewicki and colleagues' (1998) two-factor framework, individuals within each of the four conditions have their own characteristics. Specifically, individuals sharing low interpersonal trust and low interpersonal distrust tend to have limited interdependence. People in high interpersonal trust and low interpersonal distrust condition likely share high interdependence and value congruence. People sharing high interpersonal trust and high interpersonal

distrust tend to have high confidence in some aspects and high suspicious in other aspects. As a result, they share information and rely on each other, but monitor the interaction and protect themselves in the relation. Lastly, low interpersonal trust and high interpersonal distrust condition is probably the least comfortable condition, where people tend to be cautious, guarded, and constantly question the other person's intentions. Additionally, interpersonal distrust views negative consequences as likely to happen, whereas interpersonal trust views positive consequences likely to happen. Thus, it is expected that the relations with interpersonal trust and its outcomes are different, given different levels of interpersonal distrust. In other words, interpersonal distrust moderates the relations between interpersonal trust and its outcomes.

Hypothesis 9: Interpersonal distrust moderates the relations between interpersonal trust and (a) CWBI, (b) OCBI, and (c) risk-taking behavior.

Another goal of this section is to investigate whether interpersonal distrust and trust are distinct constructs by examining the directions and magnitudes of relationship between interpersonal distrust/trust and other relevant constructs, following the methods to distinguish positive affect from negative affect (e.g., Costa & McCrae, 1980). First, because interpersonal distrust and trust function independently, we expect they explain unique variance in the outcomes. We predict that interpersonal distrust explains unique variance in the three outcome variables above and beyond interpersonal trust.

Hypothesis 10: After controlling for interpersonal trust, interpersonal distrust explains significant amounts of variance in (a) CWBI, (b) OCBI, and (C) risk-taking behavior.

Emotions associated with interpersonal distrust can be intense and frenzied, whereas those associated with interpersonal trust tend to be calm and collected (McKnight & Chervany, 2001). Thus, interpersonal distrust tends to be more salient when both interpersonal trust and distrust exist. We predict that interpersonal distrust has a stronger influence on risk-taking behavior.

Hypothesis 11: Interpersonal distrust has a stronger relation with risk-taking than the relation between trust and risk-taking.

In addition to emotions associated with interpersonal trust and distrust, interpersonal trust and distrust also have cognitive components. Interpersonal trust includes positive evaluation processes, whereas interpersonal distrust includes negative evaluative processes (Lumineau, 2015). Kaplan (1972) found that the number of positive beliefs moderately correlated with liking but only weakly correlated with disliking; similarly, the number of negative beliefs moderately correlated with disliking but only weakly correlated with liking. Positive evaluative processes more strongly correlate with positive outcomes, whereas negative evaluative processes more strongly correlate with negative outcomes. Thus, interpersonal trust is more strongly related to positive consequences (i.e., OCBI) compared to interpersonal distrust, whereas interpersonal distrust is more strongly related to negative antecedents (i.e., incapacity, social undermining, and unethical behavior) and consequences (i.e., CWBI) compared to interpersonal trust. Additionally, we predict that interpersonal distrust has a stronger relation with people's tendency to distrust (i.e., distrust propensity) compared to interpersonal trust.

Hypothesis 12: Interpersonal trust has a stronger relation with OCBI than the relation between distrust and OCBI.

Hypothesis 13: Interpersonal distrust has stronger relations with the negative constructs, such as (a) social undermining, (b) unethical behavior, (c) distrust propensity, and (d) CWBI, than the relations between trust and the other constructs.

In sum, the current study summarizes previous studies about distrust and refines the definition of interpersonal distrust. Based on SET, we identify antecedents and consequences of interpersonal distrust and empirically examine the relations between interpersonal distrust and other constructs. Moreover, the current study distinguishes distrust from trust by showing that they have different relation patterns with relevant constructs. To achieve these goals, we first develop a scale of interpersonal distrust.

Methods

Participants and Procedure

Sample 3 Sample 3 data collection was supported by the National Institute for Occupational Safety and Health (Grant number removed for blind review). Participants were recruited through the Board of Nursing's mailing list in a Midwestern state. Emails with a brief study description and a survey link were sent to registered healthcare workers on the mailing list. Participants were instructed to think about someone they have frequent interaction at work when responding to the survey (e.g., supervisor, coworker, subordinate, or client). They answered questions about the

consequences (i.e., CWBI and OCBI), interpersonal distrust, and then the antecedents (i.e., social undermining, unethical behavior, and distrust propensity).[2] The order of surveys was randomized within each section. Five hundred and twenty-seven people responded to the survey. Thirty-eight respondents were deleted because they had more than 50% of missing data. A majority of the participants were female (85.1%) and Caucasian (76.7%), 8% African American, 2.2% Asian, and 1.4% Hispanic. The average age was 48 years old ($SD = 11.31$), and the average tenure with the current organization was 9.20 ($SD = 8.89$). The participants reported working 40.15 h on average per week ($SD = 11.48$).

Sample 4 Sample 4 was a three-wave data collection with participants recruited through MTurk. Similar to samples 1 and 2, only US participants with a 95% approval rating were allowed to participate, and Mturk workers who had participated in "Study 1: Scale Development" and "Study 2: Psychometric Properties of the Interpersonal Distrust Scale" were restricted from participating in "Study 3: Nomological Network and Criterion-Related Validity." In wave 1 data collection, participants answered six questions about their working status and demographic information, four of which were screening questions. Then participants were asked to provide the name(s) of people they interact with on a weekly basis at work ("Please write down your coworkers' name with who you have weekly interact. Please note your answer is completely CONFIDENTIAL."), answered questions about incapacity, social undermining, and unethical behavior of the people participants entered. The order of these three scales was randomized. Participants also answered questions about their distrust and trust toward the specific person, which allowed us to estimate discriminant validity using the disattenuation formula (Schmidt et al, 2003; Shaffer et al, 2016). Participants then answered questions about their own distrust propensity and reported demographic information. One thousand one hundred and fifty participants responded to wave 1 survey, and they were notified that there would be two follow-up studies after 2 and 4 weeks. Two weeks later, an invitation email was sent to the wave 1 participants with a link to wave 2 study and a reminder of the name(s) they entered in wave 1 survey with whom they had weekly interaction. Participants ($N = 573$) answered questions about their distrust and trust toward the specific people and reported demographic information. Two weeks after wave 2 data collection, an invitation email of wave 3 survey was sent out to each of the wave 2 survey participants. In wave 3 data collection, participants ($N = 415$) answered questions about their CWBI, OCBI, and risk-taking behaviors toward the specific target. The order of the scales within waves 2 and 3 was randomized. A figure showing the variables measured at different waves in sample 4 was reported in supplemental material 4.[3]

Four attention check questions were embedded in each wave (12 in total); only respondents who correctly answered at least 11 attention check questions were included in data analysis ($N = 385$). To ensure data quality, we also examined the consistency of demographic information reported across the three waves. Another 15 respondents were excluded ($N = 370$). Half of the sample was female (50.9%); the mean age was 38 years ($SD = 11.37$). A majority of the sample was Caucasian (75.1%), 10.0% Asian, 7.6% African American, and 7.0% Hispanic. A majority of the sample (63.51%) had a Bachelor's degree or higher. The average tenure with the current organization was 6.40 years ($SD = 5.96$).

As an anonymous reviewer pointed out that attrition was large for the longitudinal sample (sample 4), we examined whether the participants who dropped out systematically differ from those who finished all three waves' data collection. We create a categorical variable to distinguish participants who only completed 1 wave, 2 waves, or all 3 waves' data collection. One-way ANOVA results indicated that participants who completed all 3 waves are significantly older than the participants who completed 1 or 2 waves' data collection ($F(2) = 3.94$, $p = 0.02$), and there are significantly more females in the participants who completed all three waves, compared to those who completed 1 or 2 waves' data collection ($F(2) = 8.51$, $p < 0.001$). The participants did not significantly differ in education levels ($F(2) = 0.79$, $p = 0.45$).

Measures

Interpersonal distrust (alpha = 0.96, 0.96, 0.94 for affect, cognition, and behavior intention scales), interpersonal trust (0.94 and 0.86 for affect and cognition subscales), and distrust propensity (alpha = 0.88) scales were the same as "Study 2: Psychometric Properties of the Interpersonal Distrust Scale." Unless otherwise stated, the measures used in the two samples were the same. Means, standard deviations, correlations, and internal consistency reliabilities of samples 3 and 4 are reported in Tables 5 and 6, respectively.

[2] Please note for the healthcare participants, risk-taking and incapacity were not measured because it was unlikely that healthcare workers could engage in risk-taking behavior toward distrust others, given their work nature, and it was also difficult for them to evaluate the incapacity if their distrusted others were clients.

[3] Supplemental material 4 also includes a table summarizing the hypotheses, samples, and findings examined in "Study 3: Nomological Network and Criterion-Related Validity" (Table 3), a table summarizing samples used in the current study (table 4), and all the scales and instructions used in the current study.

Table 5 Means, standard deviations, correlations, and internal consistencies of the healthcare sample (Study 3, sample 3)

	Mean	*S.D*	1	2	3	4	5	6
1. Social undermining	2.37	1.16	.92					
2. Unethical behavior	2.17	1.05	.16**	-				
3. Distrust Propensity	2.38	.89	.42**	.04	.86			
4. Distrust	5.41	1.11	.44**	.35**	.30**	.94		
5. Abuse	1.35	.35	.21**	−.04	.21**	.12**	.62	
6. OCB	3.60	1.48	.06	−.17**	−.11*	−.13**	−.10*	.89

The values on the diagonal are Cronbach alpha of the correspondent scale

$N = 455$

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

Incapacity Incapacity was measured using reverse-coded Mayer and Davis' (1999) five-item Likert scale of ability. An example item is "[The distrustee] has much knowledge about the work that needs done."

Social Undermining Social undermining was measured by adapting Duffy et al.'s (2002) scale. The three items with highest factor loadings in supervisor undermining and coworker undermining subscales were used in the current study. The response options range from 1 (never) to 6 (everyday). An example item is "Hurt your feelings."

Unethical Behavior In sample 3, unethical behavior was measured using one item "For the person (people) you interact at work, how ethical do you think he/she (they) are?" Participants answered on a five-point Likert scale (1 = *Very unethical*; 5 = *Very ethical*). Unethical behavior in sample 4 was measured by adapting the unethical behavior subscale toward employees (Kaptein, 2008). This is a five-item Likert scale (1 = *Never*, 5 = *(Almost) always*). An example item is "Discriminating against employees (on the basis of age, race, gender, religious belief, sexual orientation, etc.)."

CWBI CWBI in sample 3 was measured using five items from CWB checklist abuse subscale (Spector et al, 2006). Participants responded on a five-point Likert scale (1 = *Never*; 5 = *Every day*). CWBI in sample 4 was measured by Bennett and Robinson's (2000) interpersonal deviance scale. Participants respond on a seven-point Likert scale (1 = *Never*; 7 = *Daily*). An example item is "Made fun of someone at work."

OCBI OCBI was measured by adapting Lee and Allen's (2002) OCBI subscale. This scale includes five items and response options range from one "*Never*" to seven "*Always*." An example item is "Willingly give your time to help others who have work-related problems."

Risk-taking Behavior Risk-taking behavior was measured by developing three items based on Colquitt et al.'s (2007) study. Participants answered on a seven-point Likert scale (1 = *Never*; 7 = *Daily*). An example item is "Share sensitive information openly with the person."

Confirmatory Factor Analyses Confirmatory factor analyses were conducted to confirm the measures are distinct from each other. The interpersonal distrust items loaded on their correspondent dimension, then loaded on a general latent factor representing interpersonal distrust. We examined the models in which items loaded on their own latent constructs (nine-factor model for sample 3 and eleven-factor model for sample 4) and compared them to several alternative models, for example, all items loaded on one factor, items from each wave loaded on one factor. Results are reported in Tables 7 and 8. The hypothesized model with items loaded on their own correspondent latent factor demonstrated good fit and fit the data significantly better than the alternative models. This provides further support that interpersonal distrust is not a redundant construct of interpersonal trust or the antecedents/outcomes examined in the current study.

Hypothesis Testing For the healthcare workers sample, we tested Hypotheses 1, 3, 4, 7, and 8 with bivariate correlation (Table 5). Distrust propensity ($r = 0.30$, $p < 0.001$), social undermining ($r = 0.44$, $p < 0.001$), and unethical behavior ($r = 0.35$, $p < 0.001$), all positively related with interpersonal distrust, supporting Hypotheses 1, 3, and 4. Interpersonal distrust correlated positively with CWBI ($r = 0.12$, $p = 0.009$) and negatively with OCBI ($r = -0.13$, $p = 0.006$), supporting Hypotheses 7 and 8.

For the MTurk longitudinal sample, we tested Hypotheses 1, 2, 3, 4, 6, 7, and 8 with bivariate correlation (Table 6). All four antecedents measured at wave 1, distrust propensity ($r = 0.38$, $p < 0.001$), incapacity ($r = 0.47$, $p < 0.001$), social undermining ($r = 0.64$, $p < 0.001$), unethical behavior ($r = 0.66$, $p < 0.001$), significantly related with wave 2 interpersonal distrust, supporting Hypotheses 1–4. Wave 2 interpersonal distrust significantly correlated with CWBI ($r = 0.51$, $p < 0.001$) and OCBI ($r = -0.19$, $p < 0.001$) at

Table 6 Means, standard deviations, correlations, and internal consistencies of MTurk longitudinal sample (Study 3, sample 4)

	M	*S.D*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Distrust T1	2.50	1.55	.97												
2. Trust T1	5.34	1.36	−.61**	.95											
3. Incapacity T1	5.84	1.21	.53**	−.80**	.96										
4. Social undermining T1	1.52	1.00	.75**	−.31**	.29**	.95									
5. Unethical behavior T1	1.44	.88	.75**	−.34**	.34**	.88**	.93								
6. Distrust Propensity T1	2.72	1.00	.46**	−.15**	.12*	.46**	.44**	.88							
7. Trust T2	5.14	1.27	−.47**	.75**	−.62**	−.16**	−.20**	−.07	.92						
8. Distrust T2	2.67	1.62	.82**	−.56**	.47**	.64**	.66**	.38**	−.62**	.98					
9. CWBI T3	1.67	1.32	.55**	−.15**	.23**	.76**	.75**	.38**	−.06	.51**	.96				
10. OCBI T3	5.20	1.28	−.20**	.43**	−.31**	−.03	−.04	−.03	.45**	−.19**	.00	.83			
11. Risk-taking T3	4.24	1.73	−.11*	.33**	−.22**	.12*	.10*	−.02	.36**	−.09	.24**	.50**	.77		
12. Sex	1.47	0.50	−.04	−.07	.08	−.04	−.06	−.04	−.16**	−.02	−.01	−.13**	−.03	-	
13. Age	37.73	11.35	−.08	.12*	−.19**	−.10*	−.10	−.02	.14**	−.11*	−.22**	.05	−.13**	−.12*	-
14. Education	7.56	1.28	.09	.00	−.01	.11*	.11*	−.02	−.01	.12*	.12*	.03	.15**	.01	−.02

The values on the diagonal are Cronbach alpha of the correspondent scale

Sex 1 = female 2 = male

$N = 370$

*$p < .05$; **$p < .01$

Table 7 Confirmatory factor analyses for healthcare sample (Study 3, sample 3)

Factors#	Model description	χ^2 (*df*)	*RMSEA* (90% *CI*)	*CFI*	*SRMR*	$\Delta\chi^2$ (*df*)[a]
9	All items loaded on their own latent factor	1172.56 (612)	.044 (.040, .047)	.95	.061	
1	All items loaded on one latent factor	6711.73 (629)	.141 (.138, .145)	.45	.139	5539.17 (17)**
7	Items for antecedents loaded on one latent factor; other items loaded on their own correspondent latent factor	1863.62 (620)	.064 (.061, .068)	.89	.084	691.06 (8)**
6	All distrust items loaded on one latent factor; other items loaded on their own correspondent latent factor	2883.43 (615)	.087 (.084, .091)	.79	.074	1710.87 (3)**
8	Items for consequences loaded on one latent factor; other items loaded on their own correspondent latent factor	1481.01 (617)	.054 (.050, .057)	.92	.075	308 (5)**

[a]Difference assessed versus the nine-factor model

Table 8 Confirmatory factor analyses for MTurk longitudinal sample (Study 3, sample 4)

Factors#	Model description	χ^2 (*df*)	*RMSEA* (90% *CI*)	*CFI*	*SRMR*	$\Delta\chi^2$ (*df*)[a]
11	All items loaded on their own latent factor	2632.82 (1193)	.057 (.054, .060)	.93	.048	
1	All items loaded on one latent factor	11,786.33 (1224)	.153 (.150, 155)	.48	.145	9153.51 (31)**
3	One latent factor for each wave	7623.68 (1221)	.119 (.116, .122)	.69	.134	4990.86 (28)**
8	Wave 1 items loaded on one latent factor; other items loaded on their own correspondent latent factor	5832.79 (1211)	.102 (.099, .104)	.77	.110	3199.97 (18)**
8	Wave 2 items loaded on one latent factor; other items loaded on their own correspondent latent factor	3190.96 (1196)	.067 (.064, .070)	.90	.049	558.14 (3)**
9	Wave 3 items loaded on one latent factor; other items loaded on their own correspondent latent factor	3894.17 (1206)	.078 (.075, .080)	.87	.097	1261.35 (13)**

[a]Difference assessed versus the eleven-factor model

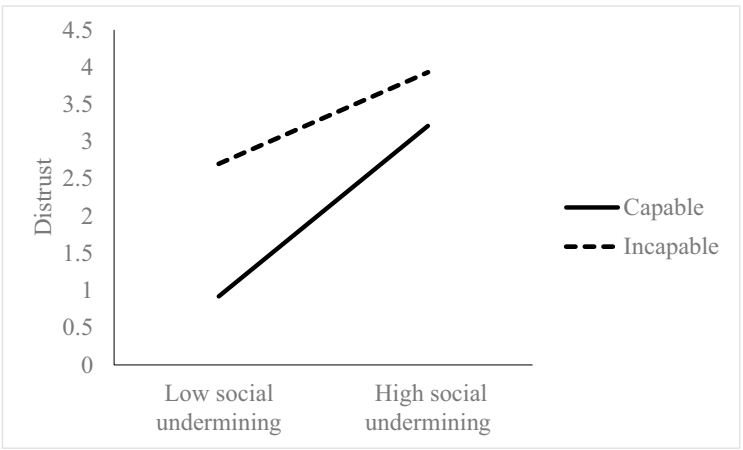
wave 3, supporting Hypotheses 6 and 7. Interpersonal distrust did not demonstrate a significant relation with risk-taking behavior ($\beta = -0.09$, $p = 0.055$). Hypothesis 8 was not supported.

Hypotheses 5a and 5b were examined using two hierarchical regression models. The four antecedents of interpersonal distrust were entered into regression model in Step1 (i.e., distrust propensity, incapacity, social undermining, and unethical behavior) and the interaction term (i.e., interaction of incapacity and social undermining, interaction of incapacity and unethical behavior) was entered in step 2. Incapability moderated the relationship between social undermining and interpersonal distrust ($\beta = 0.65$, $p < 0.001$); the interaction between incapability and unethical behavior was not significant ($\beta = 0.43$, $p = 0.01$). Social undermining and unethical behavior demonstrated stronger positive relations with interpersonal distrust when the distrusted person has high capacity, compared to when the distrusted person has low capacity. Hypotheses 5a and 5b were supported. Figure 1 shows the interaction between incapability and two other antecedents (i.e., social undermining and unethical behavior) on interpersonal distrust.

We tested Hypotheses 9a, 9b, and 9c with three separate hierarchical regression models, where wave 2 interpersonal trust and distrust was entered to the regression model in step 1, and interaction was the predictor in step 2 for three different outcomes measured at wave 3 (i.e., CWBI, OCBI, and risk-taking behavior). Table 9 shows the results of the hierarchical three regression models. Interpersonal distrust at wave 2 moderated the relationship between wave 2 trust and wave 3 CWBI ($\beta = 0.80$, $p < 0.001$, $\Delta R^2 = 0.07$) and the relationship between wave 2 interpersonal trust and wave 3 OCBI ($\beta = -0.28$, $p = 0.04$, $\Delta R^2 = 0.01$). Hypotheses 9a and 9b were supported. The interaction of interpersonal distrust and interpersonal trust did not significantly correlate with wave 3 risk-taking behavior. Hypothesis 9c was not supported. Figures 2 and 3 show the interaction between distrust and trust on CWBI and OCBI.

Differentiate Interpersonal Distrust from Trust

Incremental Validity of Interpersonal Distrust Hypotheses 10a, b, and c proposed that interpersonal distrust would explain incremental variance above and beyond interpersonal trust. To test Hypothesis 10, we performed three separate hierarchical regression models (Table 10), where wave 2 interpersonal trust was entered to the regression model in step 1, wave 2 interpersonal distrust was entered to the regression model in step 2 for three different outcomes measured at wave 3 (i.e., CWBI, OCBI, and risk-taking



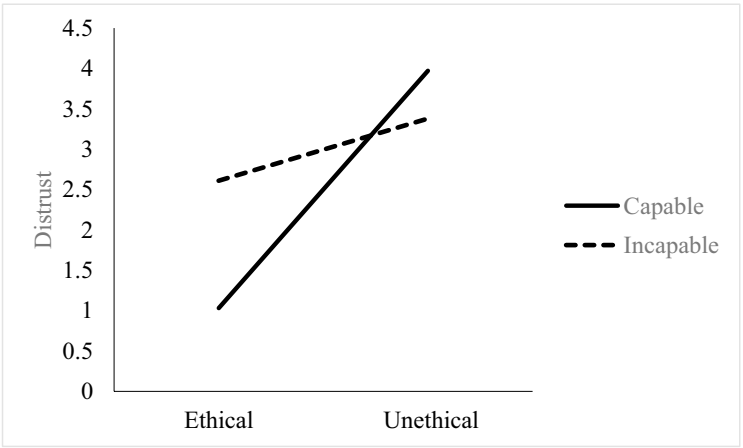


Fig. 1 The interaction of incapability and social undermining predicting interpersonal distrust (Study 3, sample 4). The interaction of incapability and unethical behavior predicting interpersonal distrust (Study 3, sample 4)

behavior). Interpersonal distrust explained significant incremental variance in two outcomes above and beyond interpersonal trust ($\Delta R^2 = 0.31$ and 0.01, respectively for CWBI and OCBI), supporting Hypotheses 10a and b. The significant regression coefficient of interpersonal distrust on risk-taking behavior may be a suppression effect ($\Delta R^2 = 0.03$), because the direction of regression coefficient ($\beta = 0.22$, $p = 0.001$) is inconsistent with bivariate correlation ($r = -0.09$, $p = 0.06$). Hypothesis 10c was not supported.

Table 9 Hierarchical multiple regression results of distrust and trust interaction for MTurk sample

	CWBI		OCBI		Risk-taking behavior	
Predictor	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Distrust	.60***	−.25	.13*	.48**	.22**	.38*
Trust	.38***	−.18	.55***	.74***	.49***	.58***
Distrust × trust		.80***		−.28*		−.13
ΔR^2 for Step		.07***		.01*		.00
Model F	86.70***	78.48***	52.89***	47.07***	32.06***	21.65***
Model Adjusted R^2	.32	.39	.22	.23	.14	.14

The table shows the standard estimates of regression coefficients

$N = 370$

***$p < .001$, **$p < .01$, *$p < .05$

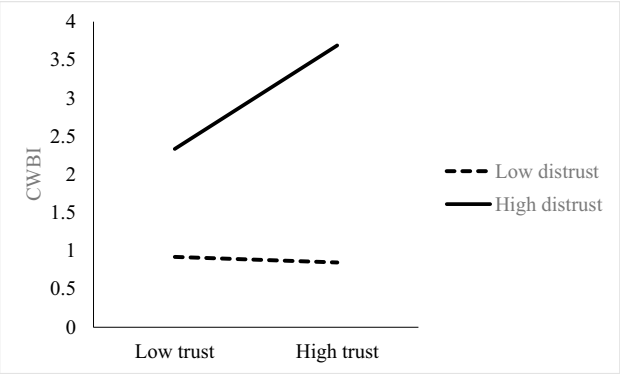


Fig. 2 The interaction of distrust and trust predicting CWBI (Study 3, sample 4)

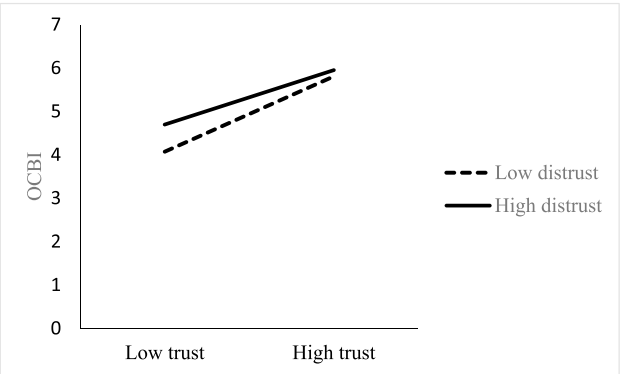


Fig. 3 The interaction of distrust and trust predicting OCBI (Study 3, sample 4)

Disattenuation Formula We used the disattenuation formula to estimate construct-level correlation between interpersonal distrust and trust (Schmidt et al, 2003; Shaffer et al, 2016). The disattenuation formula corrects for random factor error, specific factor error, and transient error. Details about the disattenuation formula can be found in supplemental material 5. The corrected correlation between interpersonal distrust and trust is − 0.62. Though there are no definitive criteria about how strong the correlation is for two constructs to be considered as identical (Shaffer et al, 2016), researchers generally consider a correlation of 0.90 as an indicator of redundant constructs (e.g., Le et al, 2010), which is higher than the relation between interpersonal distrust and trust.

Differential Correlation Steiger's (1980) test for comparing correlations was conducted to test Hypotheses 11 through 13. We compared the relation strengths between interpersonal distrust/trust and other constructs using Hoerger's (2013) web-based calculator. Consistent with Hypothesis 12, interpersonal trust demonstrated stronger relation with the positive construct, OCBI, than distrust ($Z = 6.14$, $p < 0.001$). Interpersonal distrust demonstrated stronger relations with the negative constructs, social undermining ($Z = 12.10$, $p < 0.001$), unethical behavior ($Z = 11.82$, $p < 0.001$), distrust propensity ($Z = 7.09$, $p < 0.001$), and CWBI ($Z = 10.63$, $p < 0.001$) than interpersonal trust, supporting Hypotheses 13 (a)–(d). However, it is worth noting that in contrast to Hypothesis 11, interpersonal trust demonstrated stronger relations with risk-taking behavior than interpersonal distrust ($Z = 6.16$, $p < 0.001$). In sum, interpersonal distrust and trust demonstrated significantly different relation patterns with all antecedents and consequences. The results of "Study 2: Psychometric Properties of the Interpersonal Distrust Scale" and "Study 3: Nomological Network and Criterion-Related Validity" together support that interpersonal distrust and trust are not opposite ends of the same continuum, but distinct constructs.

General Discussion

Interpersonal trust has drawn a lot of research attention. In contrast, the counterpart of interpersonal trust, interpersonal distrust, has been largely ignored in the literature. This may be caused by the fact that interpersonal distrust was perceived as a lack of trust in previous research. As a result, there was a lack of interpersonal distrust measure with good psychometric properties. Recently, researchers started to

Table 10 Hierarchical multiple regression results between distrust and outcomes for MTurk longitudinal sample (Study 3, sample 4)

	CWBI		OCBI		Risk-taking behavior	
Predictor	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Trust	−.10	.38***	.46***	.55***	.35***	.49***
Distrust		.73***		.13*		.22**
ΔR^2 for Step		.31***		.01*		.03**
Model F	3.77	86.70***	99.81***	52.89***	50.64***	32.06***
Model adjusted R^2	.01	.32	.21	.22	.12	.14

The table shows the standard estimates of regression coefficients

$N = 370$

***$p < .001$, **$p < .01$, *$p < .05$

view interpersonal distrust and trust as distinct constructs (e.g., Lewicki et al, 1998; Lumineau, 2015). Moreover, interpersonal distrust is as important for social relations in organizations because it prevents blind reliance (Kramer, 1994; Luhmann, 1979). The current study takes an initial effort in distrust research by developing and validating an interpersonal distrust scale with methodological rigor, investigating the nomological network of interpersonal distrust at the workplace, and empirically distinguishing interpersonal distrust from trust. We organize the "General Discussion" section by answering the three questions our studies focus on.

Theoretical Implications

What Is Interpersonal Distrust? To facilitate understanding of interpersonal distrust at work, the current study summarizes previous literature about interpersonal distrust (e.g., Lewicki et al, 2006). Based on previous research, we define interpersonal distrust as *an expectation of harmful, hostile, or other negative things in the interactions with another person, and is accompanied by negative affect and intention to take protective actions based on these expectations*. Interpersonal distrust includes three dimensions—affect, cognition, and behavior intention. CFA results consistently support the three-dimension structure of interpersonal distrust across different samples.

Following the guidance of scale development (e.g., Clark & Watson, 1995; Hinkin, 1995, 1998), we then conduct multiple studies, both qualitative and quantitative, both inductive and deductive, to develop and validate an interpersonal distrust scale with methodological rigor and adequately capturing the three dimensions. The new scale demonstrates good psychometric properties using both classical test and item response theories, such as internal consistency, item discrimination, convergent validity, and discriminant validity. The current study also shows that this scale can be used to examine distrust toward people inside (i.e., supervisor, coworker, and subordinate) and outside (i.e., client and customer) the organization and is invariant across sex groups. Researchers interested in interpersonal distrust can use this scale to further investigate the different roles interpersonal distrust and trust play in organization relations.

What Are the Antecedents and Consequences of Interpersonal Distrust? Based on SET and Mayer and colleagues' (1995) model, the current study develops a nomological model for interpersonal distrust, identifies, and empirically investigates the potential antecedents (e.g., incapacity, social undermining, unethical behavior, and distrust propensity) and consequences (e.g., CWBI, OCBI, and risk-taking behavior) of interpersonal distrust. Consistent with the hypotheses, the distrustee's incapacity, social undermining, unethical behavior, and distrust propensity are positively associated with interpersonal distrust. Interpersonal distrust is also correlated positively with CWB and negatively with OCB toward the distrustees. Another interesting finding is that incapacity moderates the relation between social undermining and interpersonal distrust and the relation between unethical behavior and interpersonal distrust. Though a malicious or unethical person is always perceived as negative in exchange relationships, the other person's capability determines how detrimental the relation may get. Our study is an initial step to theoretically identify and empirically examine the nomological network of interpersonal distrust and likely inform future investigation to extend this network.

Are Interpersonal Distrust and Trust Two Ends of the Same Continuum or Distinct Constructs? Though there have been articles (e.g., Lewicki et al, 2006) theoretically distinguishing interpersonal trust from interpersonal distrust, the current study is the first to provide empirical evidence that these two are descriptively bipolar but functionally independent constructs. A majority of qualitative sample respondents reported that they experienced trusting and distrusting the same person at the same time, which provided qualitative evidence that these two are distinct constructs. Our results also provided quantitative evidence for discriminant validity of interpersonal distrust and trust scales using three different methods, including comparing nested CFA models, conducting the Fornell-Larcker test, and estimating the construct correlation after correcting for random and specific factor error and transient error ("Study 2: Psychometric Properties of the Interpersonal Distrust Scale" and "Study 3: Nomological Network and Criterion-Related Validity"). Additionally, this study showed that interpersonal trust and distrust had different correlation patterns with relevant constructs ("Study 3: Nomological Network and Criterion-Related Validity)." Moreover, our study demonstrated that interpersonal distrust explained incremental variance in the three outcomes above interpersonal trust. The qualitative and various quantitative evidence demonstrate that interpersonal distrust and trust are independent constructs. Therefore, the opposite of high interpersonal trust should be low interpersonal trust, not high distrust; the opposite of high interpersonal distrust should be low interpersonal distrust, not high trust (Lewicki et al, 2006). This result indicates that the research findings of interpersonal trust cannot be generalized to interpersonal distrust, for example, an intervention that can successfully increase interpersonal trust in a leader may not necessarily decrease interpersonal distrust.

Practical Implications

By showing that interpersonal distrust and trust are distinct constructs and have different relations with organization outcomes, our study also has practical implications for organizations. First, interpersonal distrust explains unique variance in CWBI and OCBI after controlling for interpersonal trust. Thus, organizations may want to focus on interpersonal distrust in addition to trust if organizations want to decrease CWBI and increase OCB at the workplace. More importantly, if an organization's major focus is to reduce workplace CWBI and they have a limited budget or time, focusing on decreasing interpersonal distrust may be more efficient than increasing interpersonal trust because the relation is stronger between interpersonal distrust and CWBI than that between interpersonal trust and CWBI. Furthermore, our study indicates interpersonal distrust and trust function differently, thus interventions that can improve trust may not decrease distrust. To reduce interpersonal distrust, the distrusted person can demonstrate they have limited malicious intention or unethical behavior, but they need to be cautious in demonstrating high capability. Without showing that the distrusted person has low malicious intention or unethical behavior, demonstrating high capability may actually foster interpersonal distrust.

Limitations and Future Directions

Our study has some limitations that need to be addressed in future research. First, SET implies causal effect of the antecedents on interpersonal distrust and of interpersonal distrust on the consequences. However, although we analyzed longitudinal data, it is possible that alternative explanations exist. Lab studies manipulating a target's incapacity, social undermining, and unethical behavior can address this and help making causal inferences.

Additionally, all variables in the current study were self-reported. Common method variance (CMV) is a concern in self-report data. However, previous studies showed that the pervasiveness of CMV has been overstated (e.g., Spector, 2006). Spector (2006) pointed out that if self-report is a method that introduces shared variances into the measurement of variables, there should be a baseline level of correlation among all variables. However, in the current study, some variables were correlated at or close to 0.00 (e.g., unethical behavior and distrust propensity in sample 3; CWBI and OCBI in sample 4), which indicated the strength of CMV might be inconsequential. Moreover, many variables in the current study are subjective perceptions of a trustor (e.g., perceived distrustworthiness of a target). It may not be appropriate to use other report for these variables. Future studies can use other-report for the outcome variables (e.g., risk-taking behavior, OCBI, and CWBI) and investigate whether the relations demonstrated in the current study are different when other-report is used. An anonymous reviewer also pointed out that the correlation of cognition and behavior intention latent factors was 0.87, which raises concern about the discriminant validity of these two dimensions. To address this concern, we compared two nested CFA models using three samples (samples 2, 3, and 4): (1) a three-factor model with the items loaded on their own correspondent latent factors, and (2) a two-factor model with the cognitive and behavior intention items loaded on one latent factor and affective items loaded on one latent factor. The results showed that the three-factor model demonstrated significantly better fit across three samples (see supplemental material 8). Future research can further explore the discriminant validity of the three distrust dimensions by investigating their unique predictors and outcomes.

Another limitation of the current study is that we did not measure the stage of the relationship between our participant and their referent (i.e., the person they distrust). When a relationship is first forming, there may be more fluctuations in interpersonal distrust and trust, that is, more within-person variance. When a relationship is established, there may be less within person variance in interpersonal distrust. For example, if a colleague you have known for 5 days gave you a silent treatment (an example of social undermining), your distrust toward this colleague may increase. In contrast, if a colleague you have known for 5 years gave you the silent treatment, your distrust toward this colleague may not change (you either hated or liked them so that one incident would not make a huge difference). Thus, future research should replicate our finding at different stages of a relationship, especially at the beginning stage of a relationship, or collect data with longer time intervals. Moreover, an anonymous reviewer pointed out that it is important to examine interpersonal distrust at dyadic level, because interpersonal distrust unfolds among dyads who are nested in groups. Also, a burgeoning body of research (e.g., Korsgaard et al, 2015) shows that not only mean levels of trust but also dispersion in trust correlate with dyadic and team outcomes, such as, helping behavior (De Jong et al., 2007), team monitoring, and team performance (De Jong & Dirks, 2012). It is possible that different forms of interpersonal distrust (e.g., mean, dispersion) shows different relationships with other constructs. Although this is beyond the scope of the current study, it is a viable avenue for future research that is likely informed by the program of research reported here. Future researchers can also investigate other constructs in the nomological network of interpersonal distrust, and how the temporal

dynamics of interpersonal distrust and trust impact organization-, team-, and dyadic-level outcomes.

Conclusions

Interpersonal distrust was previously perceived as the absence of trust. However, recent reviews pointed out interpersonal distrust and trust were distinct constructs (e.g., Lewicki et al, 2006). Based on previous studies, the current study summarizes three conceptualizations of interpersonal distrust, develops, and validates an interpersonal distrust scale with psychometric soundness. Future research can use this scale to investigate the influences of interpersonal distrust on organizational outcomes. Moreover, the current study develops a theoretical framework of antecedents and outcomes of interpersonal distrust based on SET and Mayer and colleagues' (1995) integrative model for interpersonal trust. The results of the current study provide qualitative and quantitative evidence to support that interpersonal distrust and trust are descriptively bipolar but functionally independent constructs.

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Declarations

Conflict of Interest The authors declare no competing interests.

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