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Anger displays and integrative behavior among work dyads in teams: A regulatory fit approach

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Summary

Anger has often been portrayed as a destructive social emotion in the literature. However, research conducted with a social functional approach has also revealed the functionality of anger and called for a shift toward understanding the conditions in which anger can have interpersonal utility at work. Given the complicated role and inevitability of anger in work teams, it is important to understand when team members can reap the interpersonal utility of anger and promote adaptive social interactions. Contributing to this approach, we developed a contingency model to postulate when and why anger displays can produce integrative behavior among co-worker dyads in teams. Drawing on regulatory fit theory we conducted three studies (one laboratory study and two field studies with a round-robin design) to examine our hypotheses. Results indicated that co-workers' anger displays were positively related to focal workers' (targets of anger) integrative behavior toward angry co-workers (expressers) when targets had a high level of prevention focus and perceived a low level of team goal interdependence. As expected, moreover, targets' problem identification with expressers was found to be the mechanism of this conditional relationship. Implications of our research are discussed.

KEYWORDS

dyad, integrative behavior, problem-solving, regulatory fit, social function of anger

1 | INTRODUCTION

Generally speaking, people tend to engage with something more strongly when it is pleasant than when it is painful. However, if something painful requires paying more attention to it in order to take effective action, as may occur with something threatening, then it may produce strong engagement. Higgins (2006, p. 443)

Co-worker team interactions are a vital part of work life, with uplifting moments as well as interpersonal disagreements involving anger. Anger signals the expresser's "appraisals of goal blockage and other blame" (Van Kleef et al., 2010, p. 53) and conveys "threatening messages" in confronting a recipient (target) with the frustration experienced (Friedman et al., 2004, p. 370). Given these intimidating

facets, anger has often been regarded as socially aversive as it tends to provoke negative or retaliatory reactions from targets against the expressers (for a review, see Gibson & Callister, 2010). However, individuals do not always react negatively to interpersonal anger. Rather, some targets of anger may be more mindful of the problem signaled by anger and look for sensible ways to resolve the issues with their angry counterparts.

Indeed, moving away from the dysfunctionality view, an emerging body of research (e.g., Geddes & Callister, 2007; Lindebaum & Gabriel, 2016; Van Kleef, 2014) has highlighted the social function of anger and called for a shift in organizational research to explore its interpersonal utility. As Geddes et al. (2020) concluded in their recent review, "Rather than it being universally negative, however, we uncover scholarship pointing to functional and positive outcomes from feeling and expressing anger ... Thus, the challenge for

management scholars is to understand not if but *when* anger can produce positive results" (p. 28).

This challenge lies in the fact that, paradoxically, anger contains the "message in the madness" (Geddes et al., 2020, p. 28) that requires targets of anger to be attentive to its message or problem, rather than being incited by its potential provocation (Van Kleef, 2014). This paradoxical nature does not render anger universally adaptive; rather, it requires a match with the attributes of its corresponding target for its informational or signaling function to manifest itself (Van Kleef et al., 2010). Adding to the complexity, the functionality of anger is also known as context sensitive. As anger scholars hold, anger displays may only be functional when they fit (rather than violate) the normative features of social context (Geddes & Callister, 2007; Lindebaum & Fielden, 2011). Thus, a more holistic understanding of the social function of anger requires consideration of how anger and its congruent conditions (target characteristics and social-contextual factors) may converge to produce interpersonal utility.

Little organizational research, if any, has identified and examined the matching contingencies required for anger displays to be functional among team co-workers (for reviews, see Geddes et al., 2020; Van Kleef, 2014). This inattention is problematic from both a theoretical and practical perspective. Theoretically, it limits our conceptual understanding of what congruent features of targets and team contexts, and their interactions, would permit workplace anger to be socially functional (Fischer & Manstead, 2016). The lack of either personal or contextual contingency factors leaves an incomplete picture of this phenomenon. From a practical perspective, such incomplete understanding leaves uncertainty within organizations as to when and how effective collaboration—a critical success factor in work teams – can be maintained among co-workers when interpersonal anger arises (Geddes et al., 2020).

To improve understanding of this phenomenon, we draw on Higgins' (2000, 2005) regulatory fit theory (RFT) to postulate that the social function of anger occurs as a form of regulatory fit experienced by targets. Specifically, we develop a contingency model to explain when anger displays by co-workers (expressers) can motivate focal workers (targets) to engage in integrative behavior with the co-workers, and the processes through which this effect might occur. Integrative behavior in this context refers to collaborative efforts made by a target of anger to produce mutually beneficial solutions with the angry co-worker (Janssen et al., 1999; Lax & Sebenius, 1986; Van de Vliert & Kabanoff, 1990). According to RFT, prevention-focused individuals have a natural fit and sensitivity to threatening stimuli in social situations (e.g., others' anger displays), which serve to activate their "alarm system" and adaptive coping response (Higgins, 2000, 2005). Hence, we anticipate that a co-worker's anger display would motivate a target's integrative response to the expresser only when the target is prevention focused. Moreover, research has also suggested that the functionality of anger is contingent on the cooperativeness of the social context, such that anger would appear more legitimate or appropriate in signaling frustration in a less (rather than more) cooperative context (Gibson &

Callister, 2010; Van Kleef et al., 2010). Thus, we hypothesize that perceived team goal interdependence (the extent to which interpersonal goals are cooperatively related; Janssen et al., 1999; Johnson & Johnson, 1989) may play an additional moderating role in our model. In sum, our research seeks to improve knowledge of (a) with what type of regulatory characteristic (i.e., prevention-focused), (b) in what perceived social context (i.e., low levels of goal interdependence), and (c) via what pathway (i.e., problem identification) targets may demonstrate an integrative response to their angry coworkers.

We believe that our research contributes to the literature on workplace anger and social emotion in four ways. First, conceiving the functionality of anger as an interpersonal regulatory fit goes beyond previous understanding by revealing the importance of the congruence of personal and contextual conditions of anger, rather than their individual roles as examined in previous research. As our research suggests, while anger, prevention focus, and low levels of goal interdependence may not be fully functional on their own, they can converge to produce an integrative function among team co-workers. Second, while previous empirical research (primarily in the negotiation domain) has focused on target concession as an adaptive reaction to counterparts' angry displays (for reviews, see Van Kleef, 2014; Van Kleef et al., 2010), we identify and demonstrate integrative behavior as a functional response to anger displays. Integrative behavior is a more effective way to improve mutually beneficial work relationships and work performance than concessive, yielding, or retaliatory reactions to interpersonal anger (e.g., De Dreu et al., 2001; Janssen et al., 1999). Third, we identify and examine dyadic problem identification as the mechanism linking the conditional indirect effect of anger on dyadic integrative behavior, clarifying the way a problem message of anger may turn into a problem-solving action conducive to interpersonal integration. Finally, previous empirical research on anger and negotiation has largely focused on the interactions of two parties, but such dyadic interaction processes have yet to be integrated into group contexts consisting of multiple interacting dyads (see Van Beest et al., 2008; Van Kleef, 2014). Our dyadic (round-robin) design makes a methodological contribution by demonstrating an approach for future research to investigate the interpersonal effects of social emotions from a multilevel perspective in a network of dyads nested in teams.

2 | THEORY DEVELOPMENT

2.1 | Anger displays and integrative behavior in dyads

In the functionality view, anger displays (from an expresser) can inform a target of the need or urgency to address a problem or issue that may do harm to their exchange relationship if neglected (Averill, 1982; Geddes & Callister, 2007; Lindebaum & Fielden, 2011; Van Kleef, 2014). Unlike other aversive social emotions (e.g., contempt or hostility), which signal the intent to exclude, anger signals that the expresser is dissatisfied with goal blockages and

harbors a strong urge for change or correction, to avoid future frustration (Geddes et al., 2020; Van Kleef et al., 2010). As Fischer and Roseman (2007) note, if "anger is to alter an unsatisfactory interaction or relationship between two people, it may be followed by a reconciliation in which a more mutually satisfactory pattern or relationship is established" (p. 104).

Rather than being universal, however, individuals tend to differ in the extent to which they become motivated to adopt this integrative approach (i.e., addressing the problem and then resolving dissent or the obstacles to mutual satisfaction). We propose that this integrative approach is more likely to be adopted if individuals are vigilant (i.e., prevention-focused) about relational threats and take preventive measures to resolve them before they get worse or become irreparable (Aspinwall & Taylor, 1997). Furthermore, the social functional approach to anger holds that the more closely anger expressions match the features of a social context for appropriateness, the greater the potential for anger to be functional within this context (Geddes & Callister, 2007; Gibson & Callister, 2010; Van Kleef et al., 2010). On this conceptual basis, we propose that the adaptive function of anger is not only contingent on targets' regulatory characteristics but also their perceived social context (i.e., team goal interdependence), which jointly determine the functionality of anger displays. Below we draw on RFT (Higgins, 2000, 2005) to develop our theoretical arguments. Figure 1 graphically represents our conceptual model.

2.2 | The moderating role of targets' prevention focus

The regulatory focus of prevention represents a fundamental human self-regulation orientation (Higgins, 2000, 2005). Prevention-focused individuals regulate themselves in the pursuit of overarching prevention goals: security (e.g., safety from harm), non-loss (e.g., the absence of negative end states), and the fulfillment of "oughts" (e.g., personal obligations; Higgins, 2000). These individuals prefer to use vigilance strategies (e.g., being alert to threat cues and being problem-focused) enacted through situationally specific behavior to meet their overarching goals (Scholer & Higgins, 2008).

The regulatory fit of RFT (Higgins, 2000, 2005) refers to an enhanced motivational experience that occurs when individuals pursue a goal in a manner (e.g., using a vigilance strategy) that matches their regulatory focus (e.g., prevention focus), with the fit experience then providing activation and engagement (Gorman et al., 2012; Higgins et al., 2003). Extending this notion to the interpersonal context, several studies have demonstrated that regulatory fit can occur when there is a match between a person's regulatory focus and the way in which a social message is framed. For example, Camacho et al. (2003) found that prevention-focused individuals perceived conflict resolution as being more appropriate when the resolution was framed within a sense of vigilance (e.g., drawing attention to potential trouble), fitting their regulatory nature. A recent laboratory study by Peng et al. (2015) demonstrated that prevention-focused negotiators worked harder to achieve better joint outcomes when they felt under pressure and personally accountable for their performance (i.e., when they expected to be evaluated by a supervisor).

Based on RFT, it is plausible that a co-worker's anger displays and problem messages match a focal target's prevention focus, resulting in an experience of regulatory fit. Observing anger can alert targets to interpersonal issues at stake, calling to mind their liability and possible losses in exchange relationships (Miron-Spektor et al., 2011). These threatening cues are relevant to and fit the regulatory features of prevention-focused individuals who pursue security, "ought" goals, and threat prevention (Higgins, 2000, 2005). According to RFT, this regulatory fit experience activates and engages individuals more strongly in specific tactical behavior (here, dyadic integrative behavior) to enable their goal regulation (Higgins, 2000, 2005). Supportive evidence from laboratory research demonstrates that the activation of prevention focus can prompt self-control following provocation (Brebels et al., 2008) and engagement in deep-level information processing resulting in better insights and ideas for problem solutions (e.g., Baas et al., 2011; Roskes et al., 2012).

Accordingly, we propose that when confronted by a co-worker's anger display, a prevention-focused target will experience a regulatory fit that motivates them to pay attention to the threatening messages signaled by the display (e.g., pondering what is frustrating their colleague), and generating insights necessary for solving the problems causing the anger (e.g., Anderson & Berdahl, 2002; Keltner et al., 2003). This enhanced motivation to identify and address problems may drive the prevention-focused target to approach ("move toward") the angry co-worker to understand the concerns
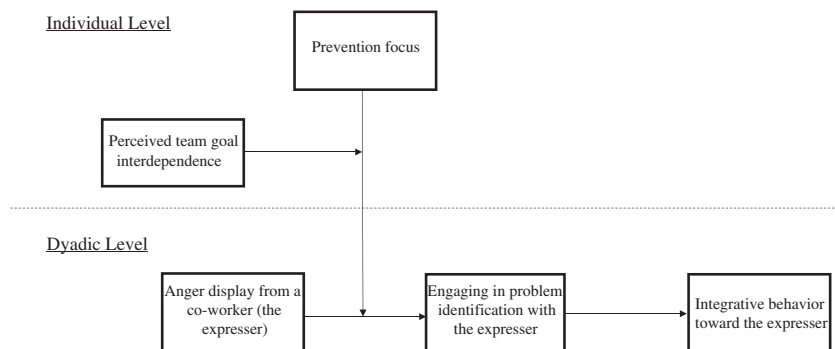

FIGURE 1 Hypothesized research model

underlying their frustration (Van Kleef et al., 2010), and to make use of this diagnostic information to develop integrative solutions that may resolve the issues with the co-worker (Fischer & Roseman, 2007).

In contrast, co-workers' anger should fit less well with low prevention-focused individuals who are less susceptible to social threats, less sensitive to potential relational penalties and losses, and less inhibited during interpersonal conflicts (e.g., Brebels et al., 2008; Harmon-Jones & Sigelman, 2001; Higgins et al., 2003; Keltner et al., 2003). Consequently, the non-fit experience is less likely to lead a focal target to process the problem message signaled by the expresser's anger. Thus, in this case, anger displays are unlikely to prompt a target to engage in integrative behavior toward the expresser.

Hypothesis 1. Prevention focus moderates the relationship between anger displays and integrative behavior in dyads. Specifically, the expresser's anger display is positively related to the target's integrative behavior toward the expresser when the target has a higher rather than lower level of prevention focus.

2.3 | The additional moderating role of perceived team goal interdependence

A core proposition of the social function approach to anger holds that "the closer individuals' anger expressions match with group and organization norms for appropriateness, the more potential there is for positive consequences" (Gibson & Callister, 2010, p. 78). Therefore, through the lens of RFT, we further propose and investigate how a target's integrative response to an expresser's anger is regulated not only by the fit between anger displays and the target's regulatory focus, but also by the congruence between anger displays and the perceived social context in which the expresser and target of anger interact.

While such congruence may stem from different social factors, emerging evidence demonstrates that the "cooperative versus competitive nature of the situation fundamentally changes the meaning and social consequences of emotional expressions" (Van Kleef et al., 2010, p. 55). Specifically, in a cooperative context in which interpersonal goals or interests are perceived as aligned, anger displays are likely to be seen as socially inappropriate and thus unlikely to invite functional responses (Shields, 2005; Van Kleef et al., 2010). In contrast, in a less cooperative context where interpersonal goal alignment is perceived as weak and people pursue their individual interests, anger appears as a more acceptable or legitimate way to indicate personal boundaries and demands in cases of conflict (Gibson & Callister, 2010; Van Kleef et al., 2010). Accordingly, we propose that perceived team goal interdependence may condition the two-way interaction effect of anger displays and prevention focus on integrative behavior that we previously hypothesized.

Goal interdependence theory defines "a cooperative social situation as one where the goals of the separate individuals are so linked together that there is a positive correlation between their goal attainments" (Johnson & Johnson, 1974, p. 214; see also Johnson & Johnson, 1989; Wong et al., 2005). According to the theory, individuals' perceptions of how their goals are structured and related define how they interact to pursue goals (Janssen et al., 1999; Johnson & Johnson, 1974, 1989). Typically, individuals who perceive strong team goal interdependence expect cooperative norms such as members' positive energy and attitudes toward each other, openness to mutual support, and shared responsibility or substitutability during goal-directed actions (e.g., Janssen et al., 1999; Johnson & Johnson, 1974, 1989).

Although goal interdependence should encourage integrative efforts and outcomes (e.g., Johnson & Johnson, 1989; Tjosvold, 1988; Van der Vegt & Janssen, 2003), viewing it from a regulatory fit perspective, we propose two reasons why cooperative goal interdependence in a team can weaken the two-way interaction effect of anger displays and prevention focus on integrative behavior. First, anger displays do not fit the norms and expectations set by high team goal interdependence. When team members perceive that their goals are positively interdependent, they expect the actions of others to meet the cooperative standards of positive energy and attitude and are likely to view co-workers' anger as a violation of these standards and therefore as socially inappropriate (Geddes & Callister, 2007; Van Kleef & Côté, 2007). Such inappropriateness renders anger displays less legitimate and less effective in communicating their intended message or problem signals to targets, and thus less likely to provide the regulatory fit experience that may otherwise occur in a prevention-focused target (Higgins, 2000; Van Kleef & Côté, 2007). As such, the target is unlikely to be motivated to approach their co-worker for integrative problem-solving (Higgins, 2000). Second, a stronger perception of team goal interdependence encompasses expectations of shared responsibility for goal pursuits and mutual support to overcome difficulties and setbacks (Van der Vegt & Janssen, 2003). As such, a prevention-focused target may not feel a sense of personal liability for potential problems indicated by a co-worker's anger; rather, they might view the issues expressed by the angry co-worker as a shared problem or responsibility carried by the whole team and expect other team members to jump in and lend a helping hand (Janssen et al., 1999; Johnson & Johnson, 1974). For example, Van Beest et al. (2008) found laboratory evidence that individuals in multiparty negotiations are less willing to deal with an angry counterpart when there are alternative (non-angry) individuals with whom it is possible to form coalitions with.

By contrast, when goal interdependence in a team is perceived as weak, members do not expect each other to follow cooperative norms or standards (Johnson & Johnson, 1989). In terms of interpersonal difficulties, rather than being viewed as norm-violating, anger may appear relatively acceptable in signaling frustration and demands in a less cooperative, more individualistic team goal context (Geddes &

Callister, 2007; Lindebaum & Fielden, 2011; Van Kleef et al., 2010). Also, due to the lower levels of goal alignment and mutual support among team members, individuals (confronted by a co-worker's anger) may feel a greater personal responsibility and necessity to resolve interpersonal disturbances that may threaten their individual goal pursuits, rather than expecting support or coverage from other team members (e.g., Tjosvold et al., 2004; Van Beest et al., 2008). Thus, in a team with perceived low goal interdependence, anger displays may be more effective in communicating warning signals and emphasizing a target's personal liability (Miron-Spektor et al., 2011; Van Kleef, 2014). As discussed previously, these threat cues match and activate the regulatory features of a prevention-focused target who is highly sensitive to threatening stimuli and personal obligation and strives to prevent interpersonal difficulties from escalating (Higgins, 2006; Van Beest et al., 2008). This enhanced regulatory fit experience may thus motivate the target to engage with an angry co-worker to address and understand the issues that cause frustration, and to find integrative solutions with the co-worker. Accordingly, we hypothesize:

Hypothesis 2. Prevention focus and perceived team goal interdependence jointly moderate the relationship between anger displays and integrative behavior in dyads. Specifically, the expresser's anger display is more strongly and positively related to the target's integrative behavior toward the expresser when the target has a higher level of prevention focus and perceives a lower level of team goal interdependence.

2.4 | Problem identification as the mechanism

The foregoing idea suggests that, subject to the hypothesized conditions, anger displays of a co-worker can prompt a target to identify the relevant problems and then resolve them with the co-worker in an integrative way (Geddes & Callister, 2007; Hillebrandt & Barclay, 2017; Van Kleef, 2014). In this context, research has suggested problem identification as a strategy behind successful problem-focused coping (e.g., D'Zurilla & Chang, 1995; Gross, 1998); through problem identification comes a better understanding of the causes, nature, and consequences of the problem at hand (e.g., Chang, D'Zurilla, & Sanna, 2004; Robertson, 2003; VanGundy, 1988).

Accordingly, we propose an overall conditional indirect effect model suggesting that depending on prevention focus and team goal interdependence, anger displays may indirectly influence dyadic integrative behavior through problem identification as an underlying mechanism. This mechanism relies on a regulatory fit principle and a problem-solving principle. Engaging in problem identification in response to co-workers' anger displays is a problem-focused strategy congruent with the targets' prevention focus (Higgins, 2000). This congruence should therefore further sustain their regulatory fit

experience and thus their coping motivation (Higgins, 2005). Furthermore, problem identification provides diagnostic insight and information exchange between dyadic members, thus enhancing the targets' effectiveness in finding integration with the expressers (D'Zurilla & Chang, 1995; Robertson, 2003).

In contrast, when a target has a low level of prevention focus or perceives high team goal interdependence, they should be less motivated to attend to and understand the problem cues signaled by a co-worker's anger display as such an expression of anger does not fit their regulatory focus or perceived team goal context (Geddes & Callister, 2007; Higgins, 2000; Van Kleef et al., 2010). As a result, the target is less likely to engage in problem identification with the expresser. Consequently, without problem identification, anger displays are less likely to foster targets' integrative efforts toward resolving anger-inducing issues with the expresser.

Hypothesis 3. Anger display has an indirect, conditional relationship with the target's integrative behavior toward the expresser such that the expresser's anger display is more positively and indirectly related to the target's integrative behavior toward the expresser (through engaging with the expresser in problem identification) when the target has a higher level of prevention focus and perceives a lower level of team goal interdependence.

2.5 | Overview of the present research

We conducted three independent studies to examine our theoretical model, focusing on anger displays integrally related to recent interactions between co-workers in teams. Hillebrandt and Barclay (2017) offer direct evidence showing that anger displays integrally related to interpersonal situations (rather than being incidental) are more informative and effective in triggering observers' behavioral regulation (see also Van Kleef et al., 2010). Therefore, Study 1 employed an experimental design to investigate an anger display (scenario-related) as an antecedent of integrative behavior and to test the moderating roles of prevention focus and perceived team goal interdependence (Hypotheses 1 and 2). Moving on from this experiment, Studies 2 and 3 employed a round-robin design to examine our full conditional indirect effect model (Hypothesis 3). These field studies captured integral anger displays and dyadic behavior that had recently arisen within the participants' teams (see Appendix A for details of the survey instructions). Using two independent field studies and gathering survey data from two different team contexts (Study 2: employee work teams; Study 3: student work teams) allowed us to constructively replicate our findings across different team settings (Sitkin, 2007). Thus, we utilized an experimental approach as an initial step in establishing causal relations (Aguinis & Bradley, 2014) and conducted two field studies to corroborate the robustness and generalizability of our results in different contexts (Wright & Sweeney, 2016).

3 | STUDY 1: METHOD

3.1 | Participants and design

The purpose of Study 1 was to test Hypotheses 1 and 2 in an experimental setting. Scholars have emphasized that an experimental approach is viewed as the gold standard for demonstrating causality (Antonakis et al., 2010; De Cremer, 2006). A total of 152 undergraduate students from a large university in Hong Kong (74% female, *M* age = 20.90 years, *SD* = 1.99) participated in the experiment at a behavioral research laboratory within the university in exchange for a payment of HK$50 (about US$6.50).

3.2 | Experimental procedure

The participants were seated in separate cubicles at the laboratory, and informed of the purpose of the study—to examine social behavior processes—and that they were to perform three separate tasks. The first task required all participants to complete the nine-item measure of prevention focus (α = .83; *M* = 5.82, *SD* = .58) developed by Neubert et al. (2008). Items were slightly adapted to the research context. All scales used in this study are listed in Appendix A. In the second task, they were required to read a hypothetical scenario (content subject to the condition of goal interdependence) and to place themselves in the role of a member of a five-member team accomplishing a group project. The third task consisted of a video (i.e., anger vs. neutral displays) on which they answered questions regarding behavioral intentions. They were randomly assigned to a specific condition within a 2 × 2 between-subject design of high goal interdependence vs. low goal interdependence and angry vs. neutral.

3.2.1 | Manipulations

In line with previous experimental research, we utilized a scenario procedure to manipulate team goal interdependence and a video to manipulate anger and neutral expressions (e.g., Van Kleef et al., 2009). Based on the concept of goal interdependence (Janssen et al., 1999; Johnson & Johnson, 1989), we developed a scenario and manipulated participants' perceptions of their team goal interdependence, with participants imagining being part of a five-member team completing a group project for an academic course. In the strong (low) team goal interdependence condition, the scenario text read as follows: "In this group of five, the members have (not) reached goal consensus; goals are (not) consistent among members. The group emphasizes group (personal) responsibility, and cooperation among members is (not) emphasized."

After reading the scenario, the participants watched a short video in which a male teammate (an actor) spoke to them individually. We followed Van Kleef et al.'s (2009) approach of using video clips to ensure that the emotional display manipulation was identical

for all participants (for similar procedures, see Barsade, 2002; Bono & Ilies, 2006). Based on this approach, in the anger display condition, the teammate (actor) frowned, spoke with an irritated tone of voice, looked stern, and added that he was angry about working with the focal participant. In the control condition, the same male actor spoke in a neutral tone with neutral facial expressions.

3.3 | Dependent variable

3.3.1 | Integrative behavioral intention

After reading the scenario and watching the video, participants evaluated whether or not they would engage in integrative behavior with the respective teammate, using four items adapted from Janssen et al.'s (1999) integrative behavior scale (α = .92; *M* = 5.82, *SD* = .92).

4 | STUDY 1: RESULTS

4.1 | Manipulation checks

After the goal interdependence manipulation, participants assessed the level of team goal interdependence using a four-item measure (α = .81) from Janssen et al. (1999). Similarly, after the anger manipulation, participants were asked to indicate how angry the teammate in the video was (α = .81). The results demonstrated that goals were perceived as more cooperatively interdependent in the high goal interdependence condition, *M* = 5.40, *SD* = 1.02, than in the low goal interdependence condition, *M* = 4.26, *SD* = 1.19, *F*(1, 150) = 40.74, *p* < .001. The teammate in the video was seen as being angrier in the anger condition, *M* = 5.41, *SD* = .70, than in the neutral condition, *M* = 4.52, *SD* = .72, *F*(1, 150) = 57.93, *p* < .001.

4.2 | Hypotheses testing

We used a general linear modeling approach to examine the two-way interaction (anger display × prevention focus) predicted by Hypothesis 1 and the three-way interaction (anger display × prevention focus × perceived goal interdependence) predicted by Hypothesis 2. Participants' prevention focus scores were standardized prior to these analyses. Table 1a,1b report the estimated regression parameters, F

TABLE 1a General linear model analyses of anger display and prevention focus regarding integrative behavior (Study 1)

	B	*F* value	η^2
Anger display	.09	.35	.09
Prevention focus	−.06	.76	.14
Anger display × prevention focus	.26	2.70	.37

	B	F value	η^2
Anger display	.07	.64	.00
Prevention focus	−.31	.67	.01
Team goal interdependence	.59	.64	.00
Anger display × prevention focus	.59	2.32	.02
Anger display × team goal interdependence	.08	.06	.00
Prevention focus × team goal interdependence	.52	1.07	.01
Anger display × prevention focus × team goal interdependence	−.71*	5.18*	.04

TABLE 1b General linear model analyses of anger display, prevention focus, and perceived team goal interdependence regarding integrative behavior (Study 1)

*$p < .05$.

values and eta squared value for the between-subjects analysis of variance (ANOVA). As shown in Table 1a, there were no significant two-way interactions ($B = .26$, ns) Hypothesis 1 was therefore not supported. However, as shown in Table 1b, the three-way interaction between anger display, prevention focus, and team goal interdependence was significant ($B = −.71$, $p = .02$). As shown in Figure 2a, in the low team goal interdependence condition, high prevention focus individuals had more integrative behavioral intention in the anger condition than in the neutral condition, $M = 6.34$ versus $M = 5.39$, $F(1, 78) = 7.12$, $p = .01$; whereas low prevention focus individuals' integrative behavioral intention was marginally higher in the neutral condition than in the anger condition, $M = 6.23$ versus $M = 5.50$, $F(1, 78) = 3.06$, $p = .09$. In the high team goal interdependence condition, integrative behavioral intention did not differ across anger and control conditions for high prevention focus individuals, $M = 5.97$ vs. $M = 6.00$, $F(1, 72) < 1$, ns, or low prevention focus individuals, $M = 5.71$ versus $M = 5.40$, $F(1, 72) < 1$, ns, therefore supporting Hypothesis 2.

Figure 2b plots the results of the regression lines (for comparison with the simple slope results of Studies 2 and 3 as presented below). As shown in Figure 2b, anger display was positively associated with participants' intention to engage in integrative behavior with the expresser (simple slope: $B = .66$, $p < .05$), but only among participants with high levels of prevention focus (+1 SD) and under the condition of low levels of goal interdependence (−1 SD).

4.3 | Discussion of Study 1's findings

The experimental nature of Study 1 underscores the viability of the three-way interaction effect (anger display, prevention focus, and team goal interdependence) on integrative behavioral intention; however, questions about external validity or generalization may arise because we captured the self-rated intention of integrative behavior, manipulated anger display using only a male actor, and used a hypothetical scenario design. Further evidence from more naturalistic settings is needed. As outlined earlier, a thorough understanding of the role of anger in integrative behavior requires the examination of the underlying mechanism, highlighting the way

(a)

(b)
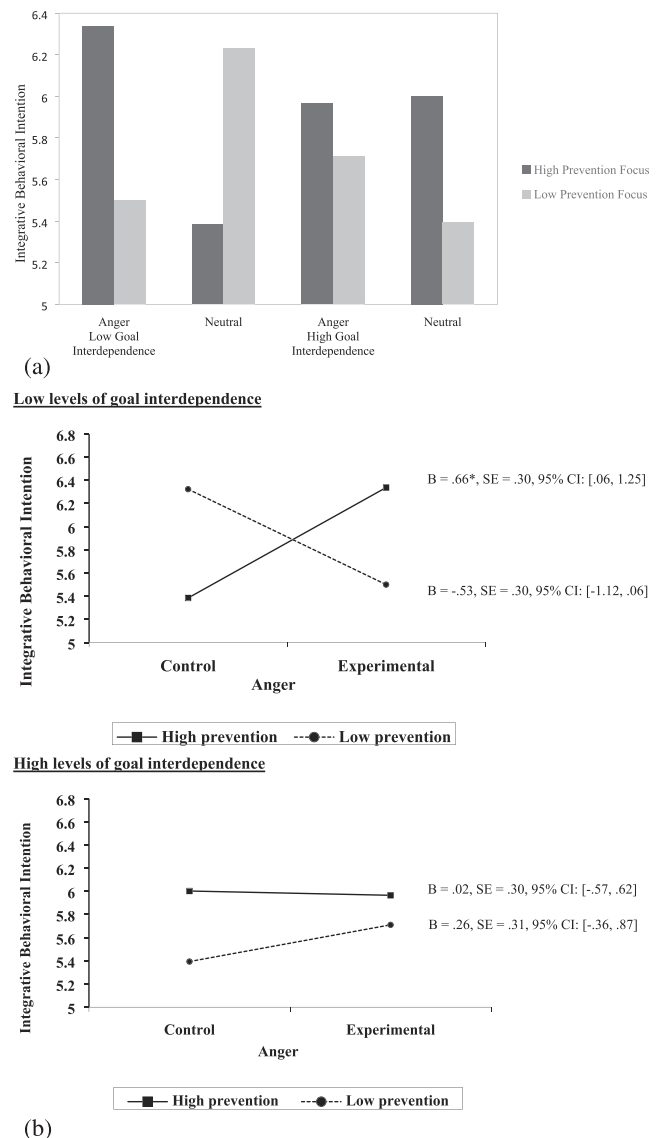
FIGURE 2 (a) Integrative behavioral intention as a function of anger display, prevention focus, and perceived team goal interdependence (Study 1). (b) Three-way interactive relationships between anger display, prevention focus, and perceived team goal interdependence with integrative behavioral intention (Study 1)

anger display (contingent on prevention focus and team goal interdependence) is indirectly related to integrative behavior through engagement in problem identification (Hypothesis 3, and the integrative hypothesis of our full model). We conducted field studies of employee and student teams (Studies 2 and 3) to further address these potential limitations.

5 | STUDIES 2 AND 3: METHOD

5.1 | Study 2: Sample and data collection

Survey data for Study 2 were collected from sales agents working for an insurance company in China in teams of three to five, designing and selling insurance packages. Team members' responsibilities included sales tasks and office support, involving multiple interpersonal interactions and relationships with other members. All members held the same organizational rank (sales agent) with similar levels of seniority (organizational tenure ranged from 0.5 to 2.2 years). Individual members and the overall teams were expected to meet monthly sales quotas set by team leaders, who specified the procedures used to meet these quotas and how rewards were distributed in their teams. In doing so, they were able to emphasize the interdependent nature of team goals to a greater or lesser extent.

The survey used a round-robin design in which the co-workers provided both self-ratings and ratings of all other members of their team (Warner et al., 1979). Anger display and problem identification were target-rated, whereas integrative behavior was expresser-rated, and our measures of prevention focus and team goal interdependence were based on individual team members' ratings. Surveys were distributed to 257 sales agents across 63 teams, who returned the completed surveys directly to the researchers, ensuring confidentiality. After omitting incomplete dyads, our final data set contained 811 dyads (response rate = 94%). The average age of participants was 35, the average organizational tenure was 6.7 months, 81% were female, and 30% had a high school education or above.

5.2 | Study 3: Sample and data collection

Round-robin survey data for Study 3 were collected from student work teams at a Hong Kong university during the second semester. As required in their study program, the students worked in teams of three to seven to prepare a business plan over three months. As in company work teams, members were required to interact to ensure success, allowing for experiences and observations of emotions. There were also individual assessments in the academic course (alongside the team project) that contributed to their individual grades in the course. This presented a context (similar to project teams in a work environment) in which the students assigned a different weight to their team project and to their individual

assessments. Thus, the extent to which individual students were committed to their team project goals (and developed goal interdependence among themselves) was subject to other contextual factors (e.g., team composition) and social factors (e.g., leadership, team identity). As in Study 2, the targets rated their observations of anger displayed by each of their co-workers in the team, and their engagement in problem identification with each of them; whereas the targets' integrative behavior was assessed through each of the co-workers. Perceived team goal interdependence and prevention focus were captured through individual ratings. Surveys were distributed to 150 students across 20 teams. After omitting 27 incomplete dyads, the final data set contained 734 dyads, a response rate of 82%. Respondents, of whom 61% were female, had an average age of 18.6.

5.3 | Measures

All versions of the survey were translated into Chinese using the back-translation procedure. Please refer to Appendix A for all key measurement items. For all dyadic measures, items were repeated for both members. All variables were measured using the same scales as Study 1, except for engagement in problem identification, 1. Their reliabilities were as follows: dyadic anger displays (Study 2: α = .86, Study 3: α = .91); peer-rated dyadic integrative behavior (Study 2: α = .90, Study 3: α = .96); individuals' prevention focus (Study 2: α = .86, Study 3: α = .74); perceived team goal interdependence (Study 2: α = .76, Study 3: α = .70).

5.3.1 | Engagement in problem identification

Problem identification has been regarded as a key strategy in eventual problem-solving (Robertson, 2003). In interpersonal contexts, this strategy involves interaction and information exchange between individuals to diagnose, understand, and address the problem (e.g., Chang et al., 2004; Robertson, 2003; VanGundy, 1988). Based on this conceptualization, we used six items to assess targets' engagement in problem identification with expressers (Study 2: α = .91, Study 3: α = .96).

5.3.2 | Control variables

As research has suggested that demographic variables may influence interpersonal behavior and associated perceptions (Settoon & Mossholder, 2002), we considered participants' gender (0 = male, 1 = female), age (in years), and education (0 = "college education or below", 1 = "higher education than college") as possible controls. We did not control for education in Study 3 (student teams) because all participants were in the same year of study. We also controlled for the target's feelings of guilt toward the expresser in Study 2 as guilt has been shown to be linked to reparative actions such as

TABLE 3 Variance partitioning for problem identification and integrative behavior (Studies 2 and 3)

	Problem identification				Integrative behavior			
	Study 2		Study 3		Study 2		Study 3	
Source of variance	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Group variance	.06 (6%)	.04	.04 (4%)	.05	.06 (5%)	.05	.02 (2%)	.03
Target of anger variance	.49 (51%)	.07	.29 (31%)	.05	.02 (2%)	.02	.10 (12%)	.03
Anger expresser variance	.01 (1%)	.02	.20 (22%)	.04	.54 (48%)	.08	.30 (37%)	.05
Target-expresser dyadic variance	.40 (42%)	.03	.40 (43%)	.03	.51 (45%)	.04	.40 (49%)	.03
Deviance	1890.10		1760.86		2143.17		1706.98	

Note. Study 2: *N* = 241 individuals in 811 dyads within 63 teams. Study 3: *N* = 123 individuals in 734 dyads within 20 teams.

integrative behavior (Lazarus, 1991). Respondents were asked to assess how much they had experienced emotions of guilt, regret, and embarrassment (Van Kleef et al., 2010; 1 = not at all, 5 = very much; α = .89) when interacting with (X) over the previous two weeks.[1] Importantly, the pattern of results remained virtually unchanged for all hypotheses when including or excluding all the control variables across both studies.

5.4 | Statistical analyses

Our model (Figure 1) theorized integrative behavior as a dyadic-level phenomenon that could be explained by dyadic factors (expresser's anger display toward the target and target's engagement in problem identification with the expresser) and individual factors (target's prevention focus and perceived team goal interdependence). The multilevel nature of this model required a round-robin data collection with a complex nested structure as individuals were nested within both teams and relationships ("dyad" refers to a relationship between two individuals). The statistical dependence resulting from this nested structure could be modeled using a multilevel social relations model (SRM; Kenny, 1994). SRM has been used in prior research examining dyadic relationships within work groups (e.g., Tse et al., 2013; Van der Vegt et al., 2006). It is a method for analyzing relational data in which the variance of the dependent variable is due to the characteristics of actor (here, the target), partner (here, the expresser), dyad (here, the dyadic relationship between target and expresser), and group (here, the work team in Study 2 and the student team in Study 3). The unique feature of this analytical approach is that it tests hypotheses at multiple levels of analysis. Specifically, SRM isolates the variance due

to dyadic characteristics and examines the effect of independent variables on the dependent variable at dyadic level. It thus enables us to address questions on whether the variance in dyadic integrative behavior is due to dyadic-level factors (expresser's anger display toward the target) or individual-level factors (target's prevention focus and perceived team goal interdependence) while controlling for group-level effects.

We used the MLwiN software package to conduct SRM analyses (cf. Kenny, 1994; Snijders & Kenny, 1999). After calculating a null model to partition variances in our focal dependent variables (see Table 3), the predictor variables were added to the social relations model in subsequent models (see Tables 4 and 5). To test the two-way interaction (Hypothesis 1) and the three-way interaction (Hypothesis 2), we regressed the target's integrative behavior (toward the expresser) on the control variable (target's guilt) and main effects (Model 2a), two-way interaction terms (Model 2a), and the three-way interaction terms (Model 2b). We also ran analyses with the demographic variables controlled and the results were presented in Models 1b, 3a, 3b, and 3c, respectively. We tested for a decrease in log-likelihood between each of the models described in Tables 4 and 5 by means of a Chi-squared difference test, evaluating the statistical significance of improvements in the model fit (Snijders & Kenny, 1999).

To test the conditional indirect effect (Hypothesis 3) of anger display on integrative behavior through problem identification (conditional on prevention and perceived team goal interdependence), we followed Selig and Preacher's (2008) Monte Carlo procedure and used *R* to compute indirect effects and generate 95% confidence intervals (CIs) around the estimated indirect effects based on 20,000 re-samples.

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[1]Research on the social function of emotions suggests that anger display may affect a target's behavioral response via affective mechanisms (e.g., guilt). To rule out this alternative explanation, we included guilt as a control variable in Study 2. This variable was unavailable in Study 3. Post hoc results also showed that the three-way interaction effect (of anger display, prevention focus, and goal interdependence) on guilt was non-significant (*B* = −.02, *SE* = .01, *ns*) and guilt did not relate to integrative behavior (*B* = −.10, *SE* = .07, *ns*). In addition, including guilt as a mediator did not change the pattern of our hypothesized indirect relationship; that is, anger display was indirectly related to integrative behavior (via problem identification) only when prevention focus was high and perceived goal interdependence was low (indirect effect = .06, 95% CI = .025, .098). In sum, our substantial findings for the hypothesized model remained virtually unchanged in these post hoc analyses.

6 | STUDIES 2 AND 3: RESULTS

6.1 | Multilevel confirmatory factor analyses

Before testing the hypotheses, we conducted a set of confirmatory factor Analyses (CFAs) to evaluate the discriminant validity of the four self-rated variables (i.e., anger display, problem identification, prevention focus, and team goal interdependence). The results showed that

TABLE 4 Social relations model analyses for problem identification and integrative behavior (Study 2)

	Problem Identification (PI)		Integrative Behavior					
	Without demographic controls	With demographic controls	Without demographic controls			With demographic controls		
	Model 1a	Model 1b	Model 2a	Model 2b	Model 2c	Model 3a	Model 3b	Model 3c
Variables entered	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*
T's gender		.13 (.13)				.12 (.09)	.10 (.09)	.07 (.09)
T's age		−.01 (.01)				.01 (.01)	.01 (.01)	.01 (.01)
T's education		.21 (.12)				.03 (.08)	.01 (.09)	−.03 (.09)
E's gender		.11 (.07)				−.04 (.15)	−.04 (.15)	−.04 (.15)
E's age		.00 (.00)				.00 (.01)	.00 (.01)	.00 (.01)
E's education		.04 (.07)				.06 (.13)	.07 (.13)	.06 (.13)
T's guilt toward E	.26*** (.07)	.25*** (.07)	−.11 (.07)	−.12 (.07)	−.10 (.07)	−.11 (.07)	−.12 (.07)	−.10 (.07)
Anger display (A)	.09** (.03)	.06* (.03)	.06 (.04)	.08* (.03)	.08* (.03)	.06 (.04)	.09* (.04)	.08* (.04)
Prevention focus (P)	.13* (.06)	.16** (.05)	.02 (.03)	.02 (.03)	.02 (.04)	−.04 (.03)	−.04 (.03)	−.03 (.04)
Perceived team goal interdependence (GI)	.14** (.05)	.11* (.05)	−.04 (.04)	−.04 (.03)	−.02 (.04)	.01 (.04)	.01 (.03)	.01 (.04)
A × P	.00 (.03)	.01 (.03)	.03 (.03)	.03 (.03)	.03 (.03)	.03 (.03)	.03 (.03)	.03 (.03)
A × GI	−.05 (.03)	−.06 (.03)	−.04 (.03)	−.04 (.03)	−.03 (.03)	−.04 (.03)	−.04 (.03)	−.03 (.03)
GI × P	.04 (.06)	.03 (.06)	−.03 (.03)	−.03 (.03)	−.04 (.03)	−.02 (.03)	−.02 (.03)	−.03 (.03)
Deviance (−2 log likelihood)*	1845.33	1837.85	2135.30			2129.77		
Δχ²(df)	44.77(7)***	52.25(13)***	7.87(7)			13.40(13)		
A × P × GI	−.05* (.02)	−.05* (.02)		−.06* (.03)	−.06* (.03)		−.06* (.03)	−.06* (.03)
Deviance (−2 log likelihood)*	1841.42	1834.44		2131.33			2125.87	
Δχ²(df)	3.91(1)*	3.41(1)*		3.97(1)*			3.90(1)*	
Problem identification					.26*** (.03)			.24*** (.03)
Deviance (−2 log likelihood)*					2120.25			2116.18
Δχ²(df)					11.08(1)***			9.69(1)***

Note. N = 811 dyads. Unstandardized coefficients are shown. T = target of anger; E = expresser of anger.
*p < .05. **p < .01. ***p < .001.

the hypothesized four-factor model fit the data satisfactorily (Study 2: χ^2 = 1051.80, *p* < .001, df = 203, CFI = .95, GFI = .89, RMSEA = .07; Study 3: χ^2 = 898.35, *p* < .001, df = 129, CFI = .93, GFI = .88, RMSEA = .08). The fit was better than the data of the three-factor model with prevention focus and team goal interdependence collapsed (Study 2: $\triangle\chi^2$(3) = 542.55, *p* < .001, CFI = .92, GFI = .86, RMSEA = .09; Study 3: $\triangle\chi^2$(3) = 658.59, *p* < .001, CFI = .87, GFI = .81, RMSEA = .12), the other three-factor model with anger display and problem identification collapsed (Study 2: $\triangle\chi^2$(3) = 1997.23, *p* < .001, CFI = .84, GFI = .76, RMSEA = .13; Study 3: $\triangle\chi^2$(3) = 780.94, *p* < .001, CFI = .90, GFI = .86, RMSEA = .09), and the single-factor model (Study 2: $\triangle\chi^2$(6) = 5149.32, *p* < .001, CFI = .67, GFI = .55, RMSEA = .19; Study 3: $\triangle\chi^2$(6) = 9136.64, *p* < .001, CFI = .70, GFI = .63, RMSEA = .32). These CFA results

provide support for the distinctiveness of the variables used in the subsequent analyses.

6.2 | Descriptive statistics

Table 2 presents the descriptive statistics and bivariate correlations for the two studies' variables. As shown, none of the demographic variables were correlated with integrative behavior. We therefore did not incorporate these insignificant demographic control variables when testing the study hypotheses (Becker, 2005; McClelland & Judd, 1993). Given the theoretical relevance of guilt, we controlled for this variable as a potential covariate when testing our hypotheses in Study 2, although it was not correlated to integrative behavior.

TABLE 2 Means, standard deviations, and intercorrelations (Studies 2 and 3)

Variable	M	SD	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
	(Study 2)		(Study 3)													
1. T's gender	.81	.39	.61	.48	—	-.01	—	-.11	-.06	—	—	-.04	.15	.19	.03	.07
2. T's age	35.02	6.67	18.57	.93	-.05	—	—	-.06	.02	—	—	-.01	-.13	-.08	-.02	-.01
3. T's education	.30	.45	—	—	-.22	-.09	—	—	—	—	—	—	—	—	—	—
4. E's gender	.81	.40	.61	.46	-.01	-.05	-.04	—	-.02	—	—	-.08	.03	.03	.08	.06
5. E's age	35.15	6.73	18.57	.89	-.05	.18	.17	-.06	—	—	—	.06	-.05	-.04	.02	-.02
6. E's education	.31	.45	—	—	-.04	.17	.23	-.23	-.09	—	—	—	—	—	—	—
7. T's guilt toward the expresser	1.28	.56	—	—	-.12	-.03	.03	.00	-.01	-.02	—	—	—	—	—	—
8. E's anger display directed toward T	1.40	.65	1.56	.86	-.14	-.07	.10	-.04	-.01	.01	.55	—	.11	-.05	.02	.11
9. Prevention focus	3.97	.59	3.86	.40	.07	.20	.12	-.07	.03	.10	-.14	-.06	—	.05	.12	.12
10. Perceived team goal interdependence	3.46	.95	3.60	.65	-.11	.17	.01	-.08	.05	.04	.07	.04	.28	—	.11	.07
11. T's problem identification with E	2.50	.96	2.50	.96	-.01	.01	.13	-.02	.01	.08	.15	.15	.13	.20	—	.22
12. T's integrative behavior toward E	2.47	1.09	3.27	.96	.00	.05	.05	-.05	.02	.07	.04	.08	.05	.03	.16	—

Note. Correlations for Study 2 appear below the diagonal ($N = 811$ dyads); correlations for Study 3 appear above the diagonal ($N = 734$ dyads). Correlations stronger than or equal to $\pm .08$ are significant at $p < .05$ and correlations stronger than or equal to $\pm .10$ are significant at $p < .01$. T = target of anger; E = expresser of anger.

TABLE 5 Social relations model analyses for problem identification and integrative behavior (Study 3)

| | Problem Identification (PI) | | Integrative Behavior | | | | | |
| | Without demographic controls | With demographic controls | Without demographic controls | | | With demographic controls | | |
	Model 1a	Model 1b	Model 2a	Model 2b	Model 2c	Model 3a	Model 3b	Model 3c
Variables entered	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*	*Estimate (SE)*
T's gender		−.01 (.12)				.06 (.08)	.07 (.08)	.04 (.11)
T's age		.02 (.06)				.02 (.04)	.02 (.04)	.02 (.06)
E's gender		.09 (.10)				.12 (.12)	.12 (.12)	.03 (.12)
E's age		.03 (.06)				−.01 (.06)	−.01 (.06)	−.03 (.07)
Anger display (A)	.04 (.04)	.04 (.04)	−.04 (.03)	−.05 (.03)	−.03 (.03)	−.04 (.03)	−.05 (.03)	−.03 (.03)
Prevention focus (P)	.05 (.06)	.05 (.06)	.03 (.04)	.03 (.04)	.04 (.03)	.02 (.04)	.03 (.04)	.04 (.03)
Perceived team goal interdependence (GI)	.10 (.06)	.11 (.06)	.07 (.04)	.06 (.04)	.05 (.03)	.06 (.03)	.06 (.03)	.03 (.03)
A × P	.00 (.03)	.00 (.03)	−.01 (.03)	−.01 (.03)	.03 (.03)	−.01 (.04)	−.01 (.04)	.04 (.03)
A × GI	.06 (.04)	.06 (.04)	.10*** (.03)	.11*** (.03)	.05 (.03)	.10*** (.03)	.11*** (.03)	.05 (.03)
GI × P	.07 (.05)	.06 (.05)	.02 (.04)	.03 (.04)	.04 (.03)	.03 (.04)	.03 (.04)	.04 (.03)
Deviance (−2 log likelihood)*	1749.85	1748.78	1691.69			1689.84		
Δχ²(df)	11.01(6)	12.08(10)	15.29(6)			17.14(10)		
A × P × GI	−.07* (.03)	−.07* (.03)		.05 (.03)	.04 (.03)		.05 (.03)	.04 (.03)
Deviance (−2 log likelihood)*	1745.57	1744.43		1689.15			1687.17	
Δχ²(df)	4.28(1)*	4.35(1)*		2.54(1)			2.67(1)	
Problem identification					.66*** (.03)			.66*** (.03)
Deviance (−2 log likelihood)*					1610.32			1609.28
Δχ²(df)					78.83(1)***			77.89(1)***

Note: N = 734 dyads. Unstandardized coefficients are shown. T = target of anger; E = expresser of anger.
*p < .05. **p < .01. ***p < .001.

TABLE 6 Conditional indirect relationship between anger display and integrative behavior, through problem identification (Studies 2 and 3)

| Moderator Value | | Study 2 | | | Study 3 | | |
Prevention focus	Perceived team goal interdependence	Indirect relationship	Sobel Z	95% confidence interval[a]	Indirect relationship	Sobel Z	95% confidence interval[a]
High (+1 SD)	High (+1 SD)	.00	.16	−.024, .020	−.04	.48	−.063, .103
Low (−1 SD)	High (+1 SD)	.02	1.26	−.012, .060	.03	.67	−.066, .136
High (+1 SD)	Low (−1 SD)	.05*	2.77*	.016, .087	.11*	2.03*	.005, .212
Low (−1 SD)	Low (−1 SD)	.02	1.93	−.00, .048	−.06	−1.61	−.128, .013

Note: Study 2: N = 811 dyads. Study 3: N = 734 dyads. Unstandardized coefficients are shown.
[a]Based on 20,000 Monte Carlo samples (Selig & Preacher, 2008). −1 SD = one standard deviation below the mean values of perceived team goal interdependence/prevention focus. +1 SD = one standard deviation above the mean values of perceived team goal interdependence/prevention focus.
*p < .05.

Notably, the pattern and interpretation of the results remained virtually unchanged when including or excluding all the control variables. For transparency, we presented results in Tables 4 and 5 with and without the demographic control variables.

6.3 | Variance partitioning

Table 3 presents the partitioning of the variance in the target's integrative behavior toward the expresser. As shown, the substantial

variance in problem identification (Study 2 = 42%, Study 3 = 43%) and integrative behavior (Study 2 = 45%, Study 3 = 49%) depended on the characteristics of the dyadic relationship between target and expresser. This indicates that it is important and necessary to examine problem identification and integrative behavior using SRM.

6.4 | Hypotheses tests

Hypothesis 1 proposed that prevention focus moderates the relationship between the expresser's anger display and the target's integrative behavior toward the expresser. To test Hypothesis 1, we added the control variable (guilt in Study 2) and main effects of anger display, prevention focus, perceived team goal interdependence, and their two-way interaction terms (Model 2a) estimating integrative behavior. As shown in Table 4 (Study 2) and Table 5 (Study 3), the two-way interaction term of anger display and prevention focus (Model 2a) was not significantly related to integrative behavior in either study (Study 2: $B = .03$, ns, Study 3: $B = -.01$, ns). Therefore, Hypothesis 1 was not supported.

Hypothesis 2 proposes that prevention focus and perceived team goal interdependence jointly moderate the relationship between the expresser's anger display and the target's integrative behavior toward the expresser. To test Hypothesis 2, we added the control variable (guilt in Study 2) and main effects, two-way interaction terms, and three-way interaction terms estimating integrative behavior. As shown in Model 2b (Tables 4 and 5, respectively), the three-way interaction terms of anger display, prevention focus, and perceived team goal interdependence were significantly related to integrative behavior in Study 2 ($B = -.06$, $p < .05$) and marginally significant in Study 3 ($B = .05$, $p < .10$). Therefore, Hypothesis 2 was supported in Study 2 but only marginally supported in Study 3.

Hypothesis 3 proposes that the expresser's anger display would be indirectly and positively related to the target's integrative behavior toward the expresser through problem identification when the prevention focus is high and perceived team goal interdependence is low. To examine this conditional indirect relationship, the interaction term of anger display, prevention focus, and perceived team goal interdependence should be shown to significantly associate with problem identification, and also problem identification to associate with integrative behavior (Edwards & Lambert, 2007; Preacher et al., 2010; Shrout & Bolger, 2002). As shown in Model 1a (Tables 4 and 5, respectively), the three-way interaction terms of anger display, prevention focus, and perceived team goal interdependence in both studies were significantly related to problem identification (Study 2: $B = -.05$, $p < .05$, Study 3: $B = -.07$, $p < .05$). Furthermore, as shown in Model 2c (Tables 4 and 5, respectively), the coefficient of problem identification was significant and positive (Study 2: $B = .26$, $p < .001$, Study 3: $B = .66$, $p < .001$), after controlling for the predictor variables and their two-way and three-way interaction terms. Although the three-way interaction terms were not directly related to the outcome variable (in Study 3), these results satisfy the conditions of the indirect relationship analyses for Hypothesis 3 (Edwards & Lambert, 2007;

Preacher et al., 2010; Shrout & Bolger, 2002). As shown in the SRM analyses (Tables 4 and 5, Model 2c), the overall conditional indirect relation model fitted the data well (Study 2: $\Delta\chi^2 = 11.08$, $p < .001$, $df = 1$, Study 3: $\Delta\chi^2 = 78.83$, $p < .001$, $df = 1$).

We used the Monte Carlo method recommended by Selig and Preacher (2008) and Preacher et al. (2010) to inspect the conditional indirect relationship between the expresser's anger display and the target's integrative behavior toward the expresser at high (+1 SD) and low (−1 SD) levels of both moderators (i.e., prevention focus and perceived team goal interdependence). The results presented in Table 6 show that anger display and integrative behavior were positively and indirectly related (through problem identification) when prevention focus was high and perceived team goal interdependence was low (Study 2: indirect effect = .05, 95% CI = .016, .087, Study 3: indirect effect = .11, 95% CI = .005, .212). By contrast, this indirect relationship was not significant when either prevention focus was lower or perceived team goal interdependence was higher, as the 95% CIs included zero. Figures 3 and 4 show the indirect effect of anger display on integrative behavior (through problem identification) at high and low levels of the two moderators (i.e., prevention focus and perceived team goal interdependence). As expected, for individuals with high levels of prevention focus, anger display was positively and indirectly related to integrative behavior through problem identification when team goal interdependence was perceived as being low. However, when individuals had low levels of prevention focus or high perceived levels of team goal interdependence, the indirect effect of anger display on integrative behavior was not significant. These results support Hypothesis 3.[2]

7 | GENERAL DISCUSSION

By connecting social emotion literature and self-regulation research (Geddes & Callister, 2007; Higgins, 2005; Lindebaum & Fielden, 2011; Van Kleef et al., 2010), we conceive of the functionality of anger as an experience of interpersonal regulatory fit and identify the specific conditions in which, and the mechanism via which, this functionality may occur. Past studies (primarily from domains other than organizational research) have suggested that individual and contextual factors can respectively condition targets' or observers' responses to anger (for reviews, see Geddes et al., 2020; Van Kleef, 2014). Our unique perspective and supportive findings (from three empirical studies)

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[2]Previous research has linked anger display to concessive behavior (e.g., yielding or compromising; De Dreu et al., 2001; Van Kleef, 2014) as a passive form of cooperation. Therefore, we repeated the hypotheses tests across two studies in two post hoc analyses: (a) we used concession as a control variable and (b) we tested for a possible three-way interaction between anger display, prevention focus, and perceived team goal interdependence on the target's concession toward the expresser. Concession was assessed at the dyadic level using three items from Janssen et al. (1999). Sample items included: "[X] yielded to my wishes in case of disagreements" and "[X] gave in during discussions to the advantage of our work" (1 = not at all, 5 = very much; Study 2: α = .76, Study 3: α = .94). This concession variable was transposed to reflect the target's concession to the expresser, as rated by the expresser. The results of these two post hoc analyses suggest that (a) the substantive study findings remained virtually unchanged when controlling for concession and (b) none of the two-way or three-way interactions significantly predicted concessions. Details of these results can be made available upon request.
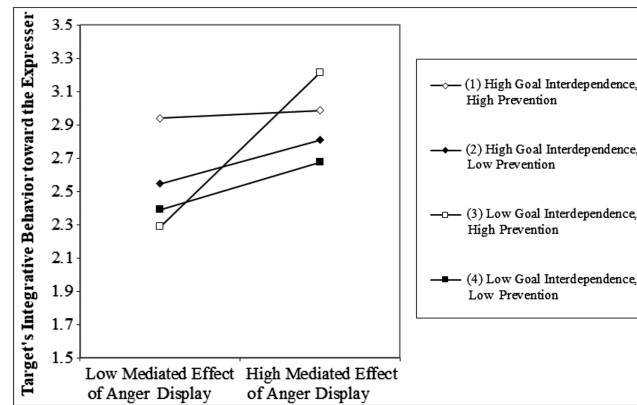
FIGURE 3　Effects of the three-way interaction between the indirect effect of anger display, prevention focus, and perceived team goal interdependence on integrative behavior (through problem identification) (Study 2)
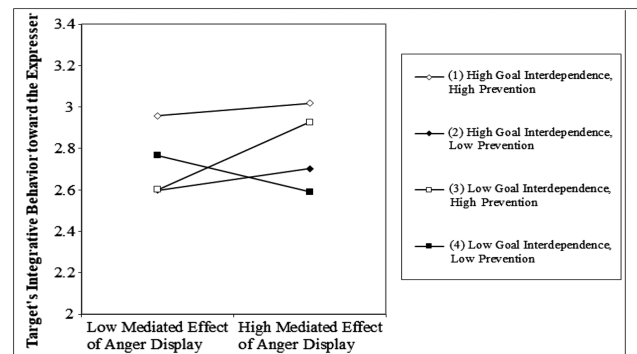
FIGURE 4　Effects of the three-way interaction between the indirect effect of anger display, prevention focus, and perceived team goal interdependence on integrative behavior (through problem identification) (Study 3)

reveal that understanding the social function of workplace anger requires a more holistic consideration of its congruence with targets' regulatory characteristics and social-contextual features. A congruent social context (perceived low level of team goal interdependence) can legitimize anger displays as relatively acceptable or appropriate to convey warning or problem messages to targets (Geddes & Callister, 2007; Lindebaum & Fielden, 2011). To prevention-focused targets, these threat cues are congruent with their regulatory features and thus activate their social coping (Higgins, 2000, 2005). As is evident in our studies, when either of these matching conditions is absent, anger displays are no longer socially functional. In sum, although anger, prevention focus, and perceived low level of team goal interdependence (when considered individually) may not be adaptive or even be regarded as maladaptive for co-workers' interactions (e.g., Janssen et al., 1999; Lanaj et al., 2012; Lelieveld et al., 2012), our findings suggest the adaptive role of their congruence in producing interpersonal functions among team co-workers.

Our work also contributes to the social-functional approach to anger by identifying and demonstrating its integrative function among co-workers. Although past research has suggested the role of anger in informing targets' behavioral adjustment, the vast majority of empirical studies have been conducted in the context of negotiation (see Van Kleef, 2014, for a review). As evident in this body of research, anger displays can inform negotiators to modify their strategies and make greater concessions to avoid impasses (e.g., Sinaceur & Tiedens, 2006; Van Kleef et al., 2004; Van Kleef & Côté, 2007). As a more passive form of cooperation, concessive reactions (e.g., yielding or giving in) may not always be helpful in producing resolution or longer-term collaboration among co-workers (De Dreu et al., 2001; Van Kleef et al., 2010). Our work extends understanding of the functionality of anger by highlighting integrative behavior as an adaptive response to interpersonal anger in work dyads. Integrative behavior provides comprehensive, mutually beneficial solutions for interacting individuals, and is often a more functional response enabling co-workers to maintain constructive work relationships than other retaliatory or concessive reactions to interpersonal anger (De Dreu et al., 2001; Janssen et al., 1999; Van Kleef et al., 2010).

Further, despite the growing interest in the social function of workplace anger, to our best knowledge no research has identified and examined the mechanisms linking anger display with positive co-worker exchange behavior (for reviews, see Geddes et al., 2020; Van

Kleef et al., 2010). The central premise of the functionality view of anger is that expressers' anger displays can signal to targets the problems or frustrations existing in their exchange relationship, urging attention to the issues at stake (Averill, 1982; Geddes & Callister, 2007; Lindebaum & Fielden, 2011; Van Kleef, 2014). We provide direct evidence for this proposition showing that, subject to the hypothesized conditions, dyadic problem identification acts as the behavioral mechanism that turns the problem signals of anger into coping actions for resolution, thus empirically clarifying why and how interpersonal anger "serves adaptive or beneficial purposes" among co-workers (Gibson & Callister, 2010, p. 73).

Finally, our research design offers a methodological contribution to the research domain. Past empirical research on anger and negotiation (one of the core areas on which the social-functional approach of anger is based) has largely focused on the interactions between two individuals, rather than dyadic interactions nested or embedded in a group context (see Van Beest et al., 2008; Van Kleef, 2014). The theoretical anchor and the research design presented in our field studies go beyond this approach by addressing the interpersonal (dyadic) dynamics within a naturalistic multiple person group context. This approach demonstrates the potential to anchor the present dyadic perspective of anger more solidly within the characteristics of focal workers and their perceived social surroundings, warranting a worthwhile direction for future multilevel research to investigate the effects of social emotions on dyadic exchange behavior nested in work teams.

7.1 | Strengths, limitations, and future research

Using differing research designs, samples, and study contexts, we were able to counterbalance the potential limitations of each of our studies, giving us confidence in the validity of the respective interactive relationships.

Despite this study's strengths and contributions, our research has limitations. First, the findings of Study 1 may be inflated given that prevention focus was measured before the manipulation. This may have given participants a greater tendency to view anger displays from a preventive perspective, increasing their integrative behavioral intention. Therefore, findings from Study 1 should be interpreted with caution in this regard. Similarly, common method variance may be a concern in the relationship between anger display and engagement in problem identification in Studies 2 and 3, as both variables were assessed at the same time point by the focal worker (target). However, given our complex three-way interaction results, these issues should not be problematic for our study as recent methodological papers have demonstrated that effect inflations are unlikely to be responsible for significant higher-order interactions if true effects are absent (cf. Lai et al., 2013; Siemsen et al., 2010), and our theory-consistent interaction patterns were constructively replicated across studies.

Second, we did not measure highly intense forms of angry expressions such as rage or the frequency of anger displays. According to

Geddes and Callister (2007), overly intense or frequent anger displays can backfire to trigger maladaptive responses when they cross the threshold or tolerance of a target, thus potentially turning an initially regulatory fit experience into unfit (Higgins, 2005). Future research could consider how the intensity or frequency of anger may influence the congruency notion proposed here. For example, would a prevention focus and its self-control tendency increase a target's tolerance of more intense or frequent anger displays and thus prevent or delay the backfire effect? Also, prevention-focused individuals seek to fulfill "ought" goals and in-role behavior (Higgins, 2000); accordingly, would their increased tolerance of anger (if true) protect their motivation for in-role behavior (e.g., problem coping), but at the expense of reducing their extra-role behavior (e.g., citizenship behavior), directed at their angry counterparts (e.g., Koning & Van Kleef, 2015; Schwarzmüller et al., 2018)? How likely these effects are to occur might again depend on the perceived team context or the relational context between the expresser and target (Geddes & Callister, 2007; Higgins, 2000). Extending our model, future research may capture anger and dyadic exchange behavior, exploring when and how these interpersonal dynamics take place and emerge.

Third, the data for the current research were collected within one country and culture. Future research may investigate how cultural factors may moderate the effects found in our research. Specifically, a qualitative study by Lindebaum and Fielden (2011) suggests that anger displays are perceived as more socially appropriate and functional in context within a "tough" or confrontational culture or norm. Extending our congruency model, further studies could explore how cultural or normative factors may determine a prevention-focused target's inference and response. For example, in a "tough" context, a co-worker's anger might appear more legitimate to the target (driven by "ought" goals), thereby inviting internal attribution (e.g., "my fault") and cooperation from the target. Conversely, in a "soft" context, anger might be seen as inappropriate, especially for a prevention-focused target sensitive to violations of normative standards. The target might then make an external attribution of the emotion (e.g., "the co-worker's discourtesy"), thus ignoring rather than attending to the social information.

7.2 | Implications for practice

Our research findings have practical implications for organizations to create an "appropriate space" (Geddes et al., 2020, p. 28) for expressions of anger and to reap their potential interpersonal utility. First, regular workshops could be held to promote employees' orientation and understanding of the informational function of anger displays they may serve as social or warning cues helpful in preventing interpersonal problems or frustrations escalating or becoming irremediable. Being aware of and alerted to the informational value of anger (rather than viewing it as hostile or intimidating) can promote team members' problem-oriented responses adaptive to interpersonal resolution. Second, training programs such as emotional intelligence training could be provided to facilitate employees to handle

interpersonal anger appropriately and sensibly. Specifically, training can be designed to inform employees how to (a) detect non-verbal cues of co-workers' anger, (b) develop the right regulatory approach to deal with angry encounters (such as being attentive to the underlying problem messages and understanding their causes or consequences), and (c) realize the unaligned interpersonal goals behind the issue and reflect on one's personal accountability for it. With the appropriate orientation, perception, and approach, problem signals indicated by anger displays would be better attended to and more likely to produce problem diagnosis and resolution among co-workers.

8 | CONCLUSION

There is an emerging shift from dysfunctionality to the functionality view of workplace anger. We contribute to this movement by conceiving the social function of anger as a form of interpersonal regulatory fit experience. With supports from three empirical studies, our research sheds light on the importance of the congruence of anger display, regulatory focus, and perceived social context in promoting interpersonal problem solving and integration among co-workers. This offers a meaningful step forward in understanding why anger and its corresponding personal and contextual factors may converge to bring about interpersonal benefits, opening new avenues for organizational studies to further investigate matching contingencies in its social functional role.

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APPENDIX A.

Scales Used in Study 1 (Experiment)

Prevention focus (Neubert et al., 2008).

The statements below describe your personal characteristics. Please indicate the extent to which you agree with these statements (1 = *strongly disagree*; 5 = *strongly agree*):

1. I focus my attention on avoiding task failure (losses)
2. I do everything I can to avoid loss when working on tasks (losses)
3. I am very careful to avoid exposing myself to potential losses when working on tasks (losses)
4. I strive to live up to the responsibilities and duties given to me by others (oughts)

5. I focus my attention on completing my assigned responsibilities (oughts)
6. Fulfilling duties is very important to me (oughts)
7. I concentrate on completing tasks correctly to increase my sense of security (security)
8. I am often focused on accomplishing tasks that will support my need for security (security)
9. Sense of security is an important factor for me when working on tasks (security)

Integrative behavioral intention (adapted from Janssen et al., 1999).

Based on the scenario described above, please indicate how much would you like to interact with this co-worker as described below (1 = *not at all*; 7 = *very much*):

1. I will try to have a discussion with him in the hope of finding solutions that are satisfying for us
2. I will have a discussion with him in the hope of finding solutions that are suitable for us
3. I will integrate my ideas with his to make a comprehensive decision
4. I will try to reach a consensus with him, for both our interests

Manipulation Checks
Perceived team goal interdependence (Janssen et al., 1999).

Based on the scenario described above, to what extent do you agree with the following statements? (1 = *totally disagree*; 7 = *totally agree*)

1. Goal attainment for one team member facilitates goal attainment for others
2. Gain for one team member means gain for others
3. Success for one team member implies success for others
4. Benefits for one team member involve benefits for others

Anger display (Van Kleef et al., 2010).

In the video, to what extent did this co-worker display the following emotions to you? (1 = *not at all*; 7 = *very much*)

1. Anger
2. Irritation
3. Frustration

Scales Used in Studies 2 and 3 (Field Studies)
Dyadic Measures:
Anger display (Van Kleef et al., 2010).

While interacting with your co-worker [X] in the last two weeks, how much did he or she display the following emotions to you? (1 = *not at all*; 5 = *very much*)

1. Anger
2. Irritation
3. Frustration

Engaging in problem identification (items developed based on Chang et al., 2004; Robertson, 2003).

While interacting with [X] in the last two weeks, how much did you engage in the following behaviors with [X]? (1 = *none*; 5 = *very much*)

1. Exchanged thoughts to understand problems more deeply
2. Came together to diagnose and redefine problems
3. Exchanged ideas to think about problems from different perspectives
4. Discussed together alternative ways to probe into problems
5. Worked together to identify new and potential ideas to look at problems
6. Understood problems from different perspectives

Integrative behavior (items adapted to the dyadic level; Janssen et al., 1999).

How much did [X] engage with you in the following behaviors in the last two weeks? (1 = *not at all*; 5 = *very much*)

1. [X] discussed the issue with me until solutions that were satisfying for us both were found
2. [X] discussed the issue with me until a suitable solution was found
3. [X] and I integrated diverse ideas to make a more comprehensive decision
4. [X] and I tried to utilize opposite visions to reach a consensus that is in both our interests

Individual Level Measures:
Prevention focus (same measurement as used in Study 1; Neubert et al., 2008).
Perceived team goal interdependence (same measurement as used in Study 1; Janssen et al., 1999).

The statements below describe your team. Please indicate the extent to which you agree with these statements (1 = *strongly disagree*; 5 = *strongly agree*):

1. Goal attainment for one team member facilitates goal attainment for others
2. Gain for one team member means gain for others
3. Success for one team member implies success for others
4. Benefits for one team member involve benefits for others